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Case Study: The Landscape Architecture for People in Copenhagen

Yang, Binzhang

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COPENHAGEN BUSINESS SCHOOL
HANDELSHØJSKOLEN
SOLBJERG PLADS 3
DK-2000 FREDERIKSBERG
DANMARK

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Urban Green Spaces for Quality Life

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Urban Green Spaces for Quality Life

- Case Study: the landscape architecture for people in Copenhagen

Binzhang YANG

The PhD School of Economics and Management

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Supervisors: Prof. Verner D. Worm
Prof. Lise Lyck

Centre for Tourism and Culture Management, Copenhagen Business School

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English Foreword

The entering of the 21st Millennium marked a new era of development for our civilization and society where mankind is paying to greater extents attention to their living condition, living environment, life style and life quality. Therefore, the sustainable development concept is deeply understood and accepted by the broader public, and is manifested in various aspects and fields.

China and Denmark are two countries with tremendously distinctive disparity, one being huge in geographical scale but behind in development while the other one being small but leading in development; one making effort for achieving industrialization and urbanization while the other one already experiencing post-industrialism, post-modernism and post-urbanism. Currently, China is at the stage of rapid development of industrialization and urbanization. Due to historical and cultural reasons as well as economic and infrastructural limitations, China is confronted with inherent and man-made issues not only in the planning but also in the construction of urban green spaces. Thus, by learning the successful practices and experiences from developed countries such as Demark and using them as references, China would benefit profoundly in terms of changing the current urban green space structure, promoting the urban environmental quality and improving people's living standards. Based on the above-mentioned thinking, this research utilizes Copenhagen as a case study focusing on following research questions: 1) how it ensures systematic and orderly development through the use of the urban planning; how it builds green barriers for the urban area through preservation of farm land, wood land and other natural areas; 2) how it creates diversified types of urban green space through planning and design methodologies of landscape architecture, and provides a pleasant working and living environment to its citizens as well as promotes the city's life quality and image.

During the process of defining the research direction, I have gained kind help from my supervisors Professor Lise Lyck and Professor Verner Worm, as well as the support from the Head of Doctoral School, Professor Ms. Danna B. Minbaeva and the coordinator of doctoral group in Marketing Department, Professor Torsten Ringberg. This dissertation is a result of my research works which mainly derives from my academic publications in the past few years based on observation, investigation, consideration and field study of the developing history and achievements of Danish Landscape Architecture in modern time. It includes the following sections: 1) the research of the Copenhagen "Finger Plan" related to its background, evolution, development and current condition; 2) the research of the urban park design, Harbor Park in Copenhagen as a case study; 3) the study on the developing history and artistic features of children's playgrounds in Copenhagen; 4) the research on the development and current condition of cemetery in Copenhagen as a type of green space; 5) the research of the philosophy and representation methods in Danish landscape architects' designs. According to the initial research plan, an additional number of papers should also have been published focusing on special types of landscape design such as the college campus, the hospital outdoor space, urban parks, residential areas as well as a further study of certain Danish famous landscape architects and scholars in this area. Unfortunately, these works have not been completed due to the limitation of time and personal ability, which is a pity. Nevertheless, I will continue to explore these research areas after I finish my work at CBS. Even though this dissertation does not provide a complete picture of every aspect of the Danish landscape architecture, it is able to provide contents for study and reference.

Looking back at the journey of learning and research in the past few years, it contains joy and happiness as well as pain and confusion. I was absolutely attracted by this so-called "Fairytale Kingdom", since I first arrived in 1996. As I

established better knowledge of the country, a strong wish for obtaining a doctoral degree here was fostered in my mind. However, the opportunity did not come easily. In 2004, I received a chance to do research work at the Centre for Tourism and Culture Management (TCM) in Copenhagen Business School (CBS) as a guest scholar. The favorable working conditions and strong academic atmosphere encouraged me to reconsider the PhD dream, which I in May 2005 expressed to Prof. Lise Lyck and gained her kind support. However, due to strong competition for application, I was not offered an opportunity. In Feb. 2006, I submitted my application to the Department of Geography in Roskilde University, and received to my surprise a positive response from Prof. Michael Haldrup on Feb 13th. In the meanwhile, Lise did not stop her effort to help me apply for the PhD. position. Finally, I received an official letter signed by Mr. Finn Junge-Jensen, the former president of CBS, on 28th March, 2006 informing me that I have been accepted as a PhD student by the CBS Doctor Selection Committee and that the register time started on 1st April, 2006. Having just passed my 46th birthday, my journey for a PhD degree began. On one hand, the source of joy and happiness in study and research comes from the help and support by my family, supervisors, friends and colleagues, as well as the excitement of acquiring new knowledge and making continual progress for the research work. On the other hand, the pain and confusion in this process were caused by the hardship of exploring new academic territories and the tremendous stress that was present. Fortunately, I have finally completed this tough journey with the encouragement and support from my family members, supervisors and colleagues.

I would like to use this opportunity to express my sincere gratitude to my family members; to Mr. Finn Junge-Jensen, the former president of Copenhagen Business School; to Prof. LI Jian, former headmaster of my home university, current headmaster Prof. YANG Chuanping, vice headmaster CAO Jun in

Northeast Forestry University (NEFU), China; to Dean of School of Landscape Architecture (SLA) at NEFU, Prof. XU Dawei; Chairman of SLA Board, Prof. WU Jianping, thanks for their powerful support and help in those years. My thanks also goes to Prof. Peder Boas Jensen from School of Architecture at the Royal Academy of Fine Arts; to Prof. Jatt Abel from Faculty of Life Sciences at Copenhagen University; to the Danish landscape architects Mr. Jeper Aargaar Anderson, Mr. Stig L Andersson, Mrs. Hellen Nebelong, Mrs. Annemarie Lund and all the friends in the Center of Park administration in Copenhagen Municipality. I would also like to thank my colleagues and friends, Mrs. Susanne Faurholdt, Mr. Kristian Hvass, Mr. Kasper Vind Teilman and Mrs. Lene Granzau Jacobsen. I want to send my special thanks to Mr. WU Hua, the former first secretary of education section in the Chinese embassy in Denmark, who helped me to gain the Cirrus Founding. Moreover, I need to thank my student Miss ZHAO Chunli, who helped me with picture editing and typing. Last but not least, the most sincere gratitude to my supervisor Prof. Lise Lyck, it would not be possible for me to finish my dissertation without her firm support and powerful help. And the same special thanks to my supervisor Prof. Verner Worm, the review of the dissertation and the final defense cannot run smoothly without his help. In addition, I should express my deep gratitude to the members of the committee and their work.

Binzhang YANG

Jan 20, 2012 Copenhagen, Denmark

November 8, 2013, Harbin, China

Dansk Forord

Indtræden i det nye millenium markerede begyndelsen på en ny udviklingsfase i menneskehedens civilisation og samfund, hvor vi retter i stigende grad blikket mod egne levevilkår, levestil, livskvalitet og livsmiljø. Derfor er konceptet af bæredygtige udvikling blevet i mere omfattende forstand forstået og accepteret af den brede befolkning, og kommer til udtryk i adskillige aspekter og områder.

Kina og Danmark er to yderst forskellige lande, det ene er stor i geografisk scala men bagud i udvikling, mens det andet er lille i størrelse men førende i udvikling, det ene arbejder hårdt for at opnå industrialisering og urbanisering, mens det andet allerede befinder sig i post-industrialisering, post-modernisering og post-urbanisering. Grundet historiske, kulturelle såvel som økonomiske og infrastrukturelle begræsninger konfronteres Kina med naturlige og menneske-skabte udfordringer ikke blot i forbindelse med planlægningen men også i forbindelse med konstruktionen af urbane grønne områder. Ved at tage ved lære af de successrige erfaringer fra i-lande som Danmark, vil det uden tvivl gavne Kina enormt på punkter såsom omstrukturering af nuværende urbane grønne områder, fremme kvalitet af bymiljø og forbedring af menneskers levestandarder. På baggrund af denne anskuelse anvendes der i dette forskningsarbejde København som et case-study til at undersøge følgende: 1) hvordan der sikres en systematisk og ordentlig udvikling af byen ved brug af byplanlægning; hvordan byens grønne barrierer er dannet ved fredning og bevaring af landbrugs arealer, skove og andre naturområder; 2) hvordan der skabes forskelligartet urbane grønne områder i byen ved landskabsarkitektonisk planlægning og design metoder,

hvorfra der leveres et attraktivt arbejds- og livsmiljø for dens indbyggere og fremme dens livslvalitet og omdømme.

Under forløbet hvor denne afhandlings forskningsområde blev fastlagt, har jeg fået hjælp fra mine vejledere Professor Lise Lyck og Professor Verner Worm, og støtte fra the Dean of Doctoral School, Professor Ms. Danna B. Minbaeva og Ph.D. koordinator i Institut for Afsætningsøkonomi Professor Torsten Ringbjerg. Denne afhandling er resultatet af mit forskningsarbejde, hvilket er primært baseret på mine publicerede videnskabelige artikler i de sidste få år, og skrevet ud fra iagtagelser, undersøgelser, overvejelser og feltstudier omkring udviklingshistorien og værkerne af den danske landskabsarkitektur i nyere tid. Afhandlingen indeholder følgende afsnit, 1) forskningen omkring Københavns Fingerplan med henblik på dens baggrund, udvikling og aktuelle forhold; 2) forskningen omkring urbant parkdesign hvor Havneparken i Islands Brygge anvendes som et casestudie; 3) forskningen omkring udviklingshistorien og de æstetiske og kunstneriske træk i de københavnske legepladser; 4) forskningen omkring udviklingen af og de aktuelle forhold på københavnske kirkegårde som grønt område; 5) forskningen omkring filosofien og repræsentationsmetoderne i de danske landskabsarkitekters værker. Ifølge den første forskningsplan skulle et yderligere antal artikler publiceres med fokus rettet mod særlige kategorier af landskabsdesign såsom universitetscampusser, udendørs områder tilhørende hospitaler, urbane parker, beboelsesområder og et dybtgående studie af kendte danske landskabsarkitekers værker i dette område. Dette arbejde er dog ikke blevet fuldført på grund af tidsmæssige og personlige begræsninger, hvilket er ærgerligt. Ikke desto mindre vil jeg fortsætte med at forske i disse faglige områder efter arbejdet på CBS. Selvom denne afhandling ikke tilvejebringer et fyldestgørende billede på ethvert aspekt indenfor den danske landskabsarkitektur, kan dens indhold benyttes til læring og som reference.

Når jeg ser tilbage på lærings- og forskningsrejsen i de seneste år indebærer den både glæde og lykke og smerte og forvirring. Jeg følte fuldstændigt tiltrukket til dette såkaldte ”eventyrland”, lige siden min første ankomst i 1996. Efterhånden som jeg stiftede bedre kendskab til landet, blev et stærkt ønske om at modtage en Ph.D. grad her i landet fosteret i mit hoved. Muligheden kom dog ikke let. I 2004 fik jeg muligheden for at arbejde på Centre for Tourism and Culture Management (TCM) på Copenhagen Business School (CBS) som gæstforsker. De attraktive arbejdsforhold og den favorable akademiske stemning fik mig til at genoverveje Ph.D. drømmen, hvilket jeg udtrykte til Prof. Lise Lyck og fik hendes støtte. Jeg blev dog ikke tilbudt en plads foreløbigt. I feb. 2006 sendte jeg en ansøgning til Institut for Geografi på Roskilde Universitetscenter, og snart modtog jeg til min store overraskelse positivt respons fra Prof. Michael Haldrup den 13. feb. Imellemtiden opgav Lise ikke med sin indsats for at hjælpe mig med at ansøge om en Ph.D. stilling. Endelig modtog jeg det officielle brev, underskrevet af den daværende rektor på CBS Hr Finn Junge-Jensen, om at jeg er blevet optaget som Ph.D. studerende af CBS Doctor Selection Committee, og at det skulle påbegyndes den 1. april 2006. Således startede min rejse mod en Ph.D. grad, kort efter min 46. fødselsdag. På den ene side stammer kilden til glæde og lykke i læring og forskning fra hjælp og støtte fra min familie, vejledere, venner og kollegaer, og ligeledes begejstring i tilegnelse af ny viden og kontinuerlig fremskridt i forskningsarbejdet. På den anden side stammer smerte og forvirring i denne proces fra modgang i udforskningen af nye akademiske territorium og den kolosale mængde stress som var til stede. Jeg har nu endelig fuldført denne hårde rejse med hjælp og støtte fra mine familiemedlemmer, vejledere og kollegaer.

Jeg vil gerne benytte denne mulighed til at udtrykke min store taknemmelighed til mine familiemedlemmer; den tidligere rektor på CBS Hr Finn Junge-Jensen; Prof. LI Jian, den tidligere rektor på mit hjemme-universitet, den

nuværende rektor Prof. YANG Chunping, vicerektor CAO Jun på Northeast Forestry University (NEFU), Kina; rektor på School of Landscape Architecture (SLA) på NEFU, Prof. XU Dawei; Formand of SLA Board, tak for deres uundværelige støtte og hjælp i disse år. Jeg vil også gerne takke Prof. Peder fra Kunstakademiets arkitekskole, Prof. Jatt Abel fra Faculty of Life Sciences på Københavns Universitet, den danske landskabsarkitek Hr Jeper Aargaar Anderson, Hr Stig L Andersson, Frk Hellen Nebelong, Frk Annemarie Lund og alle vennerne fra Center for Park og Natur i Københavns Kommune. Derudover vil jeg gerne sige en stor tak til mine kollegaer og venner Susanne Faurholdt, Kristian Hvass, Kasper Vind Teilman og Lene Granzau Jacobsen. Ydermere vil jeg gerne takke Hr WU Hua, den tidligere første sekretær på Uddannelsesafdelingen på det kinesiske ambassade i Danmark, hvis hjælp resulterede i min modtagelse af Cirrus Founding. Endvidere er jeg nødt til at takke min studerende Frk ZHAO Chunli, som hjalp mig med billedredigering og indtastning. Sidst men ikke mindst vil jeg udtrykke min dybeste taknemmelighed til Prof. Lise Lyck, uden hendes urokkelige støtte og betydningsfulde hjælp ville jeg ikke være i stand til at færdiggøre min afhandling. Ligeledes en særdeles stor tak til min vejleder Prof. Verner Worm, uden hans hjælp vil evalueringen af afhandlingen og det endelige Ph.D.-forsvar ikke foreløbe problemfrit. Til sidst ønsker jeg at udtrykke min dybe taknemmelighed til medlemmerne af bedømmelsesudvalget og deres arbejde.

Binzhang YANG

Den 20. jan. 2012, København, Danmark

November 8, 2013, Harbin, Kina

English Summary

Urban green spaces have a significant impact on the balance of urban ecosystem, the adjustment of urban environment and especially the enhancement of urban citizens' life and work quality. A city's image and its citizens' health and well-being is to a certain extent directly affected by whether the quantity of urban green spaces is sufficient, whether the distribution is reasonable and whether the functionality is complete. Therefore, the planning and construction of urban green spaces are already being viewed as a city's green infrastructure as well as the guarantee of a city's sustainable development.

Currently, China is on the fast track of an urbanisation process. How to handle environmental protection and how to maintain the relationship between ecosystem, urbanisation and city construction are crucial projects China is facing. In this respect, developed Western countries is one step ahead of China and have aggregated massive valuable experience which China can learn from. With this as aim, this Ph.D. research discusses the relationship between urban green spaces and citizens' life by studying the creation and evolvement of green spaces in Copenhagen. The research focus is to discuss the development situation of this city's urban green spaces and what can be learned by China.

This dissertation consists of six chapters. Chapter One is introduction and its main content is the research background, research questions, research objectives and research methods. The research questions include ① What is the Danish urban planning system consisted of? How does Copenhagen "Finger Plan" provide support for the development of the city and the protection of the green spaces? ② What are Copenhagen's urban green spaces comprised of? Which categories and characteristics are there? What are especially the characteristics of the special

types of green spaces? ③ What are the design philosophies of the Danish landscape architects? How are the philosophies reflected in their planning and design work? ④ What experiences have Copenhagen achieved for the development of urban green spaces? Which inspirations can China gain for its construction of urban green spaces and the development of landscape architecture?The research methods include induction and deduction based on literature reviews, historical studies, in-depth investigations and field observations. At the same time, qualitative and quantitative research methods are employed.

Chapter Two presents basic concepts and theories and forms the foundation of this research. The conducted research work is multidisciplinary and primarily touches the urban planning discipline, the landscape architecture discipline and other relevant social science disciplines. The research especially employs basic concepts and theories from two disciplines, urban planning and landscape architecture. The content of this chapter includes urban planning and landscape architecture, urban spaces and urban green spaces, outdoor recreation and quality of urban life, the development of urban space theory and the evolvement of urban green spaces among others.

Chapter Three is about Copenhagen’s green barriers and discusses the establishment planning and protection strategy of Copenhagen's green spaces. It contains an analysis and discussion of Copenhagen Finger Plan's more than 60 years of evolvement since firstly proposed in 1947 and includes Copenhagen's urban planning system, evolvement and characteristics. This chapter has emphasis on especially the formation background and content of Copenhagen Finger Plan as well as the evolvement background and process for its second to seventh version.

Chapter Four concerns Copenhagen’s green spaces and studies the transformation of the green spaces' development in Copenhagen which is also the

focus of this research. This chapter discusses in detail the transformation of urban green spaces in Denmark, the constituents of the urban green space system in Copenhagen and focuses on a number of categories of urban green spaces including parks, children's playgrounds and cemeteries. Through analysis of selected site examples, how parks, children's playgrounds and cemeteries are planned, designed and constructed according to changes in Copenhagen's urban development and citizens' life quality are thoroughly examined.

Chapter Five analyses the design philosophies of Danish landscape architects and focuses on how Danish landscape architecture improves urban environment and fulfills citizens' demand throughout the development process of urban green spaces. It concerns landscape architects which historically have had significant influence on the development of Danish landscape architecture and especially focuses on two world renowned Danish landscape architects of our time, their design concept and style.

Chapter Six deals with the inspirations which can be gained from the development of urban green spaces in Copenhagen and is not only another important research topic, but also the closing topic of this study. With respect to utilising planning methods to protect urban green spaces and planning designs to create urban green spaces, Denmark including Copenhagen have conducted its own advantageous exploration and established its own unique practice and style which can exactly function as the building blocks of learning and reference for China.Therefore based on research from the previous five chapters, especially through analysis and discussion in Chapter Two, Three, Four and Five, a number of aspects with inspiration implications are concluded concerning China's modern city development and urban green spaces. These include emphasising on the scientific aspect and stability of city planning, emphasising on the significance of Copenhagen Finger Plan's mode, emphasising on the construction of urban green

spaces, emphasising on the creation of landscape architecture form with national characteristics and emphasising on the standardisation of the landscape architecture education.

It should be mentioned that along withfurther development of China's reformand opening-up and further accumulation of experience, along with China's further learning and reference from developed countries, along with Chinese scholars, planners and designers' further research of urban green spaces and better grasp of city construction patterns, the planning, designing and building of Chinese urban green spaces will gradually be on its way towards maturation and success. Then more beautiful, more comfortable and more sustainable green spaces can be provided to Chinese citizens.

Dansk Resumé

Grønne områder i byen har en betydningsfuld effekt på balancen i det urbane økosystem, reguleringen af bymiljøet og især forbedringen på indbyggeres livs- og arbejdskvalitet. En bys image og dens indbyggeres sundhed og velvære er til en vis grad direkte påvirket af om antallet af urbane grønne områder er tilstrækkeligt, om fordelingen er passende og om funktionaliteten er fuldstændig. Derfor betragtes planlægningen og opførelsen af grønne byrum allerede som en bys grøn infrastruktur og garantien for en bys bæredygtig udvikling.

På nuværende tidspunkt befinder Kina sig på et hurtigt udviklingsspor i urbaniseringsprocessen. Hvordan miljøbeskyttelsen håndteres og hvordan forholdet mellem økosystem, urbanisering og konstruktion af by opretholdes er essentielle projekter Kina konfronteres med. I denne henseende er de vestlige I-lande foran Kina, og har samlet massivt værdifuld erfaring som Kina kan lære af. Med udgangspunkt i dette diskuterer ph.d. studiet forholdet mellem grønne byrum og indbyggeres liv ved at belyse opførelsen og forandringsprocessen af grønne områder i København. Fokus i dette studie er at diskutere udviklingssituationen på de grønne byrum, og de punkter Kina kan tage ved lære af.

Afhandlingen består af seks kapitler. Kapitel Et er en introduktion og omhandler baggrunden for studiet, arbejdsspørgsmålene i studiet, formålet med studiet og de anvendte metoder i studiet. De arbejdsspørgsmål som analyseres i studiet er (1) Hvad består det danske system for byplanlægning af? Hvordan støtter Fingerplanen Storkøbenhavns byudvikling og beskyttelse af grønne områder? (2) Hvad består Københavns grønne områder af? Hvilke typer områder og karakteristika er der tale om? Hvilke karakteristika repræsenterer specielle typer grønne områder? (3) Hvilke designfilosofier bruges af de danske

landskabsarkitekter? Hvordan kommer filosofierne til udtryk gennem deres planlægnings- og designarbejde? (4) Hvilke erfaringer er der opnået i København angående udviklingen af urbane grønne områder? Hvordan kan Kina med fordel bruge København som inspiration under opførelsen af grønne områder og i landskabsarkitekturen? De metoder som anvendes i studiet består af induktion og deduktion baseret på blandt andet litteraturstudier, historiske studier, dybdegående undersøgelser og feltobservationer. Derudover er den kvalitative og kvantitative forskningsmetode implementeret.

Kapitel To præsenterer de fundamentale koncepter og teorier, somdanner grundlag for afhandlingen. Studiet er tværfagligt, og berørerprimært fagområder såsom byplanlægning, landskabsarkitektur og andre relevante samfundsvidenskabelige fagområder. Især koncepter og teorier fra de to fagområder byplanlægning og landskabsarkitektur er brugt i denne sammenhænge. Dette kapitel indeholder blandt andet emner som byplanlægning og landskabsarkitektur, byrum og urbane grønne områder, udendørs rekreationer og livskvalitet i byerne, udvikling af teorien om byrum, tilblivelse og forandringsproces af urbane grønne områder.

Kapitel Tre handler om Købehavns grønne barrierer, og diskuterer planlægningfor etablering og strategi for beskyttelse af Københavns grønne byrum. Det indeholder en analyse og en diskussion af Københavns Fingerplans mere end 60-årige udvikling siden først foreslået i 1947, herunder systemet for Københavns byplanlægning, dets udvikling og dets karakteristika. Dette kapitel har især fokus på Købehavns Fingerplans baggrund for etablering og indhold samt baggrunden for udvikling og udviklingsprocessen for den anden til syvende version af Fingerplanen.

Kapitel Fire omhandler grønne byrum og analyserer ændringen i de grønne byrums udvikling i København, hvilket er dette studies hovedfokus. dette kapitel

gennemgår deltaljeret ændringen i de grønne byrum i Danmark, de delekomponenter af det københavnske system for urbane grønne områder, og fokuserer på en række urbane grønne områder inklusiv parker, legepladser og kirkegårde. Gennem udvalgte eksempler er sammenhængen mellem hvordan parker, legepladser og kirkegårde er planlagt, designet og konstrueret i forhold til ændringen i Københavns byudvikling og indbyggeres livskvalitet er grundigt analyseret.

Kapitel Fem analyserer danske landskabsarkitektersdesignfilosofier, og fokuserer på hvordan danske landskabsarkitekter forbedrer bymiljø og imødekommer indbyggeres behov gennem udviklingsprocessen af de grønne byrum. Dette kapitel omhandler landskabsarkitekter, som historisk set har haft stor betydning for udviklingen af dansk landskabsarkitektur, og har især fokus på to af nutidens verdenskendte danske landskabsarkitekter, deres designkoncept og stil.

Kapitel Seks omhandler de inspirationer som kan fås fra udviklingen af de grønne byrum i København, og er ikke kun endnu et vigtigt emne, men også det afsluttende emne i studiet. Med hensyn til udnyttelse af planlægningsmetoder som beskytter de grønne byrum og planlægninsdesign som skaber de grønne byrum har Danmark, herunder København, udført dens egen fordelagtige udforskning og etableret dens egen unikke fremgangsmåde og stil, som netop kan fungerer som byggesten for Kinas læring og reference. Derfor baseret på studiet i de fem forrige kapitler, især gennem analyse og diskussion i Kapitel To, Tre, Fire og Fem er en række aspekter med implikation til inspiration konkluderet angående Kinas moderne byudvikling og de grønne byrum. Disse inkluderer at lægge vægt på videnskaben og stabiliteten i byplanlægning; vægt på vigtigheden af Fingerplanmodellen; vægt på opførelsen af grønne byrum; vægt på at skabe former for landskabsarkitektur med nationale elementer; og vægt på standardiseringen af landskabsarkitektur-uddannelsen.

Det bør nævnes, at sammen med en yderligere udvikling af Kinas åbningsreformer og yderligere akkumulering af erfaring; sammen med Kinas yderligere læringog reference fra I-lande; sammen med kinesiske forskere, planlæggere og designers yderligere studier af grønne byrum og bedre greb om urbane konstruktionsmønstrer vil planlægning, design og opførelse af kinesiske grønne byrum gradvist bevæge sig mod modning og succes. Derefter vil flottere, mere komfortable og mere bæredygtige grønne byrum være tilgængelige for kinesiske indbyggere.

Content

Chapter 1 Introduction 1
1.1 Background 1
1.2 Research questions 4
1.3 Research objectives 7
1.4 Methods of research 8
1.4.1 Literature Review 8
1.4.2 Historical Study 10
1.4.3 In-depth interview 11
1.4.4 Field Observation 13
1.5 Conclusion 14

Chapter 2 The basic concepts and theories 16
2.1 Introduction 16
2.2 Urban planning & Landscape architecture 16
2.2.1 Urban planning 17
2.2.2 Landscape architecture 20
2.3 Urban spaces & Urban green spaces 25
2.3.1 Definition of Urban space 26
2.3.2 Theoretical development of urban space 29
2.3.3 Urban green space 39
2.3.4 Developmental evolution of urban green space 46
2.4 Outdoor recreation and quality of urban life 60
2.4.1 Outdoor recreation 61
2.4.2 Quality of urban life 68

Chapter 3 Backbone for Copenhagen's urban green spaces 73
3.1 Introduction 73
3.2 The system of Danish spatial planning 76
3.2.1 Establishment of urban planning system in Denmark 78
3.2.2 Evaluation of urban planning in Denmark 82
3.2.3 Content of urban planning in Denmark 90
3.2.4 The features of Danish city planning 95
3.3 Background and context for first-version of Copenhagen Finger-Plan 97
3.3.1 Introduction 97
3.3.2 Background of Finger-Plan proposed 100
3.3.3 Reasons for Finger-Plan proposed 103
3.3.4 Princibles and contents of Finger-Plan 106
3.3.5Conclusion 111
3.4 The Background and Processes of Evolution on Copenhagen Finger Plan (Part One) 111
3.4.1Introduction 112
3.4.2 Second version of Finger-Plan – planning in 50s-60s 20th Century 115
3.4.3 Third version of Finger-Plan – planning in 70s, 20th Century 123
3.5 The Background and Processes of Evolution on Copenhagen Finger-Plan (Part Tow) 129
3.5.1 Fourth version of Finger-Plan – planning in 80s-90s, 20th Century 129
3.5.2 From fifth to seventh version of Finger-Plan – planning in 20ty century 135
3.6 Conclusion 144

Chapter 4 Green spaces for Copenhagen city 146
4.1 Introduction 146
4.1.1 The evolution of Danish urban green space 147

4.1.2 The system of green spaces in Copenhagen 156
4.1.3 The urban park in Copenhagen 160
4.1.4 Conclusion..... 167
4.2 Harbor Park in Copenhagen..... 170
4.2.1 The historical back ground..... 171
4.2.2 The site analysis 173
4.2.3 The design of park..... 175
4.2.4 The inspirations from Harbor Park 182
4.2.5 Conclusion..... 185
4.3 Features Analysis of the Design Art in Danish Cemetery 185
4.3.1 Introduction 186
4.3.2 The principles for cemetery 188
4.3.3 The forms of cemetery 193
4.3.4 The plant design for cemetery..... 196
4.3.5 Conclusion..... 202
4.4 The Historical Development of Danish Playground and Inspirations from it..... 202
4.4.1 The development history of Danish playground..... 203
4.4.2 The impacts and contributions of Danish playground 213
4.4.3 The inspirations from Danish playground development..... 218
4.4.4 Conclusion..... 220
4.5 Analysis of Design Art in Danish Children Playground 220
4.5.1 Introduction 221
4.5.2 The kinds of playground 222
4.5.3 The principles for playground design 225
4.5.4 The patters of playground design..... 230
4.5.5 Conclution 236

Chapter 5 The philosophies of Danish landscape architects 237
5.1 Introduction 237
5.1.1Erik Erstad-Jøgensen's contribution to the garden art 240
5.1.2 G. N. Brandt's contribution to garden art 242
5.1.3 C. T. Sørensen's contribution to Danish garden art 246
5.2 Philosophy and Its Expression in J. A. Andersen's Landscape Design Works 251
5.2.1 Introduction 251
5.2.2 The style of design: simple forms 253
5.2.3 The ideals of design: human dimension 256
5.2.4 The languages of design: harmonious delication 259
5.2.5 The design of principles: natural integration 261
5.2.6 Conclution 263
5.3 Philosophy and Its Expression of Landscape Architecture in S. L. Andersson's Design Works 264
5.3.1 Introduction 264
5.3.2 Philosophy of landscape architecture in S. L. Andersson's design works 266
5.3.3 Artistic approaches of landscape architecture in S. L. Andersson's design works 273
5.3.4 Conclusion 280

Chapter 6 Inspirations from the development of urban green spaces in Copenhagen 282
6.1 Introduction 282
6.2 Concerning scientific and steadiness for urban planning 284
6.3 Concerning significance of the Finger Planning modal for China 288
6.4 Concerning the construction of urban green spaces 295

6.4.1 Great efforts to strengthening the construction of urban green space 296
6.4.2 Great efforts to strengthening the protection of urban green space 302
6.4.3 Great efforts to strengthening the design work of urban green space 306
6.5 Concerning for creating a landscape architecture style with native features 308
6.5.1 Path for neo-Chinese style: historic fortuity and era certainity 308
6.5.2 Connotation for neo-Chinese style: native characters and era features ... 311
6.5.3 Path for neo-Chinese style: exterior integration and interior innovation 313
6.5.4 Conclusion 318
6.6 Concerning the normative construction on landscape architecture education 318
6.6.1 Premise for the educational normative: consensus in the positioning 321
6.6.2 Basis for the educational normative: demand in the workplace 324
6.6.3 Content for educational normative: Diversity in unity 327
6.6.4 Process for educational normative: Progress in exploration 328
6.6.5 Conclusion 330

Danish Version in Brlef 331

Chapter 1 Introduction

1.1 Background

Along with the economic growth and the continuous progress in science and technology after the Second World War, especially under the driving force of industrialization, urbanization, informatization and globalization, human civilization has entered an unprecedented period in its history of development. Since the 21st century, such development has been accelerated by the rise of emerging economies, such as Gold Brick countries like China, India, Brazil and Russia, and has brought about significant revolutions to human activities and lifestyle. Meanwhile, together with such profound changes there also come some disturbing global problems such as climate change, environmental pollution, ecological balance and resource scarcity. Those problems have forced people to start re-examining and rethinking about the relation between human and nature, as well as reflecting on the developing method and living pattern of themselves. In this way, people are forced to pay attention to the issue of sustainable development. Since the cities are the main area where people work and live, the sustainability of their development is directly linked to people's quality of life. Therefore, urban green space, one of the crucial factors guaranteeing the urban life quality, has naturally become a hot issue of attention.

As a matter of fact, after the industrial revolution, especially after the 19th century, western countries have witnessed a series of drawbacks such as environmental pollution, deteriorating sanitation and prevalence of illness, all brought by the blind urban construction and haphazard development in the process of early urbanization. Therefore, they have begun to gradually attach attention to fields of urban environment, urban planning and urban greening, and have made efforts to improve the living conditions of citizens and fulfill their needs in work,

life, recreation and entertainments through increasing the quantity and coverage of parks and greeneries to build urban green spaces. Through over a century of development and construction, urban green spaces in the cities of developed western countries have not only provided a comfortable environment for citizens to live and work in, but have also upgraded the cities' images and enhanced the cities' influences, coherence and attractiveness, thus injecting vitality and dynamism to the cities' economic growth.

Among Western developed countries, Denmark is just a relatively small country with a land area of 42,000 square kilometers and a population of 5.4 million, but it managed to gradually realize the transition from an impoverished agricultural country to a modern industrialized country through its continuous construction for more than half a century after World War II. It has established a social system based on political democracy, social equality, prosperous economy and a sound welfare system. Denmark has become a well-respected nation not only for its leading position in economic, social, cultural, and other various fields, but also for its remarkable achievements in such aspects as homeland governance, environmental protection, and residential environment construction. In 2009, Copenhagen was ranked 11th place by the internationally renowned magazine Mercer in its 'Quality of Living Global City Rankings 2009'. It ranked first as 'Most Livable City' in international Lifestyle Magazine Monocle in 2008, and came second only to Munich in 2010. It ranked fourth after London, Paris and Berlin in the Top 50 European Cities ranking of Financial Times-owned FDi Magazine 2008, and was nominated as the Scandinavian City of Future by FDi in Year 2006-2007[1]. In the 2010 Gallup World Pull: Happiest Countries and Regions, Denmark ranked first among the 155 countries surveyed.[2]

[1] Copenhagen. http://en.wikipedia.org/wiki/Copenhagen. 04-28-2011.
[2] 马晶.全球最幸福国家排名:丹麦居首,美国排 14,中国排125,新京报, http://news.qq.com/a/20100717/000077.htm, 28-06-2012.

In comparison to Western countries, China went through more obstacles in its process of modernization. In the past three decades, China's economic and social development has gained new momentum thanks to the reform and opening up policy, and has embarked on a journey of rapid growth. Not only has economy and society obtained profound progress, people's living standard has witnessed significant improvement, the process of urbanization has also reached a remarkably rapid speed. As documents show, to increase the urbanization rate from 20% to 40% took 120 years for Britain, 100 for France and 80 for Germany. The same process took the United States and Japan respectively 40 years and 30 years, while China accomplished the process in merely 22 years.[3]

Currently, China is undergoing the rapid development of industrialization and urbanization. The Urban Blue Book 2010 published in July 2010 by Chinese Academy of Social Sciences predicted that in 2015 China's urbanization rate would exceed 50%, and that the urban population would outnumber the rural population for the first time4. However, it has raised to 51.27％ in 2011 and even 52.57％ in 2023. As projected by other researches, in the upcoming 20 years, urbanization rate would rise from 47%, as in 2009, to 65% in year 2030. 56 If China manages to achieve this ambitious goal, it would be an unprecedented and significant social change in human history. Meanwhile, it remains a huge challenge how to accomplish such transformational development, and at the same time to guide China to a path of sustainable development, a path of harmonious coexistence between human and society, between human and environment, and between human and nature. More specifically, how to, through scientific planning and optimal distribution, create beautiful, well-functioning and ecologically natural urban green spaces where citizens can live, work and entertain themselves,

[3] 陆大道．中国还没摆脱城市化冒进误区.人民网-《人民论坛》,2010 年12 月29 日http://www.chinacity.org.cn/cstj/zjwz/644 62.html．05-01-2011
[4] 国际先驱导报.中国城市化检讨.新华网（2010-10-26 11:03:38 ）, http://www.cityup.org/news/urbanplan/20101028/ 71437.shtml.05-01-2011.
[5]《中国统计摘要2010》, http://zhidao.baidu.com/question/173879950.html (access in Feb. 20, 2011)
[6]《2030 年我国城市化率将达65%》,《中国发展报告 2010：促进人的发展的中国新型城市化战略》, http://www.cnr.cn/allnews/201009 / t20100921_507085232.html (access in Feb. 20, 2011)

is a crucial challenge. Now there have already been indications of various issues concerning China's urbanization process that call for attention. Denmark, in comparison, has accumulated richer experience in such aspect, especially in the planning and construction of its capital Copenhagen, where unremitting efforts and explorations were made to create a rational pattern of urban green space and greenery system constituted by residential greenery, parks, eco-green space and blue waters, thus providing the citizens with good living environment. The experience from Copenhagen can be a template for us to learn about urban planning, which is inspiration of this study.

1.2 Research questions

Urban development is under the influence and constraints of not only its natural condition such as geography, climate and resources, but also its social, political, economic, and cultural factors. In particular, urban development is profoundly affected by the city's urban planning theory, ideology and traditions. "The city is the most majestic master piece of culture and geography, the product of multiple forces working together."[7] Therefore, the formation of urban green space is both a process of history evolution and a process where man and nature, and man and city interact to influence and shape each other. "Winston Churchill said, first we shape our buildings, then they shape us."[8] Men made the city, and the city made men's lifestyle. With the improving science and technology, and men's growing abilities to conquer and reform nature, men are playing a more and more influential role in the process of a city's development. Therefore, for a city under modern concept, the urban planning and design is closely related to both the city's fate and its citizens' well-being and quality of life.

[7] [美]詹姆斯·E·万斯著,凌霓、潘荣译.延伸的城市——西方文明中的城市形态学(The Continuing City – Urban Morphology in Western Civilization), 中国建筑工业出版社,北京,2007(第一版),第 4 页.
[8] 同上

In this thesis, I will first propose two hypotheses: ①Does urban planning have an important guiding significance to the rational, harmonious and healthy development of the city? More specifically, what guiding effects does urban planning have on the development of urban morphology and the layout of urban functions? In this study, it is assumed that urban planning plays an important role safeguarding the urban green space and its growth. ②When constructing the urban green space under the guidance of urban planning, is it possible to properly design and create different types of space to meet different needs of the citizens in their work and living? As for the former hypothesis, theoretically speaking, a scientific and rational plan will surely promote the city's development. In practice however, due to the different problems and challenges faced by the city in different periods, the inconsistent goals chased by different interest groups, the different insights held by leaders, managers and planners of the city in different times, and due to the evolution of science and technology and the changes in lifestyle, the goals, principles, contents and methods of urban planning vary through time, casting direct impact on urban morphology and layout. The latter assumption is directly related to the former one, that is, urban planning affects and constrains the city's morphology and layout, therefore it must be closely linked to the planning, construction and management of urban green space. Under its auspices, the city's image is constituted by the buildings, streets, plazas and other "gray area" which is not endowed with life, and "green area" which contains living characteristics such as the lands and waters where animals and plants habitat. Therefore, to get close to and live in nature will become an integral part of people's life. The planning, design, construction and protection of various types of green space require the guidance of urban planning, and need to rely on the overall planning of the city.

Based on the two hypotheses, the study analyzes the case of Copenhagen and tries to verified the hypotheses through the discussion of the following four questions:

① How is the urban planning system of Denmark constituted? How does the "Finger Plan" of Copenhagen provide support to the development of the city and the protection of green space?

② How is the urban green space of Copenhagen constituted? What are the types and characteristics? More specifically, what are the characteristics of the special types of green space?

③ What is the designing philosophy of Danish landscape architects? How is it reflected in the works of their design?

④ What experiences does Copenhagen have concerning building urban green spaces? What enlightenments do they have on China's urban green space construction and landscape architecture?

By conducting research on the first question, we can have a in depth understanding of the principles, contents, machinery and guarantee of the Danish urban planning system. More than others, by studying the "Finger Plan" of Copenhagen, we can gain a deep insight into the evolution of the city's morphology and space, especially the evolution after late 20th century. The second question examines the specific functions of green space in citizen's daily life, through studying the components, layout, functions and features of Copenhagen's green space, especially the connection between green area and blue area, and the design of special green spaces (such as city parks, playgrounds and cemeteries). The third question focuses on how the Danish landscape architects managed to integrate their personal style to the site condition, citizens' demands and local identity, in order to create comfortable and ecologically favorable green space that satisfied the citizens. The last question aims to discuss the inspirations and meanings of Denmark's case, as well as the doing-ways and experiences drawn from it. It is safe to say that the four questions are codependent and mutually reinforcing. The close links between green space and citizens' life keep growing

tighter along with the development of society and the improvement of living standard. Meanwhile, such links have vastly different nature due to the overall influence of natural, historical and social factors, constituting distinguish features of the cities, as well as shaping and affecting people's lifestyles. Therefore, it is profoundly important to examine the different links between urban green space and public life, so as to enhance and upgrade the city's image, and to improve and ameliorate people's life.

1.3 Research objectives

This thesis aims to gain insights into the process and achievements of Copenhagen's urban green space planning and construction in a comprehensive, systematic and objective manner. At the same time, we will closely examine the present situation and future trends of Copenhagen's green space through different aspects such as laws and policies, machinery and operation, science and technology, and development and innovation. I hope by studying both universal and particular characteristics exposed during Copenhagen's construction of urban green space, we can discover and summarize the social and cultural driving forces behind it, so as to utilize them as references under China's special conditions. In this way, China can take fewer detours in its course of urban construction, so as to more quickly solve existing problems in the process of urban development, especially by correcting the biased cognition in planning and protecting urban green spaces; to reverse the current lagging status of green space planning and construction in China's urbanization, especially by eliminating the phenomenon of imbalance, irrational and unscientific layout of urban green spaces, thus creating a city with beautiful environment, safe ecology and pleasant scenery for people to work and live in.

1.4 Methods of research

Scientific research method is the guarantee to desirable research consequents. Based on the research questions and objectives, case study method is applied in this study. Case study is "a research method that utilizes historical data, files, interviews and observation to collect information and analyze a case with reliable techniques to draw a conclusion with universality."[9] Despite its possible limitations and some controversies over its applicability and regularity, the applicability of case study method is commonly recognized. In terms of this thesis, the induction and deduction based on the literature review, historical study, interviews and field investment and observation are used, incorporated with qualitative and quantitative research methods.

Given the research assumptions and the questions posed, this thesis intends to start with concepts and theories, to review and summarize such concepts as urban planning, green space and social activities, and theories concerning green space development, so as to establish the theoretical foundation and research direction for the follow-up study. Then, we will analyze and examine, layer by layer, each of the three aspects: the planning and evolution of Copenhagen city, the development and construction of Copenhagen green space, and the mentality and methodology of Danish landscape architects. Such insights will not only provide answers to the hypothesis and questions, but also pave the way for the application of the results of this study.

1.4.1 Literature Review

Literature review serves as the foundation and starting point of any study. On the one hand, literature review helps us grasp and understand the theoretical

[9]张梦中,(美)马克·霍哲. 案例研究方法论,《中国行政管理》,2002 年第1 期(总199 期). http://cpac.sysu.edu.cn/Upload Files//200711121 6501 2859.pdf. 04-28-2011.

achievements made by scholars in the related fields, their focal point of concern, discovered facts, accumulated data, their assumptions, conclusions and summaries, as well as the methods and means they used, including data collection, collation and analysis methods, so as to provide theoretical support and methods for reference for the study. On the other hand, by going through and summarizing the literature, and understanding the research results on "Copenhagen urban green space" achieved by scholars from Denmark and other countries, especially the achievements on Copenhagen "Finger Plan", land-use, residential area development, greenery system, landscape architecture design and park greening, we can obtain information and inspirations crucial for the study.

According to the published literature in the fields of urban planning and landscaping, western scholars have done a lot of work, and have far surpassed the scholars from other countries in terms of the depth and breath of their research, the vitality of their theories and the abundance of their achievements. This phenomenon is largely due to the fact that industrial revolution first took place in western countries, and that they first realized urbanization, industrialization and modernization. Due to being the leading and advancing position, their practice of planning and construction promoted the development of relevant science and disciplines, and in return, the advanced science and disciplines facilitated their planning and construction.

Existing literature shows that Danish scholars have conducted systematic and thorough research on the concepts, principles, methods and strategies about Denmark's urban planning ever since World War II. In their earlier researches, they laid more emphasis on the study of other scholars' ideas, theories and experience, such as the "garden city" theory of Howard, Britain; the "modern city" theory of Corbusier and the "Greater London Plan" of Britain. In the later researches however, they tended to integrate Denmark's own experiences into the

investigation of urban planning theories and methods. For instance, the economic and industrial status of Europe and the rest of the world in different periods, and the domestic politic situations and government structures of different times were all investigated. Non-Danish researches were mainly focused on the type of cases including Copenhagen's "Finger Plan" and other cities with the same wedge-shaped green space layout. The former category contains more study results, but since most were written in Danish, few can be directly utilized. The later category contains fewer results, but they were in English and were easier to utilize. However, few researches on Copenhagen's green space and Denmark's landscaping architect could be found, and they were mainly focused on the studying the royal gardens of Denmark, the history of city parks and the life story of some famous landscape architects. Other than those, the researches on modern landscape architects mainly concentrated in introducing their works.

Since I know little about the Danish language, my literature review mainly covers English materials, supplemented by some Danish materials. Though this might to some extent affect the study, it is the best way to guarantee the integrity of basic information, historical data and other research materials and ensure the smooth progress of the study.

1.4.2 Historical Study

Historical study overlaps with literature review to some extent, but they have different emphases. The method of historical study, widely used in various fields of sociology, aims to figure out the background and cause behind historical events by collecting and organizing relevant historic data (articles, literature, statistics, pictures, etc.) according to chronological order, so as to understand the past the present and the predict the future. Data collection is the first step of historical study, and the starting point of the whole research. The second step, data analysis, is the process of reorganizing the data, identifying the forgeries and understanding

the materials. The final step, to orderly and systematically organize and process the results from analyzing historical literature, is the collation and deepening of the previous steps.

The basic idea of this study is to examine and analyze related history of Denmark and Copenhagen so as to facilitate the research by figuring out the evolution of the events, the life stories of relevant people, the process of planning and construction and the formation of theories. Therefore, the first task is to collect as complete data as possible. The scarcity and incompleteness of information on Denmark's urban planning and green space might cause some difficulties to the research. The research materials should not only be linked together to form a complete logical chain, but also prove and support each other. As no one in or outside of Denmark has studied the sixty years of development of Copenhagen and the construction of its green space as the research target since the "Finger Plan" proposed, the scarcity of systematic research materials shows the difficulty of such study, as well as the great exploratory and innovativeness. Much of the information was in Danish and needs to be translated before being used. The research work is sometimes like a puzzle game, because one needs to organize the scattered materials to restore and recreate the original images, so as to reveal the nature and open up new ways to discover the regular patterns. The method of induction and deduction runs through the whole research, serving as an important and indispensable means of the study.

1.4.3 In-depth interview

In-depth interview is an important way to get first-hand information. By interviewing insiders and people in charge of relevant departments, agencies and organizations, especially through face-to-face conversations, we can, on the one hand, verify the events and personnel in the materials, and on the other hand obtain much information that cannot be found in documents, thus explaining more

phenomenon. Therefore, in-depth interview is an important supplement to second-hand information.

In this study, by interviewing scholars, specialists, government officials in related fields as well as planners and landscape architects, we managed to grasp the urban planning regulations and systems of Denmark and Copenhagen city, and learnt about the specific methods that planners and landscape architects used in each projects, as well as the outcomes.

The communication with government officials helped us understand Copenhagen's development strategies, environmental protection policies, transportation planning policies, public welfare system, parks and greenery planning and managerial regulations. Such investigations helped us understand the inner driving forces of Copenhagen's development, the background and characteristics of its urban green space, and the close connection between public green space and citizen' work and life.

By interviewing city planners and landscape architects, we managed to understand the history and traditions of Danish landscaping, its artistic features and cultural connotations, the designing procedures and patterns, as well as the policies concerning the construction and management.

By interviewing the managers, rangers and users of parks, cemeteries and playgrounds, we gained a further understanding of the problems concerning the maintenance and utilization of green space, such as the number of workers, the maintenance expense and cycle, as well as the problems concerning the usage of green space.

The communication with organizations and personnel from different levels helped carry out the research by connecting and proving the information gained from different sources. The conflicting information, however, required verification, analysis and judgment. There are several possible causes for contradiction：first is

the inconsistence of information sources and informers' understandings; second is the divergence of the attitudes held by different informers from different levels and fields; the third is the disparity in the targeted interest of different groups. Therefore, these problems must be treated with an objective view to avoid misleading distractions in the research.

1.4.4 Field Observation

Field observation is another method to obtain first-hand information. Similar to the method of interviewing, it can support, supplement and even correct the second-hand information. Field observation method is especially vital to the data collection when there is a lack of first-hand materials.

The first-hand information could be obtained through field observations, during which we learnt about the status quo of various sites. Especially for "urban green space" such as park greeneries, playgrounds, street greeneries, cemeteries and water areas, field observation is more helpful in providing the knowledge in aspects as terrain handling, site layout, botanical condition and equipment usage, and such knowledge cannot be replaced by book learning. In addition, we could have a closer inspection into the modus taken by Danish planners and architects in green space planning, as well as their expressive techniques and artistic features.

I took field trips to five cemeteries (Kirkegård) inside Copenhagen city, including Assistens Kirkegård、Bispebjerg Kirkegård、Vestre Kirkegård、Brønshøj Kirkegård、Sundby Kirkegård, etc. More than 50 playgrounds have been visited, including those in schools, kindergartens, residential areas, hospitals, churches and parks, so as to defined the basic types, formations, styles and facility conditions of this kind of sites. During the research on parks, parks from all over the city were visited, including large parks like Ørstedsparken、Fælledparken、Østre Anlæg、Kongens Have、Valbyparken, and small and medium sized parks like Enghaven.

In addition, we inspected the river shores and beaches in order to learn about the natural greeneries in the city, because aqueous is part of Copenhagen green land.

Needless to say, it is essential to avoid observer bias and maintain the objectivity of the observation and investigation during the field study.

1.5 Conclusion

The Copenhagen case can serve as a positive reference for China, a country experiencing rapid development. Despite its small territory and population, Denmark has gone a long way in fields as urban morphology, space planning, green land protections, and has accumulated abundant experience, especially in the practice of creating comfortable green living environment for citizens, that are worth learning from.

The questions, purposes and methods chosen for this research are of fundamental significance to the research. The research questions must point the direction for the research purposes, and the research methods must provide guarantee to the successful accomplishment of the research.

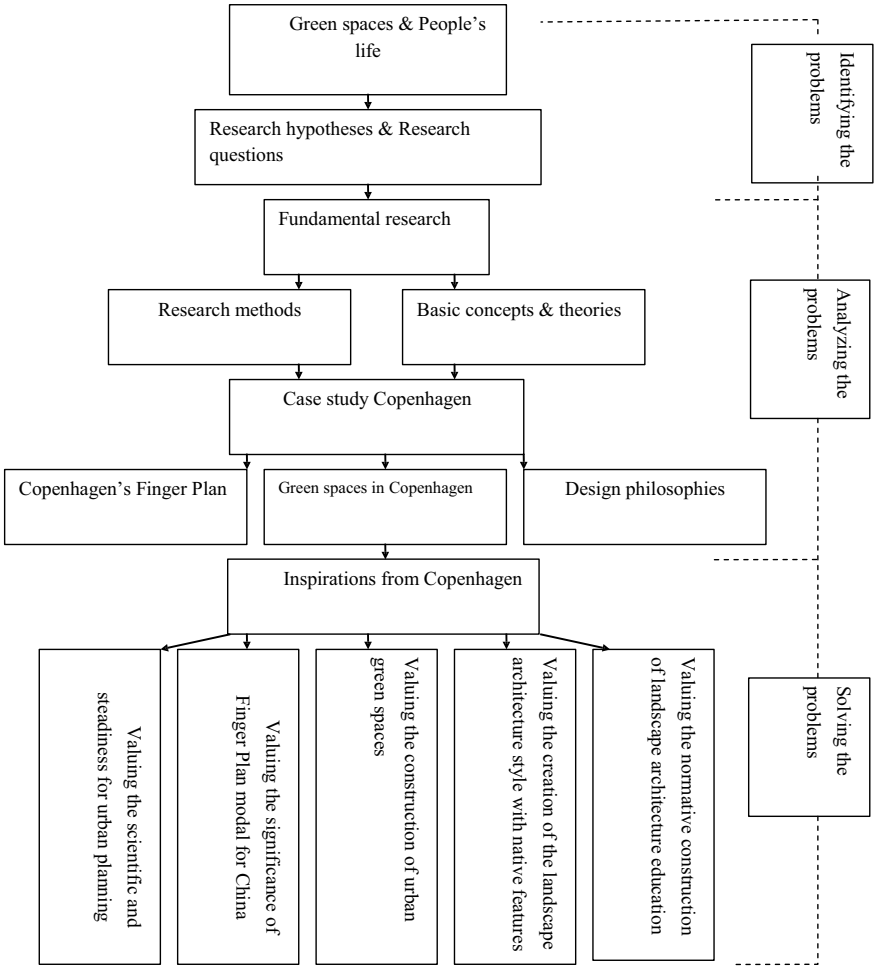

Fig. 1-1 The research framework

Chapter 2 The Basic Concepts and Theories

2.1 Introduction

This research involves some interdisciplinary study, mainly focusing on the disciplines of urban planning, landscape architecture and social science. As basic concepts and theories of urban planning and landscaping were used in the research on urban green spaces, it is needed to briefly review, introduce and examine the relevant concepts and theories.

2.2 Urban planning & Landscape architecture

The cities are regarded as man's most brilliant creation and the most splendid achievement of civilization. Ancient Greek thinker Aristotle (384BC-322BC) once said, "People come to the cities to search for safety and happiness, and to lead a good life" (Fig. 2-1). Lewis Mumford (1895-1990), American historian and philosopher, made the profound statement for the nature of the cities in "The Culture of Cities" (1938) that "The city is the form and symbol of an integrated social relationship: it is the seat of the temple, the market, the hall of justice, the academy of learning. Here is where human experience is transformed into viable signs, symbols, patterns of conduct, and systems of order. Here is where the issues of civilization are focused: here too, ritual passes on occasion into the active drama of a fully differentiated and self-conscious society."[10](Fig. 2-2) Of course, the city presents different forms under different environments, conditions and backgrounds. "Ever since human history, the features of a city has been dependent on special needs, such as military defense, scientific invention, administrative system and the ever improving production and transportation methods...Basic

[10] Lewis Mumford. Whatis a City? http://www.scribd.com/doc/6545189/Lewis-Mumford-What-is-a-City, 04-29-2011.

factors affecting the city's development are always evolving."[11] The city, as the physical environment and space, provides people with security, life, production, trade, work, residence, entertainment and other convenience; as the spiritual environment and cultural site, provides people with the atmosphere where the thoughts, morals, emotions, cognition, knowledge and art can be developed. Therefore in some way, the city creates the people and plays an invaluable role in the development of human civilization and social progress. Urban spaces, including the green spaces, provide not only stages but also guarantee for human activities, while urban planning and landscape architecture provide strong scientific and technique support for the formation of urban spaces, especially the modern urban spaces.

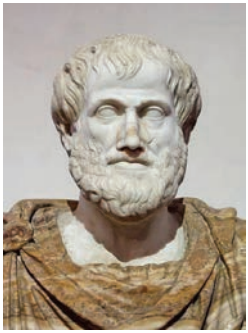

Fig.2-1 Aristotle (left), Fig.2-2 Lewis Mumford (right)

2.2.1 Urban Planning

In the early formation of cities, people of various nations from all over the world had begun to use their wisdom to create the city with their cultural features and traditions, thus originating different city urban patterns with distinguished ideologies of urban planning. For example, the ancient Chinese literature about

[11] Athens Charter, translated by TSU in Oct.1951, http://hi.baidu.com/yake/blog/item/ad98349b112293b1c9 eaf4ae.html. 04-29-2011.

urban planning "Zhou Li, Kao Gong Ji, Crafter Making City" has the following recording: "Architects built the city with a wall of 9 li and 3 gates on each side. There were 9 horizontal main streets and 9 vertical streets, each having nine lanes. Ancestral temples were on the left side of the street, and altars were on the right side. The palace was in the front and the markets were in the back."[12] Since Ancient China had strict social hierarchy, the scale of the cities varied according to the status of its emperor or governor. The city mentioned before was the capital city with the highest level of scale (Fig. 2-3). In today's measurements, the "city walls of 9 Li on each side" equals 3742.2m on each side. Apart from the 3 gates along each wall, there were respectively 9 north-south roads and 9 east-west roads. The Palace was located in the middle of the city, with temples on its left and altars on its right. The governance hall was to the south of the palace, and the markets were in the back. The regularity of the city layouts demonstrated the hierarchy of feudal society, as well as the experience accumulated and the achievements obtained by Ancient China in urban planning. Plenty of documents were left by other ancient cultures such as Mesopotamia (Fig. 2-4), Ancient Egypt, Ancient Greece and Ancient Rome. Relatively, the western countries have obtained more abundant results in practice and theories. Especially since Medieval and Renaissance, the quantity and scale of cities have experienced unprecedented growth. Since modern times, the emergence of industrial revolution has brought about unprecedented changes to the pattern, the scale and the layout of the city, promoting the development of urban planning theories and techniques and laying down the foundation for the birth of modern urban planning theory.

[12] Shi Nianhai. Zhou Li, The Origin of "Kao Gong Ji, The Crafter Building the City", the Traditional Culture and Modernization, March 1998, http:// economy.guoxue.com/ article. Php /8372. 03-26-2011.

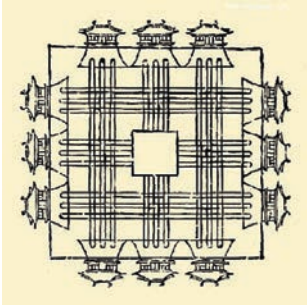

Fig. 2-3 Canonical plan of capital city in ancient China's classical book – Crafter Making City (left); (Source: http://img4.dutianya.com/imagecache/f/f/5/ff5c798cc790a9689389fbbf23db9200.jpg)

Fig.2-4 The ruin of Ur in ancient Mesopotamia (right)(Source: http://en.wikipedia.org/wiki/Ur)

The modern term of urban planning involves not only substantial aspects such as terrain utilization, transportation distribution, construction control, resource consumption and environmental protection, but also non-substantial aspects including the city's economy, community, culture, population and management. Modern urban planning concerns not only the land, space, layout and functions of inside the city, but also issues like job distribution and coordinated development of the suburbs and towns around the city. With the enlarging size and population of cites, urban planning has become an increasingly comprehensive science. As early as 1912, American scholar Nelson P. Lewis (whose book "The Planning of the Modern City" published in 1916 was the second such book to be published in America) has explained the following 5 questions in his article "Engineer and the City Plan": What does city planning mean? What are its economic advantages? What progress has been made in city planning in this and other countries? Who should be responsible for the city plan? What general principles should govern city planning? As for the definition of city plan, he wrote "It is simply the exercise of such foresight as will promote the orderly and sightly development of a city and its environs along rational lines, with proper regard for the health and convenience of the citizens and for the

commercial and industrial advancement of the community."[13] According to his definition, "city planning should include not only the city, but its environs--that is, it should bear some relation to the neighboring cities and the rural and small urban districts which are within easy reach." "Regard for the health as well as for the convenience of the citizens requires that there shall be ample provision for open spaces for recreation and amusement. In other words, that there shall be, within easy reach of every home, a park where the occupants of that home can find fresh air and out-of-door rest or play. This does not mean that the parks must necessarily be large, that they should be highly developed by the landscape architect, or that they shall be located upon most expensive property. There are many tracts of land of varying sizes which are passed over by the real estate operator as unsuitable for development, and the cost of which would be very small, but which, if secured and held, would become extremely valuable to the public as parts of the park system of the future city. Nor need they be developed for years to come. A piece of natural woodland, a creek bottom now little more than a swamp, a rocky ridge or steep slope which is unavailable for building purposes, can often, by the building of a few paths or drains, be made to serve their purpose as playgrounds at slight expense."[14]

2.2.2 Landscape architecture

Landscape architecture is both an ancient art and a young science. It is ancient because it traces back to the gardening construction of early human history. When early human got rid of the fear for nature, began to enjoy the natural scenery and started agricultural and farming production, the construction of gardens started. For instance, the hunting fields and orchards of early emperors and the vegetable gardens of citizens were all initial prototypes of gardening. Later

[13] Nelson P. Lewis. The Engineer in his Relations to the City Plan, Proceedings of the Engineers' Club of Philadelphia 29 (July 1912):198-215. http:// www. library.cornell.edu/Reps/DOCS/lewis.htm. 03-24-2011.
[14] Ibid.

on, with the progress in civilization, the growth of economy and the evolution of arts, gardening construction prospered, and spreads to the normal people apart from royal families, wealthy courtiers and the literati. Due to the influence of geometry, culture and religions, a large variety of gardening styles and patterns have been formed around the world, creating abundant artistic and cultural achievements in gardening. Landscape architecture is also a young science because it did not become a science until modern times. Before then, it was merely the pursuit of visual effects and aesthetic pleasure to beautify the environment and embellish the life. Now, it is no longer confined to the design of traditional courtyards, parks and public greeneries, but increasingly concerns various issues facing human life such as existing environment and ecological protection. By utilizing the achievements in multiple disciplines and various technologies, it aims to solve the unprecedented problems, especially the vital problems concerning people's development, such as land use, resource consumption, environmental protection and ecological balance. Landscape architecture ranges from small green space designing in cities, to regional planning and homeland management on a large scale.

As one of the ancient civilizations, Ancient China is regarded as the pearl in the crown of world gardening history for its long history and splendid achievements. In 1634, Ming Dynasty, Ji Cheng from Wu Jiang systematically summarized the gardening arts of that time and wrote "Yuan Ye" (The Art of Making Garden), the first book of gardening known in Chinese history. The significance of this book lies in its comprehensive elaboration of the author's knowledge and understanding of gardening arts, including those obtained from his personal experiences and those learnt from others. The theoretical contribution of the book lies in its achievements in gardening arts and styles, which can be summarized into 10 main points: ①To pursue the artistic effect of natural looking

landscape despite the artificialness; ②To value the diversity over static laws; ③ To design the layout appropriately without fixed patterns; ④To be smart arrangement by borrowed scenery from the surroundings; ⑤To select the location based on its condition without limitation; ⑥To value the proper placement of the buildings and pavilions; ⑦ To embellish the mountains with miniatures and to bear in mind that great beauty lies in small details; ⑧To build bridges over the water and to keep the water clear; ⑨To plant the botanic alternately, such as to plant peach trees between the willows and to plant bamboos next to the plum trees; ⑩To think outside the box and embrace innovation.[15]

In western countries, the boundary of between professional domain in both duty and practice between house designer (architect) and garden designer (landscape architect) was not clear until the 19th century, so it was common for architects to design a garden and for landscape architects to design a building. For example, Lancelot Brown, a famous British landscape architect in the 18th century, was a brilliant building architect, but was renowned for the gardens he designed and built, and was devoted to scenic architecture.[16] At that time, his job was called "landscape gardening". Like his predecessors and peers, Lancelot obtained his knowledge and techniques mainly from the experience and models of predecessors, the teaching and guidance of the teachers, and the practice and comprehension of himself. The term "landscape architecture" first appeared in 1828 in the book "On the Landscape Architecture of the Great Painters of Italy" written by Scottish artist Gilbert Laing Meason.[17] American designer Frederick Law Olmsted (1822-1903) and Calvert Vaux (1824-1895) first called themselves "landscape architects" when designing the Central Park of New York, an action later regarded as the official

[15] Wrote by Ji Cheng, edited by Zhao Nong. The Illumination of Yuan Ye, Shandong Picture Publishing House, 2003.
[16] Michael Lancaster. The New European Landscape, Butterworth Architecture, Oxford, 1994, p 13
[17] History of landscape architecture. http://en.wikipedia.org/wiki/History_of_landscape_architecture. 03-29-2011.

establishment of modern landscape architect as a profession. Since International Federation of Landscape Architects (IFLA) was established in 1948, people around the world have gradually recognized the occupation of landscape architect.

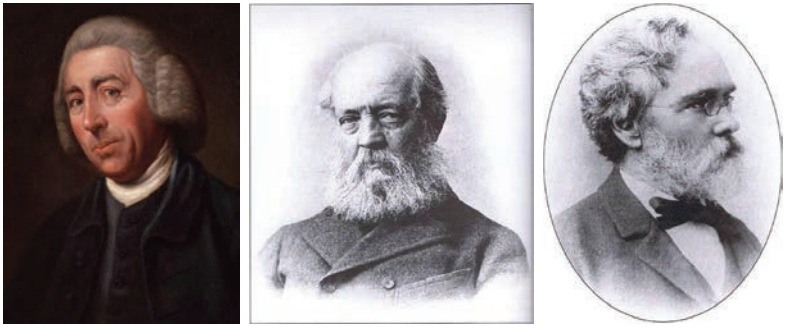

Fig.2-5 Lancelot Brown, Frederick Law O lmsted and Calvert Vaux (from left to right)

(Source: http://en.wikipedia.org/wiki/Lancelot_%22Capability%22_Brown) (Source: http://en.wikipedia.org/wiki/Frederick_Law_Olmsted.) (Source: http://en.wikipedia.org/wiki/Calvert_Vaux)

The evolution of modern landscape architecture is largely influenced by the process of urbanization and people's cognition. The biggest driving forces promoting the development of landscape architecture should be the industrialization, urbanization and peoples' pursuit of beautiful life. The second driving forces are people's recognition, research and utilization of landscape, ecology and environment. The former forces gradually transformed the poorly designed, seriously polluted cities with poor environment in early industrialization period into rationally designed, clean, safe and comfortable cities, which are now becoming more livable, eco-friendly, environmental friendly and sustainable. During such process, landscape architects played an irreplaceable role in beautifying and greening the city by designing parks, green lands, building gardens, greening the streets, clarifying the rivers and reconstructing the waterfront areas. The later driving forces gave people deeper insights to not only the theories and issues regarding their living conditions, but also the earth and

universe that they live in. In this way, people have more expectation in improving the quality of their life and the future of the world. In terms of the design, planning, construction and management of urban landscaping, more attention should be paid to maintaining ecological balance, protecting the environment and conserving the resources, other than merely purifying, greening, beautifying and embellishing the city. (Fig. 2-6)

Fig 2-6 The diagram of landscape meaning – the relationship between people and place

(Source: Prof. Carys Swanwick-Department of Landscape University of Sheffield. The role of rural landscape planning in addressing new forms of land use, Presentation to Nanjing Conference, 14th – 15th November 2009)

The American Society of Landscape Architects (ASLA) defines “landscape architecture” as “the profession which applies artistic and scientific principles to the research, planning, design and management of both natural and built environments. Practitioners of this profession apply creative and technical skills and scientific, cultural and political knowledge in the planned arrangement of natural and constructed elements on the land with a concern for the stewardship and conservation of natural, constructed and human resources. The resulting

environments shall serve useful, aesthetic, safe and enjoyable purposes."[18] Wikipedia has a more detailed and specified definition: "Landscape Architecture is the design of outdoor public areas, landmarks, and structures to achieve environmental, social-behavioral, or aesthetic outcomes. It involves the systematic investigation of existing social, ecological, and geological conditions and processes in the landscape, and the design of interventions that will produce the desired outcome." It is "a multi-disciplinary field, incorporating aspects of: botany, horticulture, the fine arts, architecture, industrial design, geology and the earth sciences, environmental psychology, geography, and ecology. The activities of a landscape architect can range from the creation of public parks and parkways to site planning for campuses and corporate office parks, from the design of residential estates to the design of civil infrastructure and the management of large wilderness areas or reclamation of degraded landscapes such as mines or landfills. Landscape architects work on all types of structures and external space - large or small, urban, suburban and rural, and with 'hard' (built) and 'soft', (planted) materials, while integrating ecological sustainability."[19]

2.3 Urban Space & Urban Green Space

As substantial formation of a city, it is the three dimensional space composed by its land and the various natural objects as well as the artificial buildings and structures on it. For this "three dimension" space, it is not only regarded to its external surroundings, and is delimited by its geometric boundaries, but also regarded to the internal structure, and is divided according to different types of spaces. Human activities can be divided into three categories, life, work and recreation. Each type of activities requires different sites or spaces, thus designating different functions to different districts of urban spaces. Urban green

18 The American Society of Landscape Architects. definition and application of the profession of landscape architecture. http://www.kansas.net/~tjhittle /ladef.htm. 04-01-2011.
19 Landscape architecture. http://en.wikipedia.org/wiki/Landscape_architecture. 04-01-2011.

space, a type of urban spaces, refers specifically to the artificial space, semi-natural space and natural space where plants grow. With the growing awareness of ecological and environmental thinking, the quantity and quality of urban green spaces have become a significant aspect of people's life quality.

2.3.1 Definition of Urban Space

Urban space (a.k.a., urban open space) is the open space encircled by various types of buildings inside the city. The concept of urban "open space" first came up in the report of Select Committee on Public Walks of UK Parliament in 1833. The report stated that "during the last half century a very great increase of the population has taken place in large towns and little, and no provision has been made for Public Walks or Open Spaces, fitted to afford means of exercise or amusement to the middle or humbler classes".[20] Later in year 1877, the United Kingdom expressly enacted the Metropolitan Open Spaces Act 1877. In the Open Spaces Act 1906, open space was defined as "any land, whether includes or not, on which there are no buildings or of which not more than one-twentieth part is covered with buildings, and the whole of the remainder is laid out as a garden or is used for purposes of recreation or lies waste and unoccupied".[21] According to Wikipedia, "In land use planning, urban open space is open space areas for parks, green spaces, and other open areas. The landscape of urban open spaces can range from playing fields to highly maintained environments to relatively natural landscapes. They are commonly open to public access, however, urban open spaces may be privately owned. Areas outside of city boundaries, such as state and national parks as well as open space in the countryside, are not considered urban domain".[22] The National Wildlife Federation of America made the definition that

[20] 1929 Greater London Plan. http://www.gardenvisit.com/landscape_architecture/london_landscape_architecture/ landscape_planning_pos_public_open_space/1929_greater_london_plan. 05-06-2002.
[21] Ibid
[22] Urban open space . http://en.wikipedia.org/wiki/Urban_open_space . 03-17-2011.

"Open spaces are the sites undeveloped which, due to human interference, do not account for natural areas, but still provides habitat, scenery and other benefits. Open spaces include farmlands, recreational districts and other functional areas."[23] More specifically, urban open spaces consist of the spaces outside the buildings, streets, plazas, parks, sports-fields and playgrounds, as well as the natural lands, farmlands, forests and rivers embedded in the urban area. Stanley Tankel, former planning director of New York City's Regional Plan Association, classified open spaces into 6 levels of openness, each containing several specific types. (Tab. 2-1) Urban spaces not only provide the venues for human activities, but also provide animals with habitat for living and reproduction. For human being, urban spaces mainly facilitate their daily life and production activities such as transportation, business, recreation, exhibition, sports competitions, sports and fitness, sightseeing, holiday gatherings, celebrations and other interpersonal activities. These activities are necessary for human's survival as well as development. Urban space is one of the physical forms of a city, as well as a component of urban ecological system. Therefore, urban spaces safeguard not only human, but also other creatures living in the city.

Tab. 2-1 Stanley Tankel's categorization of open space[24]

	Scale or level	Present examples of open space	
		Land	Water
Street	Building site	Yards, courts (i.e. sites lee building	
	Group of Building	Right-of-way, streets, piazzas, residential comments, tot lots	
Community	Neighborhood	School grounds, playgrounds, small parks (<10 acres)	
	Municipality	Parks (10-100 acres), playfields	Ponds, streams
County	Group of municipalities	Parks (100-1000acres), golf courses, minor conservation areas (flood plains, watersheds, wildlife)	Lakes, rivers

[23] Urban open space . http://en.wikipedia.org/wiki/Urban_open_space . 03-17-2011.
[24] Donna L. Erickson, MetroGreen – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 12

Region	Metropolitan region	Parks (>1000acres), large conservation areas, major water bodies, Private farms, woodland and other land on the urban fringe	Oceans,
	Megalopolis	Coastline, mountain ranges, milksheds	great rivers

With the ever evolving and upgrading forms of human activities, the scales and forms of urban spaces vary through time. In particular, the industrial revolution and the industrialization have enlarged the quantity and scale of cities, thus triggering the subsequent ever-lasting tide of urbanization. Alongside the prevalence of urbanization after the Second World War, enormous changes have taken place in the functions, appearance and forms of the cities. Up to now, about 50% of the world population lives in urban areas. In Latin America and the Caribbean, 77% of the people live in cities.[25] As for the 27 member countries of EU, 74% of the population lives in the cities[26], and the number is expected to reach 80% by 2020.[27] The United Nation predicted that by 2030, 60 percent of the world population would have been living in the cities[28], and the number would have grown to 70% by 2050, with annual growth rate of 2.27% in developing regions and 0.49% in developed regions (Tab. 2-2).[29] Due to the huge disparities in the cities' histories, resource conditions, economic situations, industrial layouts, geographical environments and populations, the forms of urban spaces are widely diversified. In EU countries, for example, there are 1600 cities with population larger than 50,000.[30] Undoubtedly, the forms of the cities vary from inland to coast, from plains to mountains, from loud metropolis to peaceful towns through the South Europe to the North, through the East to the West. However, these forms show no significant difference regarding the influence on people's work and life.

[25] Urban Quality of Life: More Than Bricks and Mortar. http://idbdocs.iadb.org/wsdocs/getdocument.aspx? docnum=1772596. 04-20-2011.
[26] Author: Berthold FELDMANN. The Urban Audit — measuring the quality of life in European cities. General and regional statistics. Statistics in focus. 82/2008. http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-08-082/EN/KS-SF-08-082-EN.PDF.
[27] EEA (European Environment Agency) Report. Ensuring Quality of Life in Europe's Cities and Town, No 5/2009 Copenhagen, p 10.
[28] Sara Putnam and Andrew Quinn. Jane Jacobs and Urban Health. UN-Habitat. State of the World's Cities: Globalization and Urban Culture. Nairobi, Kenya: United Nations Human Settlements Programme; 2004.http://www.bvsde.paho.org/bvsacd/cd65/ JaneJacobs.pdf. 05-12-2011.
[29] United Nations Human Settlement Programme. Planning Sustainable Cities – Global Report on Human Settlements 2009. London, 2009, p8.
[30] EEA (European Environment Agency) Report. Ensuring Quality of Life in Europe's Cities and Town, No 5/2009 Copenhagen, p 10.

Tab. 2-2 Global trends in population (1950-2050)[31]

Region	Urban population (million)					Percentage urban				
	1950	1975	2007	2025	2050	1950	1975	2007	2025	2050
World	737	1518	3294	4584	6398	29.1	37.3	49.4	57.2	69.6
More developed region	427	702	916	995	1071	52.5	67.0	74.4	79.0	86. 0
Less developed region	310	817	2382	3590	5327	18.0	27.0	43.8	53.2	67.0
Africa	32	107	373	658	1233	14.5	25.7	38.7	47.2	61.8
Asia	237	574	1645	2440	3486	16.8	24.0	40.8	51.1	66.2
Europe	281	444	528	545	557	51.2	65.7	72.2	76.2	83.8
Latin America and the Caribbean	69	198	448	575	683	41.4	61.1	78.3	83.5	88.7
North America	110	180	275	365	402	63.9	73.8	81.3	85.7	90.2
Oceania	8	13	24	27	31	62.0	71.5	70.5	71.9	76.4

2.3.2 Theoretical development of urban space

To cope with the rapidly increasing number and growing scale of the cities, people had begun to examine the urban development patterns and strive to solve the problems of irrational urban pattern and space layout by as early as late 19th century. This is the main reason why modern urban planning first emerged in Western Europe. Generally, many western cities suffered from the overcrowded buildings, narrow streets, poor condition of air, sunlight and ventilation, serous pollution, chaotic order and limited space for civil activities at that time. Visionaries like Sir Ebenezer Howard (1850-1928) brought about new ideas in urban development patterns (Fig. 2-7). His book “To-morrow: A Peaceful Path to Real Reform” was published in October 1898, and was renamed as “Garden Cities of To-morrow” when reprinted in 1902. His theory focused on the analysis of pros and cons demonstrated by British cities and suburbs to obtain inspirations from their combined strengths. He proposed to replace old urban-rural separation social structure with the new social structure of “integrated

[31] United Nations Human Settlement Program, Planning Sustainable Cities – Global Report on Human Settlements 2009. London, 2009, p23.

urban and rural areas". "The integration of urban and rural areas will bring about new hopes, new life and new civilization". The "garden city", which combines the vitality and dynamism of the city with the pleasant environment of suburbs, will become a "magnet".[32] He intended to clear up the existing slums and eliminate the disparity and ugliness of the city by introducing the new type of city. In his vision, the garden city would have a population of 32,000 and coverage of 6,000 acre, with 1,000 acre of urban area and 5,000 acre of farmland (including parks); the city would be internally connected by round railways and cannels, and externally connected to grand avenues with radial layout; The factories, storehouses, diaries, timber yards and coal yards should be placed on the outer ring of the town.[33] Chinese scholar Jingxiang Zhang summarized the merits of Howard's theory into four aspects: ①In terms of the guidelines of urban planning, he had got rid of the old-fashioned patterns of demonstrating the authority of the privileged or showcasing the personal aesthetics of the designer, and had set the principle of keeping in heart the interest of the public. Thus, the focus of urban planning had been fundamentally transferred; ②In response to the grim, complex problems facing industrialized cities, he had surpassed the narrow concept of the cities to solve the problems by combining the urban and the suburban into an entirety; ③He came up with a pioneering mode, a comprehensive system of planning ideas and practices, which brought significant enlightenments to modern city planning ideology and its practice and development; ④He initiated the trend of conducting social study on urban planning, and closely integrated substantial planning with social planning for the good of the society.[34]

Though Howard's ideas were not widely adopted at his time due to historical and social reasons, his pioneering ideas regarding the urban problems of modern

[32]Zhang Jingxiang. The History of Western Urban Planning, Nanjing, Southeast University Press, May 2005, page 92.

[33] Ebenezer Howard. Garden Cities of To-Morrow, (London, 1902. Reprinted, edited with a Preface by F. J. Osborn and an Introductory Essay by Lewis Mumford. (London: Faber and Faber, [1946]) http://www.library.comell.edu/Reps/DOCS/howard.htm.

[34]Zhang Jingxiang. The History of Western Urban Planning, Nanjing, Southeast University Press, May 2005, page 94.

society, especially his original insights on the scale, layout, population density and greenery planning of the city, to a large extent inspired the modern urban planning theories. The impact is profound and far-reaching.

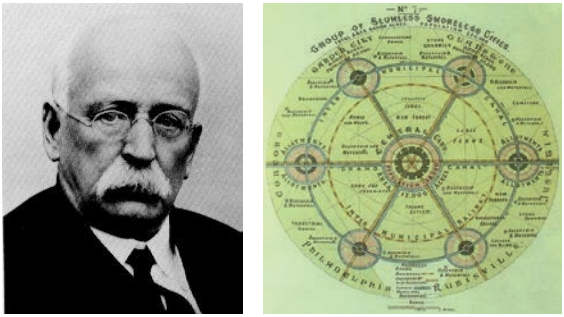

Fig.2-7 Ebenezer Howard (left) and his original Garden City concept (right)

(Source: http://en.wikipedia.org/wiki/File:Ebenezer_Howard.jpg, http://en.wikipedia.org/wiki/File:Garden_City_Concept_by_Howard.jpg)

In regard to the urban development patterns, Howard brought forward the vision of "Garden City" by constraining the scale of the city, both its terrain and its population, while American scholar Clarence Perry (1872-1944) proposed the idea of "Neighborhood Unit" based on the transformation of the city's inner structure and the adjustment of spatial relation. In year 1923 Perry first put forward the concept of "neighborhood unit" (though some documents said that the concept was first used in Chicago Planning 1916[35]), which was later adopted in the planning of New York City and used in his book "Housing for the Mechanic Age".[36] Mainly based on the background of expanding city and soaring number of vehicles, the idea was to seek more rational urban structure and development mode, in order to create a safer and more comfortable residential environment with better infrastructure for households. He believed that the city should be composed by "neighborhood units", which are small and comfortable

[35] Neighborhood unit. Geography & Geology Encyclopedia. http://www.geodz.com/eng/d/neighbourhood-unit/neighbourhood-unit.htm. 04-04-2011.
[36] Neighborhood Unit. http://en.wikipedia.org/wiki/Neighbourhood_unit. 03-14-2011

communities with at least four components: elementary schools, small parks and playgrounds, commercial service and residential environment.[37] The residential environment should involve the quality of the architecture, the layout of the streets, the plants along the roads and in the gardens, the structure and orientation of the buildings, the distribution of markets and other commercial services, etc. He also developed six principles for "neighborhood unit". ①Size: A neighborhood unit development should provide housing for that population for which one elementary school is ordinarily required, its actual area depending upon population density; ②Boundaries: The unit should be bounded on all sides by arterial streets, sufficiently wide to facilitate its by-passing by all through traffic; ③Open Spaces: A system of small parks and recreation spaces, planned to meet the needs of the particular neighborhood, should be provided; ④Institution Sites: Sites for the school and other institution having service spheres coinciding with the limits of the unit should be suitably grouped around a central point or public areas; ⑤ Local shops: One or more shopping districts, adequate for the population to be served, should be laid out in the circumference of the unit, preferably at traffic junctions and adjacent to similar districts of adjoining neighborhoods; ⑥Internal Street System: The unit should be provided with a special street system, each highway being proportioned to its probable traffic load, and the street net as a whole being designed to facilitate circulation within the unit and to discourage its use by through traffic.[38] In this way, the scale of the residential unit should be constrained to preferably a population of 5000 to 10000.[39] Perry's theory has a huge impact on the development of American urban planning and urban space patterns.

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[37]Clarence Perry. The Neighborhood Unit, Regional Plan of New York and its Environs, 1929, p34. http://codesproject.asu.edu/sites/default/files/code_pdfs/The_Neighborhood_Unit_a.pdf. 03-14-2011

[38] Clarence Perry. The Neighborhood Unit, Regional Plan of New York and its Environs, 1929, p34. http://codesproject.asu.edu/sites/default/files/code_pdfs/The_Neighborhood_Unit_a.pdf. 03-14-2011

[39] Neighborhood Unit. Definition from Answers.com. http://www.answers.com/topic/neighbourhood-unit. 04-04-2011.

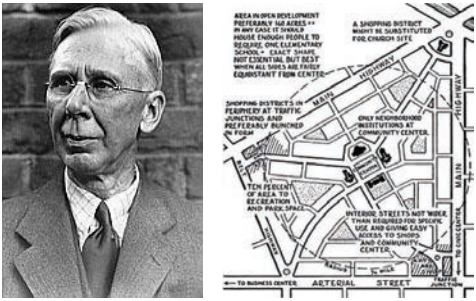

Fig.2-8 Clarence Perry (left) and his Neighbourhood Unit sketch (right)
(Source : http://3.bp.blogspot.com/_irUu7sFub0o/R7VpVteBizI/AAAAAAAACY/xD4srfd96H4/s1600-h/Perry.jpg and http://www.google.dk/imgres?imgurl=http://hugeasscity.com/images/Perry_Neighborhood.jpg&imgrefurl=http://hugeasscity.com/2008/12/18/the-neighborhood-school/&h=589&w=500&sz=136&tbnid=9Cufsy0HFOZTeM:&tbnh=135&tbnw=115&prev=/images%3Fq%3DClarence%2BPerry&zoom=1&q=Clarence+Perry&hl=zh-CN&usg=__OB6Vx9a1J4St7ExB7Atp78LVaIk=&sa=X&ei=6k5-TdiJDM2cOr7rmPwG&ved=0CC8Q9QEwBA)

Meanwhile, French architect Le Corbusier (1887-1965) and American architect Frank Lloyd Wright (1867-1959) developed their theories of urban development mode and spatial pattern from two distinct angles. Le Corbusier advocated the transformation of the original city using new planning ideas. In contrast to Howard's opposition against large cities, Corbusier considered it possible to maintain high population density and create comfortable living environment at the same time with the help of modern technologies. He stood for the view that the improvement of the existing urban space should start with planning, assisted by modern technologies. His specific idea is to utilize high-rise buildings in order to increase population density and make place for modern transportation network and large green lands, thus improving environmental conditions like sunlight and ventilation, and enhancing living conditions such as recreation and sports. Corbusier's ideas were first demonstrated in the "Ville Contemporaine" (Contemporary City) project he designed. The City resembled a huge park, with high-rise buildings surrounding by spacious space for civil activities (Fig. 2-9). In his design, the buildings had population density of 1200 people per acre, while the population density of the city as a whole was merely

120 people per acre.[40] Based on the concept of "Ville Contemporaine", he brought about the urban planning theory of "The City of To-Morrow" in 1930, which suggested that the center of a great city should consist mainly of skyscrapers – exclusively for commercial use – and that the area occupied by these should be no greater than 5 percent. The remaining 95% should be parks with trees.[41] Corbusier's theory was called "urban centralization" for its proposition of transforming the city by increasing population density, improving the layouts and perfecting the functions instead of constraining the scale of the city. During the fourth meeting of International Congress for Modern Architecture (Congrès internationaux d"architecture moderne, CIAM, established in 1928 by Corbusier and others, held 10 formal meetings through 1928 to 1957[42]) in October 1933, Corbusier's theories of urban predication and new planning ideas were all adopted in "Guidelines of City Planning" (later known as "The Athens Charter"), the general guidance of urban planning theories and methods issued by the meeting. The Athens Charter probes into the exposed problems in modern cities, pointing out that "The chaos of modern cities is caused by the poorly-planned and disorder development during the mechanical age."[43] According to the charter, basic elements of urban biology are sun, space, vegetation, and steel and concrete.[44] The rational allocation and utilization of these elements is vital to solving the city's problems. By examining urban functions, The Athens Charter divided civil activities into four categories, living, working, recreation and circulation. According to The Charter, the city should meet the citizens' needs in these four aspects, and should promote the future development of the four functions by solving any problems between them. At the same time, The Charter provided

[40] Simon Eisner, Arthur Gallion, Stanley Eisner. The Urban Pattern, Van Nostrand Reinhold, New York, 1993, p119.
[41] Le Corbusier's The City of Tomorrow and its Planning, http://tesugen.com/archives/04/06/corbus-city-of-tomorrow. 03-16-2011
[42] Biographical History, International Congress for Modern Architecture. Belgian Section. AACR2, http://socialarchive.iath.virginia.edu/xtf/view?docId=International+Congress+for+Modern+Architecture+Belgian+Section-cr.xml. 03-22-2011.
[43] The Athens Charter
[44] Simon Eisner, Arthur Gallion, Stanley Eisner. The Urban Pattern, Van Nostrand Reinhold, New York, 1993, p 120

suggestions on protecting the ancient buildings, which were endangered and damaged by the rapid development of the city, from the viewpoint of urban planning. The responsibilities of urban planners were clearly defined for the first time. In general, despite its imperfections, The Athens Charter is regarded as an epoch-making masterpiece. It brought forward refreshing ideas and methods of urban planning by summarizing experience and drawing lessons from the past, especially from the development of cities after industrialization, casting a profound influence on the reconstruction of cities around the world, particularly the European cities that suffered from Second World War.

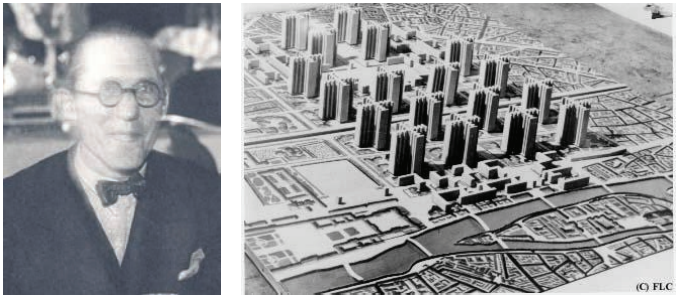

Fig.2-9 Le Corbusier (left) and his City of To-Morrow sketch (right) (Source: http://en.wikipedia.org/wiki/Le_Corbusier)

As opposed to Corbusier's theories, American architect Wright was against the excessive expansion of the city, and suggested reducing the population to solve the problems in overspreading and over expansion. His theory is therefore called "urban decentralism". Later in 1932, in his book "The Disappearing City", he developed the mode of "Broadacre City", a mode which he later amended when publishing "When Democracy Builds" in 1945, and made final modifications in the book "The Living City" published in 1958.[45]

Wright believed that the three important inventions of human paved the way for the planning and construction of "Broadacre City": ① motor car: general

[45] ZARA A BROWN (Sep. 4, 2007). Broadacre City, 1932-1959. http://pontilly2007.files.wordpress.com/2007/09/broadacrecity.pdf. 03-21-2011

mobilization of the human being; ②radio, telephone and telegraph: facilitating the electrical inter-communication; ③Standardized machine-shop production: machine invention plus scientific discovery.[46] He believed that people in a democracy country should embrace the rights migrate and choose their own lives, and that motor cars provided the possibility of living away from the city. Therefore people needed not constrain their activities in the city, and could get rid of the restriction to form a new living mode (urban pattern) that combined together life, work and habitation, featuring decentralization and low density. At that time, the per capita arable land was 57 acre for Americans. In his vision, every person (adult or child) in the "broadacre city" should have 1 acre of space for living and habitation (or according to some documents, each household should have 1 acre of land[47]). That being said, the population density of "broadacre city" should be 500 people per square mile.[48] In a broadacre city, there shall be factories, skyscrapers, schools, farmlands and venues for celebration and recreation. The city should be fed with highways with 6 lanes. Of course, the premise of any of these visions is the public ownership of land. Though Wright considered his own vision somewhat utopian, he did point out solutions for the illness in American cities and society. The fact that many American cities were suburbanized, and the phenomenon that many people moved out of the cities after the 1960s are, to a large extent, a reflection of his theories. Wright is regarded as the greatest American architect of the 20th century, not only for his outstanding achievements in architecture, but also for the profound impact of "broadacre city" on American city development and planning.

During the international conference about architecture and urban planning held in Lima, Peru in December 1977, participants discussed about The Athens

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[46] Frank Lloyd Wright "Broadacre City: A New Community Plan" – Architectural Record (1935). http://courses.washington.edu/gmforum/Readings/Wright.pdf. 03-22-2011.
[47] Broadacre_City. http://en.wikipedia.org/wiki/Broadacre_City. 03-22-2011
[48] ZARAA BROWN (Sep. 4, 2007). Broadacre City, 1932-1959. http://pontilly2007.files.wordpress.com/2007/09/broadacrecity.pdf.03-21-2011

Charter, acknowledged its positive historic significance, and brought about many new ideas that kept up with the times. The paper they wrote, “Charter of Machu Picchu”, supplemented and developed some ideas of The Athens Charter, and was thus regarded as another important literature in the history of urban planning. The core ideas of “Charter of Machu Picchu” are as follows: ①Urban planning should timely reflect the dynamic but united relation between the city and its surrounding areas; ②Urban planning shall actively cope with the undesirable phenomenon appeared in urbanization, such as the shortages in housing and public facilities and the deteriorations of life quality; ③Urban planning must not make the city less dynamic, systematic or sustainable by separating urban functions; ④to persistently promote the development of public transportation system; ⑤to relentlessly improve the urban environment; ⑥to lay emphasis on the protection of historical sites and the inheritance of culture and traditions; ⑦to encourage involve people from various sectors to involve into urban planning. These ideas served as complement of The Athens Charter, as well as active response to new emerging conditions and problems. They promoted not only the development of urban planning theory and methodology, but also the improvement of urban spatial structure and layout.

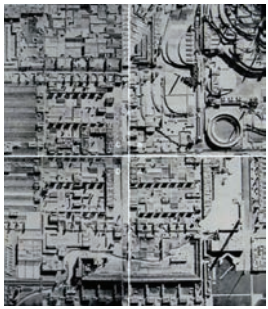

Fig.2-10 Frank Lloyd Wright (left) and broadacre city plan (right) (Source : http://en.wikipedia.org/wiki/Frank_Lloyd_Wright and http://pontilly2007.files.wordpress.com/2007/09/broadacrecity.pdf)

In June 1992, Declaration on Environment and Development was adopted by the United Nations Conference on Environment and Development held in Rio de Janeiro of Brazil. Since then, the notion of 'sustainable development" has been accepted by more and more people, and has become the common development strategy for governments and the consensus of mankind as a whole. The concept of "development that meets the needs of the present without compromising the ability of future generations to meet their own needs' was both an important guideline to city development and urban planning, and a higher requirement to the city's development mode. From the macro aspect, the development of a city must be synthetically coordinated with its economy, resource and environment, and in conformity with its social, population and cultural conditions. Today, the number and sizes of cities are still growing. For instance, according to "Natural Resources Inventory for the United States, 2.2 million acre of land is used for urban construction in the States every year.[49]

In modern times, urban planning and the study of city's history and future have become hot topics for many disciplines. American scholar Emily Talen summarized all the prevalent theories throughout American history, and categorized them into four "urbanist cultures":[50]

① Incrementalism: concern for existing urban settlements in a way that is necessarily small scale, incremental, and preservationist, originating with the settlement house and municipal arts movements;

② Urban plan-making: concern with the existing city, but rather than small-scale change, a focus on the larger and more comprehensive means of plan-making, the urban improvement guided by a physical plan;

[49] Donna Erickson. MetroGreen – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 4.
[50] Emily Talen, New Urbanism and American Planning—The Conflict of Cultures. Routledge, New York, 2005,p18-19

③ Planned communities: utopian and quasi-utopian ideas about the proper place of cities in the region, the correct functioning of society within urban areas, and the formation of new towns, villages, or neighborhoods according to specific principles;

④ Regionalism: the viewpoint of human settlement in its natural regional context. Though these four "urbanist cultures" each had their strengths, Emily Talen thought they failed to coordinate the relations between diversity, community, accessibility, connectivity, social equity and civic space.[51] Meanwhile, the reports from related UN departments thoroughly analyzed the challenges facing modern cities from such aspects as environmental, economic, institutional and social changes. The reports required changes to be made to the traditional urban planning methods to keep up with the changes brought by urbanization, growth and socio-spatial evolution. Such changes should be made by inspecting the role of planning in addressing rapid urbanization, urban poverty and slum, the role of planning in addressing sustainable urban development and climate change, the role of planning in addressing urban crime and violence, and the role of planning in addressing post-conflict and post-disaster situations.[52] Therefore, in aspect of the urban development status or people's cognition about the city, it remains a vital but difficult task to find out urban planning theories and methods for sustainable development to keep up with the ongoing globalization.

2.3.3 Urban Green Space

Humankind, as the son of nature, has an innate bond with nature, especially the greenings. Despite all the fun, enjoyment and warmth it has brought to man, a city constituted with concrete, steel and stone fells short to satisfy all the emotional and psychological needs of people. Besides, the city's ecological system and environment must be required to integrate into natural factors.

[51] Emily Talen, New Urbanism and American Planning—The Conflict of Cultures. Routledge, New York, 2005,p18-19
[52] United Nations Human Settlement Programme. Planning Sustainable Cities – Global Report on Human Settlements 2009. London, 2009, p 13-14.

Regrettably, with the continuous growth and expansion of cities since the industrial revolution, people have been damaging and changing the original natural heritage (space, resources, etc.) of the city. What used to be farmlands, forests and uncultivated lands in or around the city have been gradually made replaced by lifeless buildings and roads. Plants and animals are gradually disappearing from the city, leaving the citizens far away from nature. According to the observations of British ornithologists, only 6 species of birds are found in downtown Manchester, while 81 species are spotted in Alderley Edge, 20 km from the city center. This phenomena has been further verified by ornithologists' observations in Brent Reservoir outside the London city, where there were 71 bird species in 1833 and 47 species in 1970 when the 65% of the area was rebuilt into residential districts. The number of bird species is expected to reduce to 20 when the region is a hundred percent built into residential areas, and drop below 7 if the residential areas are of high density (Tab. 2-4, 2-5).[53] Having witnessed the evil consequences of early urbanization, people have realized the importance of nature to urban life. "Nature brings people inspirations and beauty, providing the mankind, who is becoming increasingly isolated, with valuable connection to the world outside."[54] Therefore, apart from embracing the convenience and joy of urban life, people also look forward to feeling the warmth and romance of nature, and expect nature to have effects in adjusting the city's ecology and environment. As a result, in both developed countries and developing countries today, more and more cities have been regarding urban green space as an important infrastructure. Green space has become not only an indispensible part of urban space, but also the symbol and image of the city's civilization, thus becoming a crucial aspect in the construction of low-carb society and sustainable cities.

[53] City landscape— a contribution to the Council of Europe's European Campaign for Urban renaissance, Edited by A.B. Grove and R.W. Cresswell, Butterworths, London- Boston – Durban –Singapore –Toronto –Wellington, 1983, p.48
[54] Ibid

Tab. 2-3 The bridal species in different location of British Isles（1976）[55]

	Location	Number of Species
1	Maximum number of breeding species (British Isles)	200-230
2	Reasonable common breeding species (British Isles)	170-190
3	Residents	120-130
4	Migrants	50-60
5	Maximum usually found in one area of the British Isles	80-100
6	Maximum possible in cities	70-80
7	Maximum recorded in cities, including suburbs	50-60
8	Maximum recorded in large city centers	25-30
9	Numbers in a good city park	25+
10	Numbers in a moderate city park	15-24
11	Numbers in a poor city park or housing area	less than 15

Tab. 2-4 The bridal species in different location of London[56]

	Location	Number of breeding specie	Distance from Caring Cross (km)
1	St. James/Green Park	22	1.5
2	Hyde Park/Kensington Gardens	29	3.0
3	Regents Park/Primrose Hill	34	3.5
4	Hollan Park	24	5.5
5	Clapham Common	17	5.75
6	Bishop's Park	16	7.25
7	Wandsworth Common	18	10.0
8	Wimbledon Common	46	11.25
9	Brent Reservoir	44	12.5
10	Richmond Park	56	12.5
11	Kew Gardens	39	12.75
12	Greenwich Park	27	14.0
13	Ham House	38	14.5
14	Osterly Park	46	15.5
15	Hampton Court	42	18.0
16	Bushey Park	47	18.0

[55] Edited by Ian C. Laurie. Nature in cities – The Natural Environment in the Design and Development of Urban Green Space, John Wiley & Sons, Chichester, New York, Brisbane, Toronto, 1979, p189.
[56] Ibid.

Tab. 2-5 The bridal species in different location of Manchester[57]

	Location	Number of breeding specie	Distance from Caring Cross (km)
1	Manchester City Center	4	0
2	University Campus	11	1.2
3	Platte Fields	22	3.6
4	Didsbury Village	45	7.25
5	Ringway Airport	68	13.7
6	Alderley Edge	81	19.3

"Urban Green Space" refers to the open areas covered with living vegetation or plant communities, as opposed to the urban space without plants. It includes various parks, gardens, botanical gardens, zoos, playgrounds, sports fields, greeneries along the streets and in residential areas, vertical plantings, and green corridors in the city, as well as urban forests, orchards, farmlands, rivers, lakes, wetlands, deserted areas and natural reserves. American scholar Karen Payne made such definition: "Open Space, or green space, can be thought of as a mix of traditional parks and reserves, hiking or biking corridors, scenic vistas and other areas that provide for informal recreation and natural resources protection."[58] Meanwhile, another American scholar Anne Beer defined green space from the angle of spatial and environmental qualities: "Green spaces are 'places'– areas of land with mainly unsealed surfaces within and around the city –these 'place' – carry human activity as well as plants, wildlife and water and their presence influences quality of life, as well as local air and water quality."[59] The European Union classified "public open areas" into three types: ①parks, gardens, spaces available for pedestrians and cyclers, cemeteries; ②sports fields that open to public free of charge; ③private owned districts that open to public free of charge,

[57] Edited by Ian C. Laurie. Nature in Cities – The Natural Environment in the Design and Development of Urban Green Space, John Wiley & Sons, Chichester, New York, Brisbane, Toronto, 1979, p190
[58] Donna L. Erickson, Metro Green – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p7
[59] Ibid, p7-9

including farmlands and private gardens.[60] In the Planning Policy Guidance 17 of Britain: Planning for Open Space, Sport and Recreation (PPG17), open space is divided into 10 types (Tab. 2-6),[61] which are all in accordance with the green space concept discussed here, except the tenth category. These green network systems of various types, levels and scales, made up of natural, semi-natural and artificial vegetation, constitute the living physical surroundings and ecological environment of the city. Of course, in addition to the large-scale green spaces, many small or scattered districts can account for green spaces, such as private social space, open space between buildings, neighborhood streets or squares and street corners. These spaces can often be utilized in civic life. Scholars including Swanwick divided urban green spaces into four types, namely "amenity green space, functional green space, semi-natural habitats and linear green space". The first three categories were further divided into 9 subcategories (Tab. 2-7), complementing the open space classification in United Kingdom.

With different classification methods, urban green spaces can be divided into: ①street greeneries, green squares, park greeneries and scenic spots, categorized by the types of the spaces; ②living spaces, work spaces, transportation spaces and recreational spaces, categorized by the functions; ③punctate spaces, linear spaces and planar spaces, categorized by the spatial form. Each type of spaces contains specific spatial forms and contents. Due to their different locations, different functions, different size and shape, the urban spaces each play different roles in the urban green space system. Such diversities, however, do not hinder their abilities to complement each other, to adjust the environment, or to help preserve the urban landscape and pass on the cultural heritage.

[60] Annex 3: European Common Indicators: Towards a Local Sustainability Profile, Towards an Urban Atlas-Assessment of spatial data on 25 European Cities and Urban Areas. Environmental Issue Report No.30, 2002, p118

[61] Department for Communities and Local Government. Planning Policy Guidance 17: Planning for Open Space, Sports and Recreation.

Modern urban green spaces have the following features: ①Free: Unlike the private gardens exclusively owned by the royal family, the nobility and the rich as in earlier ages, most urban green spaces are now open to the public to serve the citizens in their daily life, except for a few special properties. For instance, in the 1770s, there were over 4000 private country estate parks in Britain, exclusively available to the rich and powerful.[62] In modern cities, however, the green spaces have become the venue where citizens participate in daily recreational activities, social interactions and important events such as gatherings.

Tab. 2-6 Open Space Typology in United Kingdom

	Open space typologies	Types
1	Parks and gardens	Urban parks, country parks, formal gardens
2	Natural and semi-natural urban greenspaces	Woodlands, urban forestry, scrub, grasslands, wetlands, open and running water, wastelands and derelict open land, rock areas(including cliffs, quarries and pits)
3	Green corridors	Rivers, canal banks, cycle ways and rights of way
4	Outdoor sports facilities	Tennis courts, bowling greens, sports pitches, golf courses, athletics tracks, school and other institutional playing fields and other outdoor sports areas
5	Amenity greenspace	Informal recreation spaces, green spaces in and around the housing, domestic gardens and village greens
6	Provision for children and teenagers	Play fields, skateboard parks, outdoor basketball hoops other more informal areas
7	Allotments, community gardens, city/urban farms	
8	Cemeteries, churchyards	
9	Accessible countryside in urban fringe areas	
10	Civic spaces	Civic and market squares and other hard surfaced areas designed for pedestrians

[62] John L. Crompton. The Role of the Proximate Principle in the Emergence of Urban Parks in the United Kingdom and in the United States. Leisure Studies, Vol. 26, No. 2, 213–234. April 2007.

Tab. 2-7 The typology of urban green space[63]

All Green Spaces	Amenity green space	Recreation green space	Parks and gardens, informal recreation areas, outdoor sports areas, play areas
		Incidental green space	Housing green space, other incidental space
		Private green space	Domestic gardens
	Functional green space	Productive green space	Remnant farmland, city farms, allotments
		Burial grounds	Cemeteries, churchyards
		Institutional grounds	School grounds (including school farm and growing areas), other institutional grounds
	Semi-natural habitats	Wetland	Open/running water, marshes and fens
		Woodland	Deciduous woodland, coniferous woodland, mixed woodland
		Other habitats	Moors and heaths, grasslands, disturbed ground
	Linear green space		River and canal banks, transport corridors,(road, rail, cycle ways and walking routes), other linear features (e.g. cliffs)

②Easy Access: The premise of easy access and availability to citizens lies in the reasonable structure, even distribution and appropriate distance of the green spaces. The parks and greeneries distributed around people's living areas are also a demonstration of social equity and justice. ③Scenic beauty: Most urban green spaces are carefully designed and executed, with very attractive scenic beauty. Even the natural spaces, which are not manly designed, have gained beautiful sceneries after being used and transformed by man. In this way, people can enjoy and appreciate the pleasant sceneries whilst getting intimate with nature. ④Fully functional: As important urban infrastructure, green spaces, in whichever districts, are supposed to meet different needs of the citizens, such as children's attachment to playgrounds, or teenagers' preference to sports fields. Besides, urban green spaces also provide shelter from disasters. They are also the important channels and hubs connecting residential districts, education districts, commercial districts and administration districts. ⑤Ecological stability: Urban green spaces are of great significance to maintaining the species diversity in the city because they help

[63] Donna Erickson. MetroGreen – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 17.

stabilize the ecology, providing man with suitable living environment and outdoor venues, and providing habitats for other animals, plants and creatures. Besides, they also play an active role in balancing the material cycle, energy cycle and water cycle of the city. ⑥Environmental protection: Green spaces play an irreplaceable role in ameliorating urban environment. They help purify the environment, adjust the microclimate, reduce the noise, preserve the soil and water and mitigate the heat island effect, laying the foundation for the functionality of the city. According to a research on Chicago, the trees in the city can reduce particulates by 234 tons (212 metric tons), as well as absorb 98 tons of nitrogen dioxide (89 metric tons), 93 tons of sulfur dioxide (84 metric tons) and 17 tons of carbon monoxide (15 metric tons).[64]

2.3.4 Developmental evolution of urban green space

In early ages, Urban green space is consisted mainly by farmlands, natural lands, rivers and lakes within the city, while manmade green space such as private gardens (of the royal family, the nobility, officials and rich people) remained small in scale. With the growing economic and trading activities, the expanding handicraft industry, and the increasing population, such green spaces in the city were gradually replaced by “grey” spaces—the architectural areas. Nonetheless, due to the limited scales of the cities before industrial revolution, there was a smaller disparity and a closer connection between urban and suburban areas. Therefore, people did not have urgent need to get intimate with nature or urgent demand for suburban environment. From 1650 to 1900, however, the emergence of industrial revolution, particularly the evolution of manufacturing methods, the expansion industrial scale and the sharply increased population, brought about unprecedented changes to the old urban spatial patterns, completely changing the

[64] By Jennifer Ackerman. Urban Downtime. The City of Light is also a city of green, with a panoply of parks and gardens where Parisians rest and rejuvenate.

urban-rural layout and the traditional urban images and landscape layouts of the agricultural age. In the aspect of land use, 75% of Britain's total wealth was contributed by agricultural production and only 7% was from industrial production. However after one century, the percentage of industrial contribution rose to 24% while the percentage of agricultural contributed wealth dropped to 36%.[65] This phenomenon indicates that a lot of land was used to build factories and industrial towns, as well as to build the transportation network (roads, railways and waterways) for cargos and raw materials. As for the waterways, Britain had built 400 miles of canals by the mid-19th century for cargo transportation, and the total length had reached nearly 3000 miles by 1900.[66] In the aspect of urban population, Berlin had a population of 30,000 in 1701, which had increased to 170,000 by the year 1800[67]; the populations of Birmingham and Sheffield were respectively 73,000 and 46,000 people in 1801, and reached respectively 200,000 and 110,000 by year 1844; the population of Leeds also increased from 53,000 people in 1801 to 125,000 people in 1831.[68] London had become the world largest city with a population of 1 million by the early 19th century, and its population further expanded to 6.7 million in the late 19th century[69] (Fig. 2-11). The same phenomena was witnessed in many of the European industrial cities. By the year 1900, the number of people living in European urban areas, old or new, had reached 293 million, sextupled the population in 1700[70]. Meanwhile in the United States, urban population soared from 10 million to 30 million in merely 30 years of time from 1870 to 1900[71]. Consequently, industrialization and urbanization largely destroyed the original patterns of urban spaces, with the exacerbated trend

[65] Philip Pergill & Nancy Volkman. Landscape in History – Design and Planning in the Eastern and Western Traditions, John Wiley & Sons, INC. New York, 1999. P 248-49.
[66] Ibid, p250.
[67] Ibid, p250.
[68] Christopher G. Boone & Ali Modarres. City and Environment, Temple University Press, Philadelphia, 2006, p30.
[69] History of London. http://en.wikipedia.org/wiki/History_of_London. 04--04-2011.
[70] Philip Pergill & Nancy Volkman. Landscape in History – Design and Planning in the Eastern and Western Traditions, John Wiley & Sons, INC. New York, 1999. P 260.
[71] Emily Talen. New Urbanism & American Planning – The Conflict of Cultures. Routledge, New York and London, 2005, p 73.

of green areas being encroached by “grey areas”. Urban environment encountered unprecedented obstacles, which became intolerable in the 19th century (Fig. 2-12).

Fig. 2-11 London in 1300 (left, with population of 100,000[72]) and Rocque’s Map of London, 1741-5 (right), demonstrating the expansion of London city (Source: http://en.wikipedia.org/wiki/History_of_London)

Fig 2-12 London by Rail Gustave Doré c. 1870, showing the densely populated and polluted environments created in the new industrial cities (left) (Source: http://en.wikipedia.org/wiki/Industrial_Revolution);

Fig.2-13 Englischer Garten, München (right) (Source: http://de.wikipedia.org/wiki/Englischer_Garten_(M%C3%BCnchen)

To cope with and alleviate such trends, many city made efforts to improve urban green spaces so as to safeguard public health, to improve urban environmental quality, to prevent fires and diseases, as well as to promote the healthy development of the city. After the French Revolution in 1789, many

[72] London. http://en.wikipedia.org/wiki/London. 04-04-2011.

private gardens originally owned by the royal family and the nobility started to open to the public. However, these gardens failed to meet the public's needs due to the limited quantity and the fact that the gardens were mainly located near the palace. Therefore, building promenades and public parks was the major measure taken to improve the environment.

In the late 18th century, German scholar Christian Cay Lorenz Hirschfeld (1742-1792), professor of philosophy and aesthetics at Christian Albrechts University at Kiel, who published five volumes of Theory of Garden Art (Theorie der Gartenkunst) from 1779 to 1785, developed the idea of building "Volksgarten" (People Garden/Park) available for all levels of society. "Volksgarten" is where everyone can enjoy nature. Statues of ancient heroes and monuments of major historical events should be built in the park to create fascination sceneries[73]. Under the influence of his theory, Sir Benjamin Thompson (1753-1814) designed the first "people park" for Munich, Germany, in 1789. Because Hirschfeld praised highly of the English style of gardening architecture, the park was named "English Garden of Munich" (Englischer Garten, München), but it did not present the real English style until Schell reformed it in 1804. Another "people park" was built in Vienna, Austria in the years 1819 to 1823 (Fig. 2-13)[74]. It is safe to say that Hirschfeld's vision was in accordance with the prevailing social trends of that time. Later, British scholar John Claudius Loudon (1783-1843) stated that park should display less artificial landscape and provide more fresh air and natural walking paths for the sake of people's health. He also believed that "public gardens" were conducive to upgrading the civilization standard of the unprivileged populace[75]. His ideas had profound influence on the later development of park design.

[73] Michael Lancaster. The New European Landscape, Butterworth Architecture, Oxford, 1994, p 60.
[74] Volksgarten. http://www.aeiou.at/aeiou.encyclop.v/v734767.htm;internal&action=_setlanguage.action?LANGUAGE =en. 04-11-2011.
[75] Michael Lancaster. The New European Landscape, Butterworth Architecture, Oxford, 1994, p 60.

The Regent's Park designed by John Nash (1752-1835) in 1811 marked the beginning of such efforts made by British cities. Rather than the popular "gardensque" style, he adopted the mode of suburban landscape in his design, using woodlands and lakes (Fig. 2-14). The significance of this park lied in the fact that it provided the neighborhood with "breathing space between town and country", and that it separated the far-stretching construction regions.[76] The completion of the Regent's Park played an exemplary role. As the country where industrial revolution first took place, Britain also initiated the concept of "municipal park" (a.k.a., city park) and witnessed the first "park movement" of western history in 1930s to 1940s.[77] The movement traced back to a report submitted to the Congress by the "Select Committee on Public Walks" which mainly contained the feasibility study of carrying out recreational activities in major industrial cities and small towns. The report pointed out that the most impoverished people living in the dilapidated, densely populated downtown areas had the most pressing needs for parks.[78] However, even in London, only part of the city (where the upper society gathered) contained adequate number of parks, while the east part (where workers lived) did not. In the report, the Committee identified the benefits of parks in physical, moral, spiritual and political terms. Parks would be the lungs for the city and would refresh the air; would improve people's health and provide places for exercise; would be an alternative form of recreation to the tavern; and would provide beneficial contact with nature, thus elevating the spirit. Furthermore, as all members of society would use parks, social tensions would be reduced and the classes would learn from each other.[79] The publication of the report marked the official start of the park movement in Britain. The park movement was considered in its pioneering phase from the 1830s to

[76] Philip Pergill & Nancy Volkman. Landscape in History – Design and Planning in the Eastern and Western Traditions, John Wiley & Sons, INC. New York, 1999. P254.
[77] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. p9.
[78] Ibid.
[79] Ibid.

1885. In 1833, a municipal park –Moor Park was built in Preston, a newly industrialized town.[80] In 1843, municipal government of Liverpool purchased 225 acres of land and hired architect Joseph Paxton (1803-1865) for the planning and design. Like John Nash, Paxton also adopted the "country park" style instead of "gardensque" design. The way he allocated the buildings around the park and the application of round roads made a deep impression on American landscape architect Olmsted when he visited the park in 1850.[81] Manchester was regarded as the first "industrial city" in the world[82], and the city also suffered the worst environmental pollution. In response to the strong appealing of the public, the municipal authorities began the planning and construction of city parks. In 1846, the first publics parks in British history came into being— namely the Peel Park, Queens Park and Phillips Park, all designed by Joshua Major[83]. In 1854, Glasgow also built its first municipal park, the Kelvingrove Park, designed by Paxton. The completion of these parks largely enriched people's life. According to a research on Glasgow in 1883, Glasgow Green Park had 100,000 visitors on an ordinary Sunday, and Kelvingrove Park also had 48,000 visitors.[84] Since then, the tide of park construction prevailed across Britain. The new parks were mostly located on the rural-urban fringe due to the lower price of land. In the 1880s, people began to realize the inconveniences of such park location, and started the trend of building smaller parks in the inner-city areas. The years between 1885 and 1914 marked a new phase of the park movement, during which the number of various parks soared and more attention was paid to the effects of park on people's health, happiness and civilization level. With the reconstruction of old towns and the building of new cities after the Second World War, the concept of "garden city"

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[80] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000, p10

[81] Philip Pergill & Nancy Volkman. Landscape in History – Design and Planning in the Eastern and Western Traditions, John Wiley & Sons, INC. New York, 1999. P254.

[82] Industrial Revolution. http://en.wikipedia.org/wiki/Industrial_Revolution. 04-04-2011.

[83] Peel Park, Salford. http://en.wikipedia.org/wiki/Peel_Park,_Salford. 04-08-2011.

[84] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. P11.

was adopted, and urban parks and open spaces were nicely integrated with new buildings and districts, bringing fresh changes to the form and content of urban green spaces. Through great efforts during the 1960s and the 1970s, British cities completely changed the old image of pollution and deterioration, fundamentally improving the life quality of their citizens. For example, due to serious pollution, fish became extinct from the upstream of River Thames during 1939 to 1945. Since the pollution treatment started in 1965, the number of fish species rose to 73 from year 1967 to 1973, and reached 91 by year 1976.[85]

Drawing influence from the park movement of Britain, other European countries such as Germany, France and Netherland also started the campaigns of park construction. In Germany, for instance, an English style park, the Muskau Park was built in Muskau by Prince Hermann Von Pückler-Muskau (1785-1871, educated in Britain, author of Hints on Landscape Gardening) (Fig. 2-15). The design of the park did not only pursue natural aesthetics, but also adopted ecological concepts, thus being considered an exploration in such aspect. The United States was also hit by a prevalent park movement in the late 19th century. It was more than just a movement of new gardening trends, but also a revolution in American urban green space development. The movement was also of great significance in achieving social ideals such as promoting democratic equality, social coherence, public health and economic value.[86] In terms of "democratic equality", the parks were expected to provide places for healthful recreations like strolling, picnicking and croquet playing and to tear down class barriers by immersing people in beautiful surroundings. In regard to "social coherence", people hoped to enhance the sense of local pride and affection by building parks, so as to save the non-mainstream classes and ethnic groups from isolation. As for

[85] Edited by Ian C. Laurie. Nature in Cities – The Natural Environment in the Design and Development of Urban Green Space, John Wiley & Sons, Chichester, New York, Brisbane, Toronto, 1979, p 163.
[86] John L. Crompton. The Role of the Proximate Principle in the Emergence of Urban Parks in the United Kingdom and in the United States. Leisure Studies, Vol. 26, No. 2, 213–234. April 2007.

"public health", parks could refresh the air and protect the public from polluted environment. Finally, the "economic value" of the parks lies in the benefits they brought to the physical and mental rehabilitation of blue-collar workers, the increased tax revenue contributable to tourism, and the development of the real estate industry. Andrew Jackson Downing (1815-1852), a pioneer in American landscape design, stated in one of his articles that "parks are better preachers of temperance than Abstinence church, better refiners of national manners than dancing academies and better promoters of general good feeling philosophy lectures of happiness"[87]. Such comment showcased how people expected the parks to perform social functions.

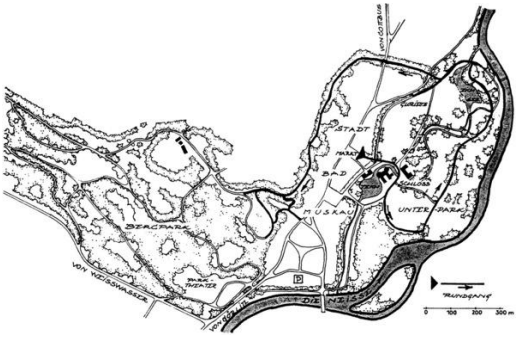


Fig. 2-14 Regent's Park London from 1833 (left), (Source : http://en.wikipedia.org/wiki/Regent's_Park);
Fig. 2-15 Muskau Park Plan (right) (Source : http://www.tankonyvtar.hu/tajrendezes/tajtervezes-tajrendezes-080906-41)

Before the American park movement started in the 1850s, there were not any large comprehensive parks in American cities. People had few places to go to enjoy pastoral views apart from the countryside, city squares, common lands and cemeteries[88]. In as early as 1785, long before the park movement started, someone under the alias "Veritas" has suggested that parks be built in Bettery and Fields in

[87] Dorceta E. Taylor. Central Park as a Model for Social Control: Urban Parks, Social Class and Leisure Behavior in Nineteenth-Century America, Journal of Leisure Research, Fall, 1999.
[88] Ibid.

New York.[89] Half a century later, together with the poet and editor of Evening Post (now known as The New York Post) William Cullen Bryant, Downing called for the construction of municipal park in New York so as to improve the health and living conditions of the citizens[90]. New York was, on one hand, facing the pressure of the expanding city and the ever growing population, while lacking outdoor venues and suffering increasingly severe air pollutions, water pollutions and waste pollutions. On the other hand, since there were no large green lands in the city but for some small squares and public gardens, the beautifully-designed rural romantic cemeteries became a popular spot for recreation because they were large enough to hold a lot of people. For example, the Mount Auburn Cemetery outside Boston had over 2000 visitors on its opening ceremony in 1831[91]. As a result, the community requested strongly to improve the environment and build parks, especially parks like Bois de Boulogne of Paris and Hyde Park of London. The park was initially designed to locate along the side of East River with the advantage of water view, but the site had an area of merely 16 acres, not large enough to create a countryside landscape[92]. Later, they purchased the land in the middle of Manhattan Island, where the park is now located. In 1853, New York municipal government purchased a 700-acre some sources indicated 770 acre[93] instead area from 59th to 106th streets for the creation of Central Park, at a loss of more than 5 million dollars for the land[94]. A special commission was also set up for the construction of the park. The initial design was completed in 1856, by Edward Viele, the project director of urban parks. However, the Commission found the design lackluster and unoriginal, for it followed the "romantic style" and the existing landscape styles in England. In 1857 the commission held a landscape

[89] Ibid.
[90] Andrew Jackson Downing. http://en.wikipedia.org/wiki/Andrew_Jackson_Downing. 04-12-2011.
[91] Dorceta E. Taylor. Central Park as a Model for Social Control: Urban Parks, Social Class and Leisure Behavior in Nineteenth-Century America, Journal of Leisure Research, Fall, 1999.
[92] Philip Pergill & Nancy Volkman. Landscape in History – Design and Planning in the Eastern and Western Traditions, John Wiley & Sons, INC. New York, 1999. P481.
[93] Ibid.
[94] Central Park. http://en.wikipedia.org/wiki/Central_Park. 04-12-2011.

design competition. Among the 33 designs they received, the "Greensward Plan" developed by Olmsted and Vaux was selected as the winning piece (Fig. 2-16, 2-17). In his design, Olmsted exhibited the inspirations drawn from his visits to the parks in England, and incorporated many ideas of his own. The central park project marked the beginning of the park movement in America. After gaining reputation from the Central Park design, Olmsted and Vaux received many park design orders, such as the Prospect Park in Brooklyn (Fig. 2-18), the Riverside Parks in Chicago and the Grand Necklace of Parks in Wisconsin, among which the most renowned was the Emerald Necklace park system of Boston which connected municipal parks with parkways and waterways (Fig. 2-19).

Fig. 2-16 A map of Central Park from 1863, New York
(Source: Alexander Darvin, The American City – What works, what doesn't, McGraw-Hill, New York, 2002, p33)

Navigated by Olmsted, the park movement of America surpassed the old forms and contents of European park design and created new methods of establishing municipal park system. It not only contributed to the construction of national parks which were designed to preserve historical and cultural landmarks, but also paved the way for landscape architecture to become a specialized subject and profession. The suburbaization of American cities after World War II changed the shape and layout of urban development. By the mid 20th century, the United States has set up a complete urban park system. With the rising awareness of

environmental protection and the prevalence of green movements in the 1960s, a new trend emerged among the scholars and designers to integrate ecological concepts and ecological protection into the planning and construction of landscape architecture. Ian L. McHarg (1920-2001) was a representative figure of this period (Fig. 2-20). His book Design with Nature (published in 1969) not only enriched the theories of landscape architecture and redirected its future development, but also largely expanded the professional scope of landscape architects, casting profound influence on both the United States and the rest of the world. In his paper Urban Parks of the Past and Future, American scholar Galen Cranz summarized the history of urban parks in the United States as five stages[95]: ①The Pleasure Ground, typically located on the edge of a city, mainly presenting pastoral landscape, mostly built during the period 1850 to 1900; ②The Reform Park, mainly refers to small parks built from 1900 to 1930, mostly built in densely populated communities and often combined with community sports fields and playgrounds; ③The Recreational Facility, built in the period from 1930 to 1965, was less a park than important recreational space with sports stadiums and parking lots combined together; ④ Open Space System—with changes in the urban space and people's ideology of recreation after the mid 20th century, parks became part of the open space system as various open spaces were regarded as recreational places; and ⑤The Model of the Future, mainly concerning the search for ways to establish sustainable green space system.

[95] Galen Cranz. Urban Parks of the Past and Future. http://www.pps.org/articles/futureparks/. 04-15-2011.

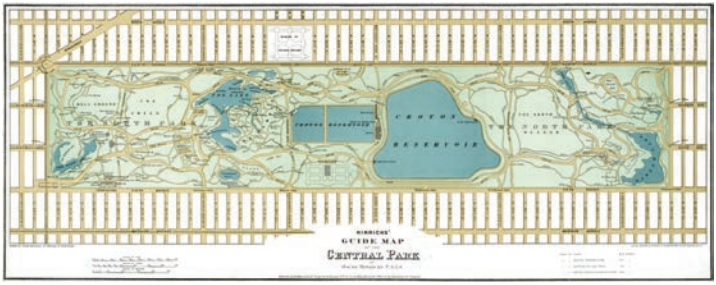


Fig. 2-17 A map of Central Park from 1875, New York (Source: http://en.wikipedia.org/wiki/Central_Park)

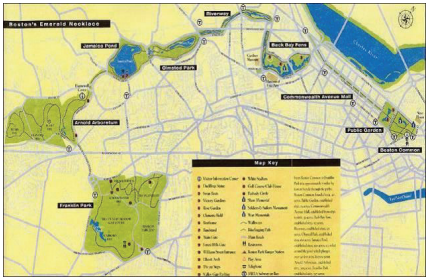


Fig. 2-18 Map of Prospect Park in 1901 (left); (Source: http://en.wikipedia.org/wiki/Prospect_Park_(Brooklyn))
Fig. 2-19 The Emerald Necklace today (right)
(Source: http://www.nps.gov/history/nr/twhp/wwwlps/lessons/86bostonparks/86visual2.htm)

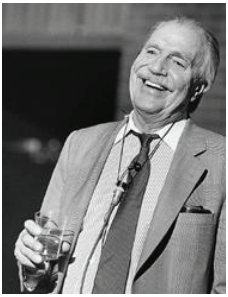


Fig. 2-20 Ian L. McHarg (Source: http://en.wikipedia.org/wiki/Ian_McHarg)

In a sense, the cases of park evolution in the UK and the US were merely a microcosm of the urban green space construction and development in western countries, among which some cities had formed their unique characteristics. The urban

park system of Stockholm was an outstanding example. The city was blessed with great natural conditions, consisting of 14 islands connected by 57 bridges, with built-up area, water area and green area each accounting for 1/3 of the city. Though such urban spatial structure should be the envy of many cities, Stockholm was not contented. It had started the design and construction of urban park system since the 1930s. As commented by Swedish scholar Thorbjörn Anderson, "Stockholm is the city with the world's most advanced park system, ... The form of the park system is a green network that reaches to every corner of the city, with greenlands being a major, indispensable part of the urban structure."[96] In the Green Map of Stockholm, established in 1999, the following goals were set for the urban green spaces: ①Within 200m there shall be a green oasis where people can play, do sports, walk and sit in the sun; ② Within 200m there shall be a park block with an area of 1-5 ha; ③With 500m there shall be place for picnic and soccer; ④Within 500m there shall be a city district park with an area of 5-50ha; ⑤Within 1 km there shall be a nature reserve with an area of at least 50ha.[97] The Plan also stated that protective green wedges should be built in between the road network.[98] （Fig. 2-21）Stockholm now has over 1000 parks[99], and a total open green space area of over 68,704ha, 86 m^2 per head, accounting for 36% of the city's land[100] (Fig. 2-22). Globally speaking, with the social and economic development, the advancing science and technology and the changes in people's life style ever since the late 20th century, the construction of urban green space has no longer been restricted to parks and green lands, but has involved the protection of ecology, environment, resources and nature, so as to create a more comprehensive and more sustainable green space system (Fig. 2-23). Meanwhile, while building and perfecting their inner city green spaces, many cities have also taken into consideration the planning and

[96] Thorbjorn Andersson, Sweden. .Swedish Dream of the mid 20th Century—Park Design as a means of social progress; Michael Conan, France, Chen Wangheng, China. City and Gardens—the Influence of Gardens on Urban Life and Culture. Wuhan University Publishing House, 2006, page 227.
[97] Alyse Nelson. Stockholm, Sweden. http://depts.washington.edu/open2100/Resources/1_OpenSpaceSystems/Open_Space_ Systems/Stockholm_ Case_Study.pdf. 04-16-2011.
[98] Ibid.
[99] SOCKHOLM European Green Capital 2010, Publications Office of the European Union, Luxembourg, 2010, p 17.
[100] European Green Capital. Measuring Urban Sustainability Analysis of the European Green Capital Award 2010 & 2011 application round, p19. http://ec.europa.eu/environment/europeangreencapital/docs/cities/egc_analysis2010-2011.pdf. 05-18-2011.

construction of green spaces outside the city, so as to perform more comprehensive functions. For example, by building greenbelts, green rings and green wedges on the edge and fringe of the city, they managed to constrain the otherwise unlimited expansion of the city, and provided supplement to the inner city green spaces. For another example, the Greater London Regional Planning Committee issued the Metropolitan Green Belt Plan to protect the natural, ecological, environmental and landscape resources of the urban area in 1935.

Over the past century, parks and other forms of green lands, such as recreational areas, ecological areas and product areas, have achieved profound progress in both quantities and types, and in terms of both the designs and the functions. At the same time, there have been more public spaces of different forms than before, including the pedestrian streets, shopping centres, entertainment parks, theme parks and so on. These public spaces have played a regulatory and complementary role for the traditional green spaces which mainly concerned parks. Particularly, ever since the late 20th century, profound changes have taken place in the structure and layout of urban spaces, due to the unprecedented transformations in economic patterns, industrial structures, market situations, science and technology and lifestyles.

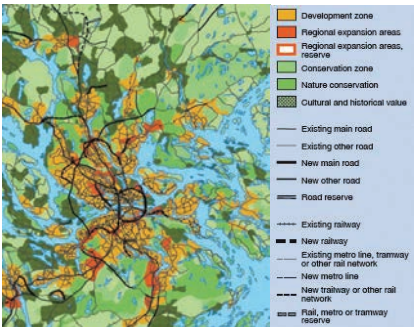


Fig. 2-21 Green Map showed existing and future growth areas (1999) (left)
(Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf) ,
Fig. 2-22 Map of Stockholm (in 2010) (right), (Source: STOCKHOLM European Green Capital 2010)

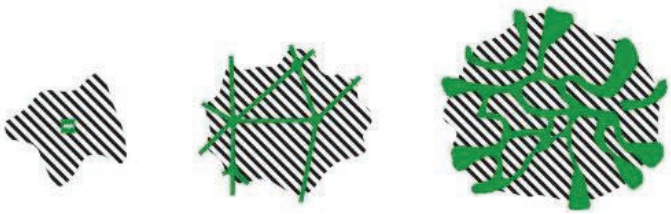


Fig 2-23 The illustration for evolution of urban green space, from park as an oasis in the nineteenth century (top diagram) to green space as liner and network system (middle and bottom diagram) [101]

In response to such changes in Europe, EU started to pay attention to the urban environment and sustainable development in as early as the 1990s, issuing the Greenpaper on the Urban Environment in 1990 and the European Sustainable Cities in 1996. Apart from these, in 1990, OECD also issued the Environmental Policies for Cities in the 1990s. These papers had an apparent effect in promoting the planning and construction of urban green spaces. With the rising awareness in ecology, environment, sustainable development and climate change since the 21st century, urban green space has witnessed profound development, playing a more important role in improving the city's image and the people's living environment. For example, the citizens of Michigan raised 84 million dollars in order to preserve the 8000 acre of green spaces around the city in the November 2003, by voting through a 30-year property tax levy. Two-thirds of the fund raised would be used for the 8 neighboring townships[102].

2.4 Outdoor Recreation and Quality of Urban Life

Recreation is a unique phenomenon to the human being, and an activity different from working and living. In a sense, the ways of recreation can be the criterion of human civilization as well as urban life quality. The diversified

[101] By Tom Turner. Parks and Boundless Space, http://www.gardenvisit.com/history_theory/library_online_ebooks/ architecture_city_as_landscape /public_parks_boundless_space. 03-31-2011.
[102] Donna L. Erickson, MetroGreen – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 3.

recreational activities provided by the city can be one important reason why people adore the urban life. Relatively, outdoor recreation is the most favored means among various types of recreational activities. Especially for the citizens who wish to get close to nature, it is most desirable to engage in activities such as relaxing, entertainment, leisure sports and leisure rehabilitation in green spaces. Both the urban park movements 150 years ago and the later construction of urban spatial system including the green spaces were focused on improving urban environment and creating healthy living conditions and recreational atmosphere for the citizens, which basically concerned the improvement of people's life quality. As history has demonstrated, the efforts made have been effective and functional. For instance, people's average life expectancy has been universally prolonged. In the United States, for example, the average life span was 49.2 years at the beginning of the 20th century, and has reached 77.5 years by 2003, and more specifically, 80.5 years for Caucasian women, 76.1 years for African American women, 75.3 years for Caucasian men and 69 years for African American men[103]. The average life expectancy of China was merely 35 years in 1949, and has reached 71 by 2001, which was higher than the average life span of the world (69 years)[104] and that of middle income countries (65 years)[105]. The number further rose to 73 by year 2010. Of course, the extension of people's life is the joint result of multiple factors, but no doubt the well-constructed urban green spaces have played unavailable role for it.

2.4.1 Outdoor Recreation

Recreation is an active method and important way for people to refresh themselves physically and mentally, to reduce the stress, to recover their health

[103] Laura B. Shrestha. CRS Report for Congress: Life Expectancy in the United States, Updated August 16, 2006.
[104] Wang Shaoguang, professor at The Chinese University of Hong Kong, Crisis and Opportunities of China's Public Health. http://unpan1.un.org/ intradoc/groups/public /documents/ APCITY/UNPAN011980.pdf, 28-06-2012.
[105] People's Daily Online. Average life expectancy of Chinese to reach 73 by 2010 (April 13, 2009), http://english.peopledaily.com.cn/90001/ 90776/ 90882/6635572.html, 28-06-2012.

and to experience life. In the modern society, recreation has gradually become one point of healthy lifestyle, a positive value orientation and a civilized cultural wealth. Recreation can help people better cope with various challenges in their daily life, and perform their duty and responsibilities more efficiently, thus fundamentally guaranteeing their happiness and life quality.

According to the history, with the accumulation of knowledge and experience, people have been persistently upgrading the production methods, improving the working conditions and promoting the work efficiency in the process of transforming nature. Generally, the labor time required for survival has been constantly reduced. Especially since the industrialization, the working time and working intensity have been further reduced by the advancing science and technology. Currently, the 35-hour workweek regime is adopted in France, and the working hour for an European worker is generally between 35 to 37.5 hours[106]. Naturally, such progress came with unremitting efforts and struggles. During the industrial revolution in England, for example, the adoption of mechanized production methods did not alleviate the workers' labor intensity or labor time, but aggravated them (Tab. 2-8). According to the book Time and Work in England 1750-1830, the total labor time of a worker was 2500 hours in 1760 and 3000 hours in 1830. Some scholars estimated that the labor time rose from 3000 hours to 4000 hours during the period from the mid 18th century to the mid 19th century[107]. The detailed labor hours are shown in Table 8, the timing of main activities during a day for workers from London and North England. As regulated by the Health and Morals of Apprentices Act, 1802, daily labor time for an apprentice should not exceed 12 hours. Based on the Factory Act 1833, a child under 13 years old must not work for more than 9 hours a day or 48 hours a week. The Factory Act 1844 provided that women and teenagers (between the age of 13

[106] Working time. http://en.wikipedia.org/wiki/Working_time. 04-19-2011.
[107] Hans-Joachim Voth. Time and work in England 1750-1830. Oxford University Press, 2000, p 4.

and 18) must not work for over 12 hours a day. It was not until 1847 was the provision changed to limit the daily working hour under 10 hours[108]. From these laws and regulations we can learn about the labor time of children and women, and can imagine, under such circumstances, how scarce the leisure time was. Back then, it was difficult, if not impossible, to rest even on religious holidays. Hence, in the early 20th century, people were still fighting for the 8-hour working regime by carrying out various strikes and demonstrations. Besides, the fact that people spent more time commuting also imperceptibly increased the total time they spent at work (Fig. 2-24).

Tab. 2-8 Timing of main activities during the day, London and North of England[109]

Activities	1750		1800		1830	
	London	North England	London	North England	London	North England
Get up	06:00	06:00	05:56	06:00	07:08	05:49
Go to bed	22:50	22:40	23:21	22:04	22:46	22:33
Start to work	06:10	06:10	06:33	06:45	07:50	06:03
End of work	19:00	19:00	19:06	n/a	19:05	20:00

With the economic development and people's rising living standards, with the increasing attention paid to life quality and health, and more importantly with the increasing disposable income and decreasing labor hour, recreation has now become a public, common activity which is no longer exclusively available to a small number of people. For citizens today, daily outdoor activities, especially recreation activities in green spaces, have become an important part of their life. Therefore, people now have unprecedentedly high demand for the urban green spaces which can be used for recreational purposes. Such demand encourages municipal authorities to increase the investment and efforts in this area, so as to better keep up with the trend of social development. The sound spatial

[108] Impact of the Industrial Revolution, http://industrialrevolution.sea.ca/impact.html. 07-21-2011.
[109] Hans-Joachim Voth. Time and work in England 1750-1830. Oxford University Press, 2000, p 67.

environment can encourage and attract people to increase their activities. In regard to this, the renowned Danish architect Jan Gehl observed and studied outdoor activities, and categorized them into three types, namely the necessary activities, the optional activities and the social activities (Tab. 2-9)[110]. In his point of view, people's "optional activities" are closely dependent on the quality of spatial environment. Based on a survey in 1996 on British people's outdoor activities, the main purpose of outdoor activities for 18% respondents was to see their friends, and for another 18% was to have dinner, for 15% was to take a walk, and 11% people mainly went out for shopping[111]. In a way, the survey result showcased Gehl's observation on human outdoor activity types. In 1992, MORI (Market & Opinion Research International, a world famous British company) conducted a survey on the recreation activities in the United Kingdom. The survey showed that 47% of the people had utilized local recreation centers and swimming pools in the last 12 months, and meanwhile 70% had utilized local parks, playgrounds and open spaces, over half of whom used these facilities for over 10 times[112]. It is clear how green open spaces are important to citizen's daily life. Generally, many people regard outdoor activities as optional, specific activities, which are directly affected by the weather, the distance between the green space and their home, the conditions of the site and the atmosphere. However, outdoor activities could be a type of necessary activity for certain groups. For example, for people who are overweight, it should be their lifestyle to take more physical exercises. According to Landscape Ireland, in the period from 1991 to 2003 in Greater Dublin Area, the average commuting time rose from 31 minutes to 57 minutes. Meanwhile, 1/5 of the children were overweight and 1/20 were obese, among which 63% of the

[110] Jan Gehl. Life Between Buildings. Copenhagen: The Danish Architectural Press. Six edition, second, issue, 2010. P 9-10.
[111] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. P11.
[112] Ibid.

school-age children were 2kg overweight and 40% were 1kg overweight, while only 25% and 2% of them went to school on foot or by bike[113].

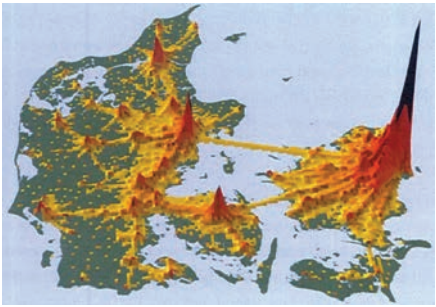


Fig.2-24 Commuting distances became longer and longer with the city sprawl as showed Copenhagen, Aarhus, Aalborg and Odense on the map (Source: Town Planning in Denmark, 2010, the Danish Town Planning Institute and Geografforlaget A/S, p28)

Tab. 2-9 Jan Gehl's three types of outdoor activities

Type	Contents
Necessary activity	Activities that one must do daily, such as attending school, going to work and shopping
Optional activity	Activities that can be flexibly arranged according to specific circumstances, such as walking, entertainment and fitness,
Social activity	Such as formal and informal socializing activities

To fulfill people's demand for outdoor recreation activities, many cities have set up specific goals in aspect of designing and constructing urban green spaces. Though there is no clear standard for the accessibility of the nearest green space from the residence, it has been shown in many researches that when the nearest green space is over 300 to 400 meters away from the residence, people go there much less frequently and much less willingly. Hence, this distance is often regarded as the threshold of green space accessibility. In the 1990s, European Environment Agency (EEA) defines such threshold as "within 15 minutes' walk"

[113] by Aisling Leahy. The Greener Side of Getting Around. Landscape Ireland – Getting around (Geimhridh 2007). http://www.irishlandscapeinstitute.com/home.html. 05-05-2011.

(as it is equal to a 500m walk for the elderly). The Environmental Issue Report No. 30, 2002, however, defined the threshold of public open area accessibility as 300m114. The United Kingdom set up clear requirements for the distribution and layout of various types of green spaces throughout the country as they issued the Accessible Natural Green space Standard (ANGSt) (Tab. 2-10), which established the nearest accessible distance of green area under 2ha as within 300m. Meanwhile, European Environmental Agency (EEA) suggested the accessible distance be within 15 minutes' walk (approximately 900-1000m). To fulfill such standard, many cities have set up their own construction targets. For instance, London issued the Open Space Strategies—Best Practice Guidance in September 2008, in which it followed the suggestion of "Natural England" Organization and divided London's Public Open Space Hierarchy into 7 classes, assigning specific scale and service requirements to each class (Tab. 2-11). London has now had a green space coverage of 4,250 ha (10,000 acres)[115], enough to promote the fulfillment people's daily recreational needs. As demonstrated by a survey on Redbridge Town conducted by MORI (Market & Opinion Research International, a world renowned British company), 73% of the citizens were content with their life, and 79% were satisfied with the parks and open spaces[116]. Of course, by the time the survey was conducted, all British cities had not reached the recommended standards of PPG17. According to a study in Sheffield, for instance, though only 36.5% of the households were living within 300m away from the nearest green space, 95.6% households were within 15 minutes' walk from the nearest green space, which met the standards set by the European Union[117]. Currently, there are

[114] Annex 3: European common indicators: Towards a local sustainability Profile. Towards an urban atlas - Assessment of spatial data on 25 European cities and urban areas, P118.

[115] City of London. Nature of the London – A spotlight on biodiversity within the City of London's Open Spaces. P6. http://217.154.230.218/NR/rdonlyres/715B523F-875D-41DA-A883-3D6B3253FDFC/0/OS_BioDiversityWeb.pdf. 04-22-2011.

[116] General Survey March 2006 – Results. http://econsultations.redbridge.gov.uk/redbridge/UploadedFiles/RLcopy%20 for%20E%20con% 20data base.pdf.

[117] Olga Barbosa, et al. Who benefits from access to green space? A case study from Sheffield, UK. Landscape and Urban Planning Volume 83, Issues 2-3, 19 November 2007, P 190.

approximately 30,000 parks in the UK, among which 5,000 are of historical significance[118]. The parks have become important venues of people's daily activities where around 8 million people carry out recreational activities every day[119]. According to the National Recreation and Park Association, the United States now possesses 105,000 parks (private parks excluded), in the service of over 300 million people[120]. In New York alone there lie 1700 parks of various types and 14 miles' of beaches accessible for public recreational use[121]. Meanwhile, total park coverage in Stockholm has reached 21,000 acres (accounting for 40% of the total land area), equivalent to 27 acres for each resident[122]. As demonstrated by the data of the Canadian Ministry of Culture and Recreation, Canadian cities have accomplished high standards of urban green space layout and accessibility (Tab. 2-12).

In spite of the huge disparities in the development levels and stages between countries and cities, it should be their common target to create more outdoor activity venues for the citizens through their efforts in establishing and improving the green space system.

Tab. 2-10 Natural England's Accessible Natural Greenspace Standard (ANGSt) [123]

Types of green space	Area	Accessible distance
greenspace 1	2 ha	>300 m
greenspace 2	20 ha	≥2 km
greenspace 3	100 ha	≥5 km
greenspace 4	500 ha	≥10 km
greenspace 5	1ha/1000 people	Local

[118] Stewart Harding. A Blind Date between Illness and Cure. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. Foreword IV.
[119] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. P11.
[120] National Initiative Launched to Support Public Parks and Recreation in America. http://www.theoutdoorwire.com/ story/1290593585aswga87tcpv. 04-17-2011.
[121] Smoke-Free in New in New York – New Law Extends Ban to Park and Beaches. Park & Recreation. April 2011, P 13. http://www.Nxt book.com/ nxtbooks/nrpa/201104/index.php#/14. 04-20-2011.
[122] Alyse Nelson. Stockholm, Sweden. http://depts.washington.edu/open2100/Resources/1_OpenSpaceSystems/Open _Space_Systems /Stockholm Case Study.pdf. 04-15-2011.
[123] Nature Nearby' Accessible Natural Greenspace Guidance. http://www.ukmaburbanforum.co.uk/docunents/other/ nature_nearby.pdf. 04-20-2011.

Tab. 2-11 London's Public Open Space Hierarch[124]

Types of Open Spaces	Area	Accessible Distance
Regional Parks	400 ka	3.2-4 km
Metropolitan Parks	60 ha	3.2 km
District Parks	20 ha	1.2 km
Local Parks and Open Spaces	2 ha	400 m
Small Open Spaces	2 ha	>400 m
Pocket Parks	0.4 ha	>400 m
Linear Open Spaces	Diversed	Flexible

Tab. 2-12 The layout and accession of urban green space in Canada[125]

Types of green space	Acres per 1,000 population	Service Radius (miles)	Size (acres)
Tot-lot	0.25 to 0.5	1/8 to ¼ usually 1/4	0.6 to 2.0 (usually 0.5)
Parkette(vest-pocket park)	0.5	1/8 to ¼	0.6to 1.0 (usually 0.5)
Neighborhood park (playground, local park)	1 to 2	½ to 3, usually 1	¼ to 20 (usually 6)
Community park (playfield)	1 to 2	½ to 3, usually 1	4 to 100 (usually 8 to 25)
City park (municipal subregional park)	5	½ to 3, usually 2 (or ½ hour driving time)	25 to 200 (usually 100)
Regional park	4 to 10	20 (or 1 hour driving time)	25 to 1,000 (usually 100 to 250)
Total	11.75 to 20		

2.4.2 Quality of Urban Life

The quality of urban life is an ambiguous concept with very broad contents. Under different social backgrounds, cultural backgrounds, ethic backgrounds, religious backgrounds and personal backgrounds, people's perceptions and cognitions of urban life quality can be widely diverged and even opposite. There exist multiple factors that influence the quality of urban life, including political, economic, social, cultural, religious, security and environmental aspects among

[124] A Joint Consultation Draft by the Mayor of London and CABE Space. Open Space Strategies – Best Practice Guidance. P20. http://legacy.london.gov.uk/mayor/strategies/sds/open_space/oss-draft-sept08.pdf. 04-20-2011.
[125] Donna L. Erickson, MetroGreen – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 13.

others. By as early as the 17th century, famous British thinker Francis Bacon (1561-1626) had pointed out that "an advanced civilization must be accompanied by exquisite gardens"[126]. Casting aside other influencing factors, the quantity, scale, quality, layout and structure of urban green spaces are of great significance. "In the past, parks were regarded as the downtown oasis encompassing the open spaces that have long belonged to the city; more accurately, parks serve as the antidote of urban environment. In contrast, the parks have now become the venue for every day outdoor activities, and an essential complement to the life in residential units[127]. When examining the life quality of cities, many scholars now include the environmental factor as an important criterion. For example, Greek scholar Kostas Karatzas believes that the influencing factors of urban life quality include environmental pressures (such as air quality, noise pollution, and waste disposal), transportation (including the establishment of road network and the relation between roads and buildings), accessibility of the roads, street spaces, green spaces, and administrative and governmental services[128]. Meanwhile, Zhu Dajian and other Chinese scholars recognize urban life quality as consisting of four aspects, namely economic life quality, educational life quality, healthy life quality and environmental life quality[129]. According to a real estate study of the United States, 78% of the property buyers claimed to consider open space as a vital factor when purchasing the property[130]. As shown by a U.S. national survey in 1994, among the 39 factors affecting the purchase, "lots of natural open space" and "plenty of walking and biking paths" ranked the second and the third, respectively. Another study showed that although U.S. urban population increased

[126] Wrote by Francis Bacon, U.K., translated by He Xin. Francis Bacon. Shanxi Normal University General Publishing House, 2003, page 205.
[127] Thorbjorn Andersson, Sweden. .Swedish Dream of the mid 20th Century—Park Design as a means of social progress; Michael Conan, France, Chen Wangheng, China. City and Gardens—the Influence of Gardens on Urban Life and Culture. Wuhan University Publishing House, 2006, page 227.
[128] Kostas Karatzas (Aristotle University, Thessaloniki, Greece). http://www.towntology.net/Meetings/0512-BXL/presentations/ C2 1_towntology _karatzas_brussels.pdf. 04-24-2011.
[129] Zhu Dajian. 2010 World Expo and Urban Life Quality in terms of Sustainable Development. http://www.jsc.fudan.edu.cn/ meeting/051126 /%E8 %AF%B8%E5%A4%A7%E5%BB%BA.pdf. 04-24-2011.
[130] Donna Erickson. Metro Green – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 5.

by merely 17% from 1982 to 1997, urban land use area rose by 47%[131], which demonstrated the enlargement of the land use per head and expansion of open space in the city. Similarly, a study on Leuven, Belgium showed that 50% households had moved out of the city in pursuit for the open green spaces unique to the suburban areas[132]. Therefore, urban environment, especially green space conditions, has an apparent influence on citizen's life quality and daily agenda.

As to the specific effects of green spaces on civic life, it has been demonstrated by many researches that the effects are enormous, especially in terms of physical and mental health. Anna Chiesura conducted a survey on 750 visitors (aged from 15 to 65 years) who carried out recreational activities in the Vondel Park of Amsterdam (and received 467 feed-backs, a questionnaire feed-back rate of 62.3%). According to the study, people went to the park for various reasons, but the main incentive was to "relax" and to "listen and observe nature" (Fig. 2-25)[133]. A similar study, the Danish National Health Interview Survey jointly conducted by organizations including the Danish National Institute of Public Health, also indicated that the main purposes of recreational activities were "to enjoy the weather and get fresh air" and "to reduce stress and relax" (Fig. 2-26)[134]. As shown by the study, 66.9% of the Danish people lived within 300m distance to green spaces, 26.9% lived within the range of 300 m to 1km distance, 6% lived 1-5 km away and only 0.2% of the residents lived outside a 5km range. As for the distance between the residence and the nearest park or other green space, 53.5% were within 300 m, 31.2% were within 300m to 1 km, 12.4% were within 1-5 km and 2.9% were over 5km. In terms of the frequencies at which people visited the parks, 43% of the people visited the park daily, 29.9% went to the park several times a week, 18.6% weekly and 6.6% monthly, while only 2% of the

[131] Donna Erickson. Metro Green – Connecting Open Space in North American Cities, Island Press, Washington, Covelo, London, 2006, p 5.
[132] Ibid.
[133] Anna Chiesura. The role of urban parks for the sustainable city. Landscape and Urban Planning Volume 68, Issue 1, 15 May 2004, p 132.
[134] Jasper Schipperijn, et al. Factors influencing the use of green space: Results from a Danish national representative survey. Landscape and Urban Planning. Volume 95, Issue 3, 15 April 2010, p 134.

people seldom or never visited the parks. Among the residents who utilized the green spaces on a daily basis, 81% of the people living within 300 m away from various green spaces tended to visit parks and green spaces, 70.3% headed to the forests, 76.6% went to other open natural areas and 54.9% headed towards the sea, the lakes and the beaches[135]. These researches proved that urban green spaces had become important venues for citizen's daily life, and that the recreational activities they held have also become an indispensible and essential part of people's life.

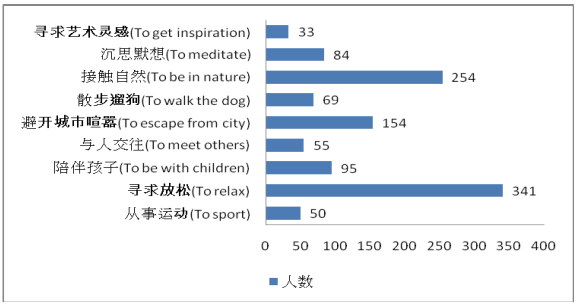


Fig. 2-25 People's motives for visiting park

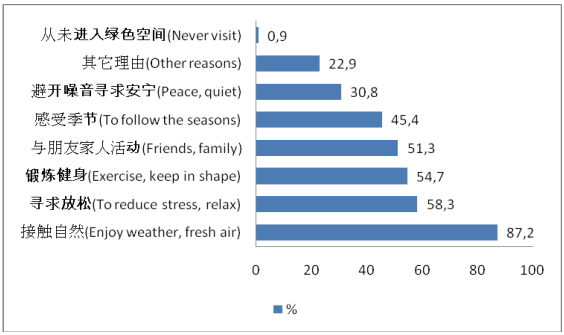


Fig. 2-26 Citizen's reasons for visiting green space

[135] Jasper Schipperijn, et al. Factors influencing the use of green space: Results from a Danish national representative survey. Landscape and Urban Planning. Volume 95, Issue 3, 15 April 2010, p 132.

Recreations, apart from certain illegal ones, are what everybody can enjoy and where everybody can obtain satisfaction or pleasure[136]. The reason why citizens enjoy doing recreational activities in various open green spaces largely lies in their hope to get relaxed and reduce the stress. As data indicates, the number of Danish people who felt stressed in their daily life had risen from 35% in 1987 to 44% in 2000[137]. Another study conducted by Danish scholars has demonstrated the effects urban green spaces have in alleviating and reducing people's stress (Tab. 2-13)[138]. As shown by the table, the distances between the residences and green spaces are inversely proportional to people's stress, while directly proportional to the frequency of people's visits.

Tab. 2-13 Mean scores (standard deviations) of the Perceived Stress Scale

	Mean/SD	Number of respondents
Gender		
Men	10.2 (5.68)	4802
Women	11.7 (6.05)	5448
Age		
16–24 years old	12.0 (6.11)	886
25–44 years old	11.1 (5.93)	3520
45–64 years old	10.8 (5.81)	4058
Over 65 years old	10.9 (6.06)	1786
Distance to green space or natural areas		
<300m	10.8 (5.84)	6931
300 m-1km	11.1 (6.00)	2630
>1km	12.3 (6.36)	602
Frequency of visits to green spaces or natural areas		
Daily	10.5 (5.70)	4446
Several times a week	10.7 (5.84)	3023
Weekly	11.7 (6.02)	1850
Monthly/seldom/never	12.8 (6.65)	810

[136] City landscape – a contribution to the Council of Europe's European Campaign for Urban renaissance, Edited by A. B. Grove and R. W. Cresswell, Butterworths, London – Boston – Durban – Sigapore – Sydney – Toronto – Wellington, 1983, p. 11.
[137] Thomas Sick Nielsen, Karsten Bruun Hansen. Do green areas affect health? Results from a Danish survey on the use of green areas and health indicators. Health & Place. Volume 13, Issue 4, December 2007, p 839.
[138] Ulrika K. Stigsdotter, et al. Health promoting outdoor environments – Associations between green space, and health, health-related quality of life and stress based on a Danish national representative survey. Public Health, 2010; 38: 411–417.

Chapter 3 Backbone for Copenhagen's Urban Green Spaces

3.1 Introduction

Denmark, the smallest Scandinavian country, with its territory of only 43,100 km^2 (excluding Greenland and Faeroe Islands), consists of 406 islands (500 according to another source[139]), of which 81 are inhabited (88 accoding toanother source[140]). According to Census 2009, Denmark's population is currently 5.4 million, 90.5% of which are Danish, 9.5% immigrants. The population density has reached 129.16 people per km^2.[141] Since 1998, 85% of the Danish are urban dwellers;[142] by 2007, 86% of the population had resided in towns with more than 100 people, and rural dwellers had only composed 14% of the population.[143] 47% of the families nationwide live in single-family housing.[144] GDP reached 301,000 Danish krone (DKK, 2006, approximately 40,000 Euros)[145], ranking the 16th worldwide (Fig.3-1, 3-2)[146]. Within its GDP, Agriculture and other primary production covers about 2%, industry and construction 26%, private services 50%, and public services around 22%.[147]

[139] Denmark–AgreenroomintheEuropeanhouse,p70.http://www.nordregio.se/filer/Files/r0208p69-101.pdf.04-29-2011.
[140] Ibid.
[141] Ibid.
[142] Denmark. http://en.wikipedia.org/wiki/Denmark. 04-29-2011.
[143] Denmark – A green rooming the European house, p 72. http://www.nordregio.se/filer/Files/r0208p69-101.pdf. 04-29-2011.
[144] Danish Ministry of the Environment. Spatial Planning in Denmark, Copenhagen, 2007, p 2.
[145] Karen Attwell and Ole Michael Jensen. Spatial Planning Denmark. http://www.greenstructureplanning.eu/COSTC11 /dk- planning.htm.
[146] Danish Ministry of the Environment. Spatial Planning in Denmark, Copenhagen, 2007, p 2.
[147] Denmark. http://en.wikipedia.org/wiki/Denmark. 04-29-2011.

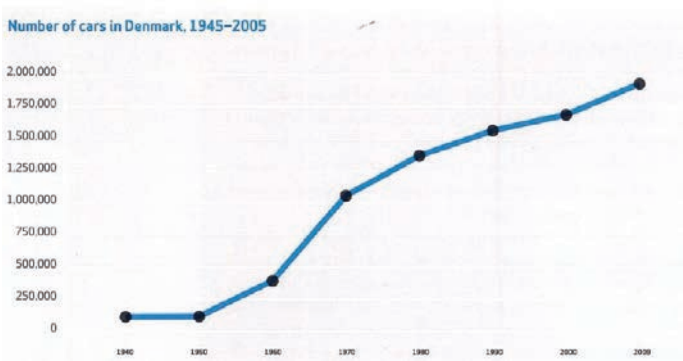


Fig.3-1 Number of cars in Denmark, 1945-2005 (Source: Town Planning in Denmark, p18)

Denmark is a constitutional monarchy, in which the queen is head of state. The political system operates under the cabinet, headed by the prime minister. The parliamentary elections are held every four years. The winning party staffs the cabinet. The entire country is now divided into 5 regions and a total of 98 municipalities (kommuner in Danish). Before the Danish Municipal Reform in 2007, Denmark was made up of 14 counties (amter in Danish) and a total of 270 municipalities that were overly small (275 according to another source[148]) (Fig. 3-3). The first-level regional administrations hold much less power than the former counties. They consist of 41 council members, and are only in charge of the National Health Service.[149] Besides Copenhagen the capital, four other provincial primary cities are Aarhus (population 310,000), Odense (population 190,000), Aalborg (population 199,000) and Esbjerg (population 115,000)[150] (Fig. 3-4). Economically, Denmark practices mixed market capitalist economy, boasting one of the most comprehensive welfare systems in the world.

[148] Karen Attwell and Ole Michael Jensen. Spatial Planning Denmark. http://www.greenstructureplanning.eu/COSTC11/dk- planning.htm.
[149] Denmark. http://en.wikipedia.org/wiki/Denmark. 04-29-2011.
[150] Kommuner på landkortet. Danmarks Statistik. http://www.dst.dk/Statistik/kit.aspx. 05-02-2011.

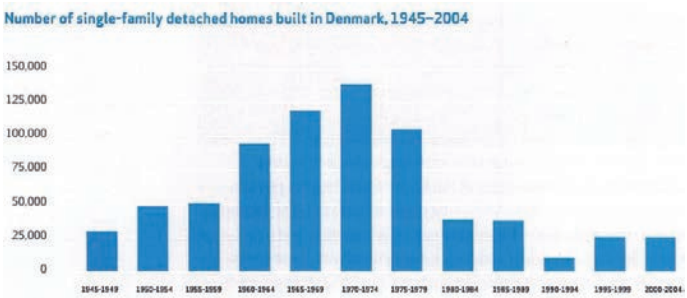
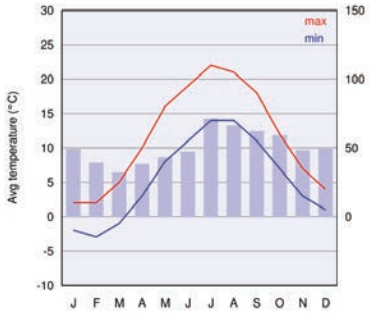


Fig.3-2 Number of single-family detached home built in Denmark, 1945-2004 (Source: Town Planning in Denmark, p18)

Fig. 3-3 Illuation of the Kingdom of Denmark's territory (left) (Source: htt p://e n.wikipe dia.org/wiki/Denmark)

Fig. 3-4 Map of Denmark (right) (Source: same with fig 3-1)



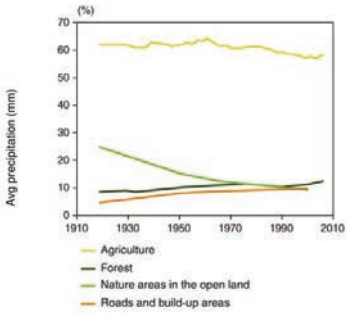


Fig. 3-5 Climate chart of Copenhagen (left) (Source: htt p:/ /en.wikipe dia.org/wiki/Geography_of_Denmark)

Fig. 3-6 Development in land use in Denmark (right)

(Source: htt p://www.eea. eur opa.e u/soer /countries/ dk/land- use-state-and-impacts-denmark)

Denmark's topography is generally flat. The average elevation is 31 m, the highest point being 170.86 m. The territory covers 452 km from east to west, 368 km from north to south. The coastline reaches 7,314 km (7,987 km according to another source[151]). It is only adjacent with Germany by a borderline of 68 km.[152] The mild climate, namely warm winters and cool summers, is suitable for agriculture and grazing (Fig. 3-5). Agricultural area amounts to 62% of the national territory, forests 13%, roads and built-up areas 10%, nature areas 9%, and lakes and watercourses 2% (Fig.3-6).[153]

3.2 The System of Danish Spatial Planning

With regards to the phrase urban planning, "city planning" or "town planning" are often used in Europe, while "urban planning" in the United States. After the passing of *On the European Regional/Spatial Planning Charter* by the Committee of Ministers to Member States, a general understanding of "regional/spatial planning" became gradually accepted. The concept is expressed as "regional/spatial planning is the geographical expression of economic, social, cultural and ecological policies of the society. It is also a scientific discipline, an administrative technique and a policy that is developed as an interdisciplinary under an overall strategy and a comprehensive approach directed towards a balanced regional development and the physical organization of space."[154] The "regional/spatial planning" from the EU is characterized by democratic, comprehensive, functional and longer term, and contains four fundamental objectives: ①balanced socio-economic development of the regions; ②improvement of the quality of life; ③responsible management of natural

[151] KommunerpålandkortetDanmarksStatistik.http://www.dst.dk/Statistik/kit.aspx. 05-03-2011.
[152] GeographyofDenmark.http://en.wikipedia.org/wiki/Geography_of_Denmark. 05-03-2011.
[153] Denmark. http://en.wikipedia.org/wiki/Denmark. 04-29-2011.
[154] Land use - State and impacts (Denmark). The European environment – state and outlook 2010. 26 Nov 2010 Modified: 08 Apr 2011. http://www.eea.europa.eu/soer/countries/dk/land-use-state-and-impacts-denmark. 05-02-2011.

resources and protection of the environment; ④rational use of land.[155] Compared to the past "urban planning" and "rural planning" that singly emphasized physical planning, "regional/spatial" is a more comprehensive planning concept that takes both "hard" and "soft planning", and urban and rural planning into consideration. Therefore, "spatial" and "regional planning" are interchangeable in EU documents. In actual planning documents, "spatial planning" covers not only traditional demographical, use of land, traffic, various architectural planning, etc., but also environmental (air quality, water, etc.), resources and energy, socio-economic, culture and sport, and medical services planning. It is named "spatial planning" because what it covers contain both tangible spatial planning above ground and underground and intangible planning. It is a comprehensive planning that combines multiple sectional planning. The Danish Planning System adopted this concept after the EU proposed it. In the framework of the Danish "town planning", it is understood as "integrated technical and scientific disciplines that attempts to anticipate future needs, and through thinking, forecasting, and calculation to avoid worse inconvenience caused by bad planning."[156]

The development of Danish cities is resulted from both natural growth's internal motivation and external factors driven by the planning. Currently, the Danish city system can be broken down into several levels, the first being the capital - Copenhagen, the second being the center cities - provincial cities, namely cities whose population has reached over 100,000, the third being regional center cities. In this pyramid structure, cities at every level play different roles in the state's politics, economics and cultures.

[155] Council of Europe Committee of Ministers Recommendation (1984). No. R (84) 2. Of the Committee of Ministers to Member States on the European Regional/Spatial Planning Charter.
[156] Ibid.

3.2.1 The Establishment of Urban Planning System in Denmark

In 1925, Denmark produced the first Town Planning Act, which was not thoroughly executed. A new act was passed in 1938 that perfected the loopholes of its predecessor, requiring all towns that were inhabited by over 1000 people to produce town planning by laws approved by the law. The acts then were only limited to urban planning in built cities, having no effect on the differentiation between urban and rural divisions, and no biding power over urban expansion.[157] Another new act was passed in 1947 in order to adjust to the established welfare state[158]. Next, the Parliament passed *City Regulation Act* (byregulaerinslove in Danish) in 1949, *Rural Village Law* (landsbygdloven in Danish) in 1960, and *Land Law* (jordloven in Danish) in 1963[159]. The basic legal framework was founded through these several stages of experimentation, and granted a solid foundation for future planning (Tab. 3-1, 3-2, 3-3, 3-4).

Tab. 3-1 The figure of Danish town in the years[160]

Year	Number of towns	Year	Number of towns
1801	81	1925	581
1834	81	1930	621
1840	81	1935	600
1855	82	1940	628
1860	83	1945	626
1870	84	1950	663
1880	84	1955	707
1890	84	1960	1120
1901	169	1965	1239
1906	321	1970	1295
1911	379	1976	1442
1916	424	1979	1427
1921	511	1981	1423

N.B.: According to Denmark town and residential regulations, the distance between houses should not exceed 200 m, when there are more than 200 inhabitants.

[157] Ana Rottbøll Jørgensenetal.Town Planning in Denmark – 1945-2010, Copenhagen, the Danish Town Planning Institute, an Geografforlaget A/S, 2010, p 11.
[158] Ole B. Jensen. A 'Green Room in the European house': Converging Discourses in European & Danish Spatial Planning, http://www.ncl.ac.uk/guru/assets/documents/ewp29.pdf. 05-05-2011.
[159] Denmark – A green room in the European house. http://www.nordregio.se/filer/Files/r0208p69-101.pdf. 05-02-2011.
[160] Stig Enemark. The Danish Way – Spatial Planning System in Denmark, p5. http://ida.dk/sites/ddl/Documents/02_spatial.pdf. 05-06-2011.

Tab. 3-2 The figure of Danish town[161]

Site class	Number of cities					
	1960	1970	1981	1988	1991	1998
Greater Copenhagen	1	1	1	1	1	1
Cities 10,000	39	46	45	46	48	48
Town 1000-9999	185	286	406	419	411	417
Town 200-999	874	962	971	907	925	923
Denmark	1099	1295	1423	1373	1385	1389

Tab. 3-3 The figure of Danish population in town (1)[162]

Site class	Population					
	1960	1970	1981	1988	1994	1998
Greater Copenhagen	1,348,454	1,380,204	1,381,882	1,343,916	1,346,289	1,379,413
Cities 10,000	1,220,927	1,458,154	1,457,768	1,497,233	1,567,026	1,598,693
Town 1000-9999	460,744	688,789	1,021,806	1,086,425	1,089,521	1,112,494
Town 200-999	367,951	419,010	435,925	410,147	420,967	420,123
Rural area	1,187,180	991,422	826,608	791,533	772,839	784,137
Denmark	4,585,256	4,937,579	5,123,989	5,129,254	5,196,642	5,294,860

Tab. 3-4 The figure of Danish population in town (2)[163]

Site class	% of total population					
	1960	1970	1981	1988	1994	1998
Greater Copenhagen	29.4	28.0	27.0	26.2	25.9	26.1
Cities 10,000	26.6	29.5	28.4	29.2	30.2	30.2
Town 1000-9999	10.0	13.9	19.9	21.2	21.0	21.0
Town 200-999	8.0	8.5	8.5	8.0	8.1	7.9
Rural area	25.9	20.9	16.1	15.4	14.9	14.8
Denmark	100.0	100.0	100.0	100.0	100.0	100.0

[161] Ole B. Jensen. A 'Green Room in the European house': Converging Discourses in European & Danish Spatial Planning, http://www.ncl.ac.uk/ guru/ assets/documents/ewp29.pdf. 05-05-2011.
[162] Denmark–AgreenroomintheEuropeanhouse.http://www.nordregio.se/filer/Files/r0208p69-101.pdf.05-02-2011.
[163] Christian Wichmann Matthiessen. Danske Byers Væ kst. Udgiver af Det Kongelige Danske Geografiske Selskab, Reitzels Fortag, København, 1985, P19.

In 1970s, Denmark pushed through a major administration reform nationwide, combining 1388 local authorities into 275 municipalities (population above 2000[164]), and cutting the original 25 counties down to 14.[165] To complement the reform, Urban and Rural Zones Act was enacted in 1970, National and Regional Planning Act in 1973, and *Municipal Planning Act* in 1974.[166] The enacting and amending of laws in planning area had a profound influence on Denmark's future development. In 1992, in face of new situation, the Danish Parliament formulated a new comprehensive planning law that integrated the past laws and became perfected.

Along with actively building and improving the planning legislative system, professional planning institutions were born in Denmark. Denmark initiated the first non-governmental institution that was devoted to urban planning - Danish Town Planning Institute. The institution set up a Regional Planning Committee, which completed the renowned "Copenhagen Finger Planning". From then on, local councils and governments gradually founded their own planning institutions. Denmark officially launched the 30-member National Planning Committee in 1961, whose primary task was to explore the models for Denmark's future urban development. However, it was not until 1975 was the national planning standard confirmed by the new Planning Act. The urban planning pyramid system of "national, regional, municipal" was officially formed at the enacting and publishing of the first National Planning Report in 1975 (Fig. 3-7).

[164] Bue Nielsen, The Danish Urban Sytem, Kandrups Bogtrykkeri, København, 2000, p 23.
[165] Ibid.
[166] Stig Enemark. The Integration of Natural and Built Environment Data –The Experience of Europe with a Focus on Denmark. Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific Bangkok, 18-22 September 2006. http://vbn.aau.dk/files/4949346/SE_ 17thun rccap IP40.pdf. 0506-2011.

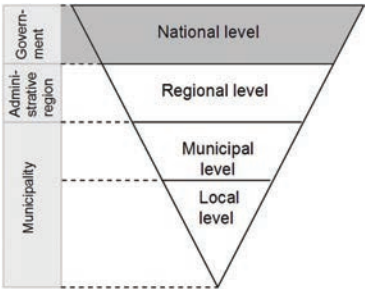


Fig. 3-7 Illustration of the Danish planning level
(Source: Denmark: fact sheet for planning levels - NATIONAL Danish Town Planning Institute, draft of 19.03.2007, http://www.mim.dk/NR/rd onlyres/590 5B4B2-68E9-4F25-A780- 51E129A923A4/0 /COP 15_EP_Denmark_nati onal_level_practical_example.p df)

In Denmark's urban planning system, the Planning Act is the foundation of the entire planning system, as well as the ground and guarantee. The in 2002 newly-amended Planning Act summarized the purpose of its enacting into five aspects: ①appropriate development in the whole country and in the individual counties and municipalities, based on overall planning and economic considerations; ②creating and conserving valuable buildings, settlements, urban environments and landscapes; ③the open coasts shall continue to comprise an important natural and landscape resource; ④preventing pollution of air, water, soil and noise nuisance; ⑤involving the public in the planning process as much as possible. The Act is divided into 16 chapters.[167] Besides Chapter 1 Introduction, the titles are National planning, Local planning, Producing and repealing plans, Zoning and rural zone administration, Summer cottage areas, Easements, Zone transfer, Expropriation, Taking over property, etc., Supervision, Administrative provisions, etc., Appeals and legal proceedings, Legalization and penalties, Provisions governing coming into force and transitional measures. With the accumulation of knowledge and experiences, the Planning Act has become the legal guarantee for the nation's reasonable development.

[167] Ministry of the Environment. Spatial Planning Develop0ment. The Planning Act in Denmark, Consolidated Act No. 763, 11 September 2002.

3.2.2 Evolvement of Urban Planning in Denmark

"Town planning is a product of time."[168] The Danish Town Planning ("Spatial Planning" since 1980s) originated in 1920s, and its goals, contents and requirements have been constantly adjusted and changed according to the time and evolving developing goals and political situations. In general, the evolvement can be divided into three phases: the first is "physical planning", which began in 1920s. Conventional town planning methods were applied, and planning was regarded as the means of building an equal and fair welfare society and stimulating socio-economic developments; the second is "spatial planning", which started in 1980s and developed with promoting competitiveness as the goal of planning, in order to go along with the new international trends; the third is balanced development. After 2000, besides keeping up with its own competitiveness construction, Denmark has dedicated itself to maintaining the balance in environment, society and culture, in order to sustain its competing capacity.

3.2.2.1 Phase of physical planning

The first planning that took place in Denmark was the traffic report in 1926, a plan for the Copenhagen area. The Regional Planning Committee of the Danish Town Planning Institute produced a Plan for Future Green Area in the Copenhagen Region in 1928. Thereafter, the Committee came up with a plan for the capital Copenhagen area, that was regarded as the first Danish regional planning, namely the later internationally famous "Finger Plan". It joined traffic development, industry layout and living areas together.

After the Second World War, Denmark entered into a new rapidly developing phase as other European countries. Since 1945, the Danish urbanization was greatly pushed through, with economic prosperity and augmenting the housing demand as motivation. Development at this stage, however, was also full of

[168] Denmark–AgreenroomintheEuropeanhouse.http://www.nordregio.se/filer/Files/r0208p69-101.pdf.04-29-2011.

conflicts. On the one hand, the country was striving toward the welfare dimension that was initiated in 1930s; on the other hand, the industrialization process was unbalanced throughout the country. Building a welfare state requires balance, as the Planning Act of 1947 proposed "to ensure an equally paced development in more regions".[169] But industrially, especially during the Danish economic development phase from 1960 to 1975, some regions thrived economically, while others withered as the population emigrated, and thus the "unbalanced Denmark", for the Danish economy was founded on the market-oriented principle. With regards to this issue, the planner Erik Kaufmann presented the idea of "star towns", namely a "self-generating natural urban growth process", in order to provide a solution to the dilemma between balance and profit (Fig. 3-8). He explained, "In the coming decades, increases in population, commercial transactions, and cultural activities will continue to agglomerate. Were this trend ignored or resisted, our efforts and expense would be in vain. However, if we go along with it, it will be influential, and the country will benefit from it."[170] This theory of his received huge attention, and had a great impact on Danish future planning. Meanwhile, planners came up with the "Big H" developing model, namely propel the balanced economic growth in all regions through the construction of highway (Fig. 3-9). Thereafter, the Planning Act of 1973 still aimed at "equal territorial development".[171] All in all, decentralization and polycentrism policies of this period contributed to the growth of welfare society. This strategy, which both ensured equal development and helped Denmark's transition from a traditional agricultural society to an industrial one, continued onto late 1980s and pushed to be a developed country.

[169] Ole B. Jensen. A 'Green Room in the European house': Converging Discourses in European & Danish Spatial Planning, http://www.ncl.ac.uk/guru/assets/documents/ewp29.pdf. 05-05-2011.
[170] Ibid.
[171] Ibid.

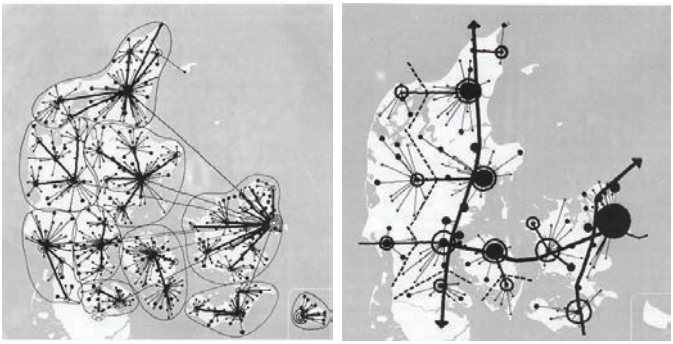


Fig. 3-8 Illustration of "Urban Star System" (left) (Source: ht tp:/ /www.n ord regio.se/filer/Files/r0208p 69-101.p df)
Fig. 3-9 illustration of "Large H" (right) (Source: same with fig 3-5)

3.2.2.2 Phase of spatial planning

Upon entering in the 1980s, with economic globalization, industry adjustment and capital flow are accelerating. The competitions among countries and countries, regions and regions, cities and cities in Europe are becoming more and more fierce, making the original "physical planning" strategy and goals unreasonable for the new circumstances. The past planning has excessively lingered on the balance between domestic economy and social development and among regions. To respond to new external competing pressure, the thinking based on "the regional development drived by city planning to gear up the national deveplopment" needed to be adjusted to how to promote the comprehensive competitiveness. It is apparent that decentralization and polycentrism are not helpful for increasing the power in municipal and regional competitions. Under this circumstance, Denmark's three-level planning system has been upgraded to four, which means to bring the whole plan under the context of the EU. It wished to at least play a significant roll in the economies of the Nordic and the Baltic sea areas.

Two different prospects and goals appeared for the nation's future development against this background. One was the decentered city pattern in regional networks, and the other was large city model in European integration.

Supporters of the former were worried that emphasis on the external rivalries would affect the internal balanced development, while advocates of the latter were afraid that too much care over the internal would sacrifice the interest of the larger nation. Granted, both parties were clearly aware of the rapidly changed external environment. In fact, the 1989 *National Planning Report* has pointed out the issue of international orientation, suggesting that domestic development should take full advantage of international interaction, in order to enhance Denmark's competitiveness.[172] The result of this debate was presented at last in the 1990 *Danish National Planning Report*, which argued that "in the future, the capital would be able to rival with other (European) city-regions of the same size that shared the same distinctive character in business and culture. Cities as Aarhus, Odense, and Aalborg should develop their own distinctive characters so that they get a chance to contend with other European city-regions."[173] It was also incorporated in the *Planning Act* early in 1992. The amended Planning Act turned toward competition-oriented global capitalism,[174] and changed the older goal of pursuing "equal spatial development" to seeking "appropriate spatial development." From then on, concepts as globe, Europe, nation, and regions have frequently appeared in the various planning reports. They clearly proposed to develop the more competitive city-regions first, and then develop the nation through these big cities. All these were in line with the globalization goal of European-orientation. For instance, the National Planning Report in 1992 - *Denmark towards the Year 2018 - the Spatial Structuring of Denmark in the Future Europe*, *the Role of Copenhagen in the Øresund Region* in 1995, and the National Planning Report in 1997 - *Denmark and European Spatial Planning Policy* (Danmark og europæsk plampolitik in Danish). In the 1997 report, three

[172] Denmark – A green room in the European house. http://www.nordregio.se/filer/Files/r0208p69-101.pdf. 05-08-2011.
[173] Ibid.
[174] Ole B. Jensen. A 'Green Room in the European house': Converging Discourses in European & Danish Spatial Planning, http://www.ncl.ac.uk/guru/assets/documents/ewp29.pdf. 05-05-2011.

goals of national planning were set based on the European discourse of urban space: firstly, balance in the city system; secondly, environmental acceptable accessibility; lastly, protection of nature and cultural heritage. These three targets involved cooperation with the EU both socio-economically and environmentally. The report also put forward a "five-string strategy": ①development of city-networks between regional center and municipality center; ②regional center with increased European orientation; ③the Øresund-region as an international urban region; ④development in the small towns and rural areas; ⑤plan cooperation across borders.[175] One could tell decisively from the "five-string strategy" that the external challenges have become the primary motivation. It showed not only the intention to further connect domestically but also the foresight to expand the national space. The domestic growth, based on European orientation, followed polycentric and market-oriented spatial planning. The later development demonstrated that this strategy provided opportunities for Denmark, and improved conditions for its domestic construction. The Øresund Bridge, started in 1995 and officially put into use in July 2000, now commuts more than 60,000 people every day, annually 6 million vehicles' passage were taken place.[176] This strengthens the connection between Copenhagen, Denmark and Malmö, Sweden, and betters the public transportation between the European continent and North European countries. Cooperation of personnel, technology, and trade are drawn closer. Denmark successfully played the role of a leader in developing the economy of the Nordic region. At the same time, it added weight to the Baltic countries' political and economic influence.

With town planning transforming from traditional "physical planning" into "spatial planning", environmental protection and economic development were

[175] Denmark–AgreenroomintheEuropeanhouse.http://www.nordregio.se/filer/Files/r0208p69-101.pdf.05-10-2011.
[176] By Terri Mapes. The Øresund Bridge: The Connection of Denmark & Sweden. http://goscandinavia.about.com/od/denmar1/qt/ oresund bridge.htm. 05-07-2011.

being treated with the same amount of attention, which was regarded as a symbol for transition. Externally, this was directly affected by the 1987 Brundtland Report, and also by *European Spatial Development Perspective*. Internally, Denmark had not been a significant player in the EU spatial planning, but has always been a model in environmental protection. Therefore, Denmark wished to take advantage of this characteristic. The 1997 National Planning Report pointed out that Denmark resolved to become "a green room in the European house."

3.2.2.3 Phase of balanced development

Scholars described the Danish town planning stages after 1950s as "four seasons": ①1959-1971: control of economic growth; ②1972-1981: management of the economic crises caused by the international oil crisis; ③1982-1988: the pursuit of equalization, decentralization and modernization; ④1989 until present: internationalization and creation of a distinctive image.[177] However, upon entering a new century, the Danish planning has returned back to developing the domestic economy and consolidating what it has achieved in globalization, when competitions in Europe have shown satisfactory results. This phase is thus named balanced development.

The National Planning Report for Denmark 2000 - Local Identity and New Challenges did not refer again to the "European orientation". Instead, it returned to the track of "balanced development throughout Denmark" and "physical planning and regional economic development." "Regional" here referred to Denmark doing its best domestically, while "new challenges" were coming from both home and abroad. The report pointed out that "Denmark's future vision is how to realize the optimum interaction between private and public actors environmentally, economically and culturally, within a specific national and local

[177] Denmark – A green room in the European house, p85. http://www.nordregio.se/filer/Files/r0208p69-101.pdf. 04-29-2011.

geographical context."[178] Although the report did not mentioned again to the "European orientation", it did not mean that the policy makers and regulators ignored the external difficult situation. Instead, they were clearly aware of Denmark's small territory, and have realized that only an upgrade in the national competitiveness could maintain its leading position (Fig. 3-10). Consequently the report suggested the municipal councils expand their horizons regionally and internationally while making the strategic policies.[179] This guideline saw continuation in the National Planning Reports later and national planning policies, and was continually deepened. For example, the 2006 National Planning Report: *The New Map of Denmark - Spatial Planning under new conditions* depicted globalization as technological development, trade and financial laissez-faire, the marketization in China and East Europe, rapid growth and the expanding communication, and low transportation costs, and analyzed the impact of these five characteristics on the Danish spatial planning (Fig.3-11). The Report listed the impact as the following five items: ①urban development brings more public transportation options to the greater city areas; ②powerful city regions will benefit the nation; ③the nature, scenery, and the look of the towns should be respected; ④protect the distinctive boundary between cities and villages, ensuring local characteristics and specialties; ⑤Safeguard the quality of the surrounding areas, including architecture, urban planning and leisure activities. Based on the analysis above, the Report claimed the goals to be the following five items: ①Rural and urban areas should be distinct; ②Development should benefit all of Denmark; ③Spatial planning must be based on the respect for the identity of cities and towns, nature, the environment and the landscape and townscape; ④Spatial

[178] Ole B. Jensen. A 'Green Room in the European house': Converging Discourses in European & Danish Spatial Planning, p41. http://www.ncl.ac.uk/guru / assets/documents/ewp29.pdf. 05-07-2011.
[179] Department of Environment and Energy. National planning report for Denmark 2000 – Local identity and new challenges. http://www.lpa.dk/topmenuen /Publikationer/Andre_sprog/2000/lpr_2000_UK1_13.pdf. 05-10-2011.

planning and investment in infrastructure should be closely integrated; ⑤Spatial planning should be comprehensive (Fig.3-12).[180]

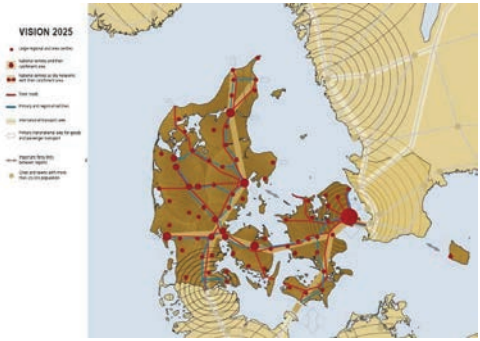


Fig. 3-10 the 2000 national planning report: A vision for 2025 focuses on the opportunities to create development in the individual regions of Denmark (Source: Spatial Planning in Denmark, 2002, p7)

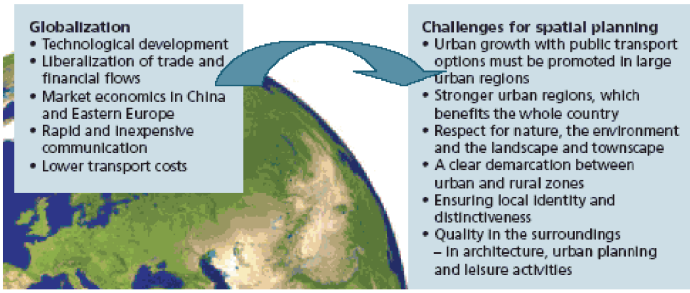


Fig. 3-11 Globalization influences and changes the prerequisites for strategic spatial planning in Denmark (Source: The 2006 national planning report in brief, p9)

[180] By Terri Mapes. The Øresund Bridge: The Connection of Denmark & Sweden. http://goscandinavia.about.com/od/denmar1/qt/ oresundbridge.htm. 05-07-2011.

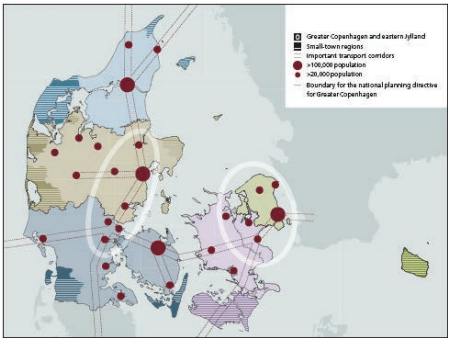


Fig.3-12 Settlement and geographical features of Denmark's five administrative regions (distinguished by colour) (Source: The 2006 national plan report in brief, p15)

Judging from the development during this phase, Denmark, under the guidance of the "Spatial planning" reports, not only realized the smooth domestic economic growth and the social coordinated development, but also maintained its leading effects in the Nordic areas, and continues to contribute to the regional economic development.

3.2.3 Content of Urban Planning in Denmark

Before the reformation on the national administration region and authorities in 2007, Danish cities were categorized into three levels, namely the national government, which is responsible for making national planning, counties for regional, and municipalities for local. After 2007, the original 14 counties were substituted by 5 power-deprived regional institutions, which still bear some responsibilities in planning as the former counties. Therefore the national planning system is still categorized into three levels - national, regional, and local planning.

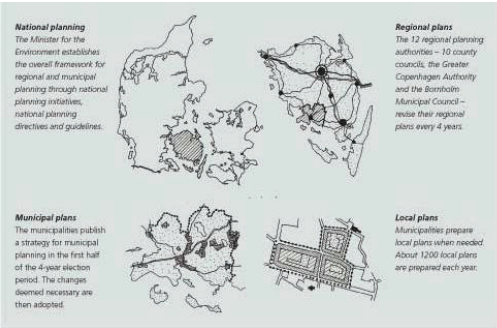


Fig.3-13 Denmark's city planning system before 2007 reform (Source: The Planning Act in Denmark, Consolidated Act, 2002)

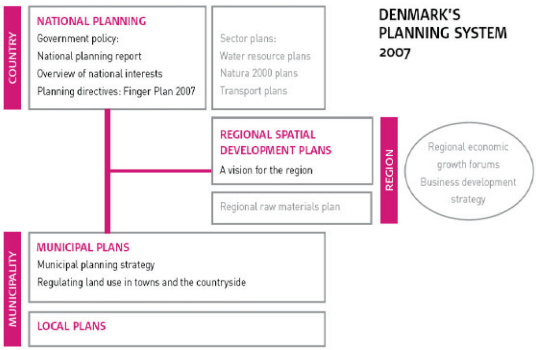


Fig.3-14 Denmark's city planning system after 2007 reform (Source: Spatial planning in Denmark, 2007, p7)

The Danish urban planning follows these three rules: firstly, consensus-oriented: it is based on the democratic power structure and political philosophy. Danish planning at any level must inquire the opinions and requests from every social group. The planning is passed only when the majority expresses their agreement and acceptance, and when the minority has fully expressed their opinions. Secondly, framework control: as for the national level, planning merely means policy, strategic, and principle. It only represents suggestions and models that belong to a macro level. The actual work is presented by the lower level planning or specific planning. Finally, hierarchy: every planning institution has

its own obligations and responsibilities. The upper level has the right to instruct the lower level, and the lower must proceed under the principles of the upper level. It has to meet the demand of the upper levels and local interest.

3.2.3.1 National Planning

"Planning is politics",[181] and "Planning is policy"[182] in Denmark. Thus, national planning belongs to politics, policy and strategy, reflecting the arrangements that the central government makes for the country's future advancement and fundamental interests. It tells the government's political and strategic suggestions for the future, and enjoys guiding and binding legal power over regional and local planning. Since the parliamentary election is held every four years, it means the planning reports must be amended and published at least once every four years. The report is drafted by the Ministry of Environment, which is in charge of national planning. After seeking public opinions and parliamentary debate and votes, it becomes legally effective once the parliament approves it. Subsequently, planning institutions of regions and municipalities revise their visions and tasks according to the National Planning Report. National planning often takes the form of national report, national planning directives, guidelines or intervention, overview of national interests was added in 2006.

The National Planning Reports usually deal with visions and perspectives for topical planning themes followed by an action plan, including projects with municipalities and private sector. Additionally, the Ministry of Environment submits Reports on Nature and Environment Policy and feature reports as Reports on Retail Trade Planning to the parliament every four years. The National Planning Directives are mandatory instructive documents that pronounce the government's arrangements and executions over specific governmental projects

[181] Stig Enemark.The Integration of Naturaland Built Environment Data – The Experience of Europe with a Focuson Denmark. Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific Bangkok, 18-22 September 2006. http://vbn.aau.dk/files/4949346/SE_17_thunrccapIP40.pdf . 05-06-2011.

[182] Danish Ministry of the Evironment. Spatial Planningin Denmark, Copenhagen, 2007, p3.

and certain directions of the development. For example, they are such as large-scale natural gas pipelines, electrical transmission lines, new summer cottage areas, and some areas that demand special arrangements, such as the greater Copenhagen area. The Guidelines are also an essential part of national planning. They are often explanations of related national planning laws, including rural area administration, local planning and environmental impact assessment. The Overview of National Interests is published every four years. The primary aim is to provide necessary overview and inspection on related legislation, action plans, sector plans, national planning decisions and agreements between public authorities. "Interventions" are vetoes from the national government over the local planning that are against national interests.

3.2.3.2 Regional Planning

"Regional planning" is an essential constituent of realizing national strategies and plans. Denmark's regional planning is comprehensive planning of the future space in this region. It is the planning of cities and towns, residential areas, rural nature and environment (leisure areas included), commercial (tourism included), employment, education and training, and culture-related matters. The regional councils are in charge of the planning, and usually submit the Regional Plan for Spatial Development of the region to the national government during the first two years of the four-year term. The Report should include: ①describing the relations between the future spatial planning and related national and regional infrastructure; ②describing cooperation between the administrative region and public authorities in adjacent countries on spatial planning and special development; ③clarifying the actions the regional council will take to follow up with the plan. Additionally, "regional spatial planning" should be linked with regional economic forums, regional employment councils, regional and municipal Local Agenda 21 and other planning projects related to education, training, culture and other categories.

"Regional planning" includes urban growth and summer cottage areas, large public institutions and transport, technical facilities, polluting enterprises requiring special sitting, projects requiring environmental impact assessment, regional structure of retail trade, especially valuable agricultural areas, afforestation areas, conservation-worthy assets and the protection of nature, wetlands, recreational areas, extractions of raw materials, drinking-water resources, use of watercourses, lakes and coastal waters, implementation of national planning guidelines, etc.[183] One can tell from these areas that the content covers not only everyday residential, service and commerce, but also bigger social topics.

3.2.3.3 Municipal Planning

"Municipal planning" is both the execution of national and regional planning and the key of policies and strategies. It contains the planning of the seat-city of the council and of its subject towns. According to legal procedures, amending and redrafting the municipal planning should be completed within the first two years of the new parliamentary term. The three main parts are: ①general structure with overall objectives for development and land use in the municipality, including maps and text used in municipal planning matched with detailed content of the plan; ②guidelines for land use, mainly protection over various sorts of land in the framework of the Planning Act, such as special habitats; ③framework for the content of local plans for the specific parts of the municipality, including how to promote a cohesive urban structure and the overall municipal objectives through the actual use of the land, illustrating future opportunities, and determining which areas in rural zones may be transferred to urban zones or summer cottage areas, etc.

The specific content for "municipal planning" is the same with that for "regional planning", and even more detailed. The content includes urban growth

[183] Danish Ministry of the Evironment. Spatial Planning in Denmark, Copenhagen, 2002, p10.

and summer cottage areas, location of various urban functions, structure of retail trade, transportation installations, technical installations, polluting enterprises requiring special sitting, projects requiring environmental impact assessment, noise protection, recreational facilities and allotment gardens, especially valuable agricultural areas, afforestation areas, wetlands, nature protection areas, valuable cultural environments, valuable landscapes, valuable geological assets, use of watercourses, lakes and coastal waters, coastal zones and implementation of national planning directives.[184]

"Local planning" is another sort of "municipality planning". In the Danish town planning system, if the "national planning" is political policies, "regional" instructive principles, "municipality" detailed suggestions, then "local planning" is the actual processes, a detailed plan about a specific construction project in the subject areas. "Local planning" includes not only projects on existing buildings as changing the use of land, constructing density control and design, protecting sightseeing specialties, rebuilding energy-conservation systems, and preserving old architecture, but also preparing for new houses, roads, and pipelines. We could take the year of 2001 as a example, among the 1200 planning reports submitted by municipalities, 29% were regarding residential district, 16% business district, 5% recreation and leisure, 14% public purposes, 11% mixed residential and business, 11% technical installations, 2% rural district, 1% shopping center, and 1% others.[185]

3.2.4 The Features of Danish City Planning

The Danish city planning system has the following attributes: ①Connected with the parliament elections of all levels. Every newly-elected national government must draft new planning. Regional and municipal governments also

[184] Danish Ministry of the Evironment. Spatial Planning in Denmark, Copenhagen, 2002, p10.
[185] Ibid, p19.

have to amend and draft their regulations after the elections. ②Comprehensive planning. Vertically, each planning must be in line with the ones from the upper level. Horizontally, planning has to abide by and combine with all specific regulations of the same level. ③Local governments have more say in planning. Generally speaking, the Danish planning system is closely linked to power sharing and decentralization. It is based on legal provincial self-governance and check and balance with the supervising government. The aim is to solve the tasks at the lowest possible level as possible. Therefore, local municipalities enjoy great initiative and activeness. The Danish public administration ranges broadly, providing job positions that make up 30% of the labor force.[186] Local governments contribute over 30% to gross national product (GNP), much higher than 10% in Germany and France.[187] Besides, more than half of the public expenses and governmental expenses of the local governments come from residents' income tax. As a result, local governments have secure and strong sources of endowment and the willingness to defend local interests.

The Danish urban planning has both strict assignments by level and strict processes. Take the process of regional planning and municipality planning, and it can be summarized as the following six items: ①Prior public participation for the past four years as basis, information on previous planning disseminated, ideas and proposals solicited for "regional planning", strategies for planning developed for municipal planning, no less than eight weeks in advance; ②Proposed plan, prepared in cooperation with other public authorities, citizens, nongovernmental organizations, etc.; ③Proposal published, sent to other public authorities (veto suggested when in conflict with national interest), deadline for objection at least in 8 weeks; ④Proposal processed, objections, commenting process, proposed

[186] Economy of Denmark. http://en.wikipedia.org/wiki/Economy_of_Denmark. 05-03-2011.
[187] Denmark – A green room in the European house. http://www.nordregio.se/filer/Files/r0208p69-101.pdf. 05-03-2011.

changes; ⑤Final plan published; ⑥Administration of plan. Relevant authorities strive to implement the plan.[188]

3.3 Background and Context for First-version of Copenhagen Finger-plan

Abstract: Since it was proposed firstly in 1947, Greater Copenhagen's Finger Plan has been remade and revised several times. Today, the Finger Plan has become one of the most successful examples worldwide. With constant exploration for the past 60 years, the Greater Copenhagen region has turned into a beautiful, comfortable, vigorous and sustainable area for living and work. This paper attempts to analyze how the plan has been changed and adjusted according to the situation, which was based on the initial principles and basic ideas of the Finger Plan in the changing form of economics, social structure and living standard in this area for the past 60 years. It also summarizes the characteristics of its evolution.

Keywords: Copenhagen region; Finger Plan; evolutional process; reasoning analysis; public participation

3.3.1 Introduction

The Denmark Kingdom's territory amounts to 43,000 km^2 (Greenland and Faeroe Islands excluded), with a population of 5.4 million. It is composed of more than 400 islands, of which 70 are inhabited. The largest three are Jutland, Zealand and Fyn. Copenhagen lies at the northeast end of Zealand (Fig. 3-15), playing an essential and particular role in Denmark Kingdom. On the one hand, as the capital, it is the center of politics, economics, culture and social activities; on the other hand, as a cosmopolitan in its region, its impact reaches surrounding areas both home and abroad. Copenhagen is now becoming the financial center of the Danish and Swedish Oresund Region, as well as a major urban district and economic growing point.

[188] Danish Ministry of the Evironment. Spatial Planning in Denmark, Copenhagen, 2002, p5.

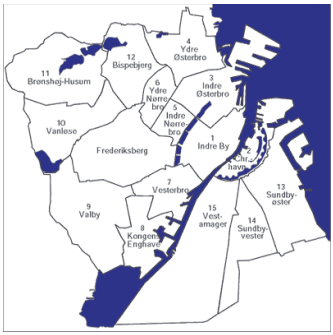


Fig.3-15 Map of Danish Kingdom, Copenhagen located within the dark part (left) (source: Development in all of Denmark, http ://www.sns. dk/udgivelser/2006/ 87-7279-728-2/html/kap05_e ng)

Fig.3-16 Illustration of districts of Copenhagen (dark part is water) (right) (source: Copenhagen, ht tp: //en.wikipe dia.org/wiki/Copen hagen)

The name Copenhagen holds four meanings: first, the center/core city of Copenhagen, i.e. central town or old town (Fig. 3-16); second, City of Copenhagen, sometimes as Capital Region), including the city Copenhagen and its surrounding areas; third, Copenhagen County (its provincial capital in Glostrup), which no longer includes the city of Copenhagen, but merely other middle and small towns outside Copenhagen, according to the Reforming Act of the National Administration Districts; fourth, Region of Copenhagen, or sometimes as Greater Copenhagen or Copenhagen Metropolitan Region, which covers not only city of Copenhagen and the Copenhagen County, but also the Municipality of Frederiksborg, County of Frederiksborg, and County of Roskild (Fig. 3-17), and whose population makes up one-third of the total. Because of different adjustments in national administration districts in different times, the Copenhagen population and territory vary accordingly, though in an increasing trend territorially. For instance, population of the district was 1,591,871 people in 2002[189], 1,825,814 in 2007[190]. In order to make full use of the capital region's

[189] Hans Ege. Greater Copenhagen Region Integrated Planningand Settlement and Transport [R] 2004.

advantage in talents, technology, endowment and resources, four counties and two municipalities now belong to the Copenhagen region, as the Act passed on January 1st, 2007 regulated. Among these is Bornholm Regional Municipality which is far from Zealand. Although sometimes there has been confusion over the name of the Copenhagen City and the Copenhagen Region, generally speaking, the meaning of these two phrases and the territories they stand for are clearly distinct (Tab. 3-5). The Copenhagen, which people often talk about, usually refers to the Copenhagen City. Supported by materials from 2000, the Copenhagen City supplied 307,000 job positions (993,000 from the entire Copenhagen Region [191]), within which 28,000 in manufacturing, 48,000 in trade and tourism, 231,000 in services; GNP equals 15% of the total.[192]

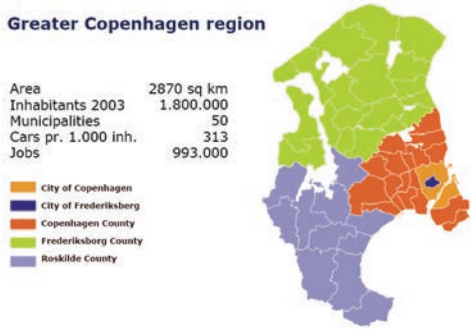


Fig.3-17 Illustration of Municipality of Copenhagen (in origin), County of Copenhagen (in red) and region of Copenhagen (within all colors, excluded Bornholm) (white is water in map)

[190] Environmental Software and Services. SUTRA,a City of Tomorrow Project: City Profile: Copenhagen (R/O L). http://www.ess.co.at/SUTRA/CITIES/copenhagen.html, 2007-1-20.
[191] Copenhagen. Wikipedia [DB/OL]. from http://en.wikipedia.org/wiki/Copenhagen. 18-01-2007.
[192] PeterHall. Urban Regional Planning (third edition)[M].Routledge, London, 1992.

Tab. 3-5 Population, areas and densities (2007)[193]

Region	Population	km^2	$person/km^2$
Copenhagen town	503,699	88.25	5707
City of Copenhagen	1,211,466	455.61	2659
Copenhagen County a	95,353	169.67	560
Copenhagen Region	1,825,814	2,864.14	693

N.B.: a from 2004's statistics. (Source: Danish Capital Region, http://en.wikipedia.org/wiki/Danish_Capital_Region)

The Copenhagen's Finger Plan, when first proposed by government officials, scholars and planners in 1947, covers only the Copenhagen City and its surrounding suburbs (i.e. capital area). The administration area was constantly expanding, depending on the need of city, district economics, and social development. The present Copenhagen's Finger Plan covers the entire Copenhagen Region. In the past 60 years, related authorities has conducted researches, drafted, revised and complemented it based on the changes of situation and tasks. Now the Finger Plan has evolved from a concept that had no legal effect to a legal strategic plan of regional development, playing an important instructive role in the growth and construction of Copenhagen and its surrounding areas.

3.3.2 Background of Proposing the Finger Plan

In the second half of the 19th century, the urbanization in the West greatly accelerated with the continuously growing size of economic and trade, and the enhancement of industrialization and production. In the case of Great Britain and Wales, the size of the cities kept increasing, as the population grew larger. In mid-1930s, the amount of arable land taken by the cities every year reached 148,000 ha, while the total arable land in these two places were 91 million ha.[194]

[193] PeterHall. Urban Regional Planning (third edition)[M].Routledge, London, 1992.
[194] Dansk Byplanlaboratorium.Skitsefoslag Til Egnsplan For Storkbenhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.

Within a short time, cities were overflowed with exponentially growing population, environmental conditions deteriorating rapidly. The situation brought considerable difficulties, and caused people to think about how to build, plan and develop cities. In face of various problems in urban development, Ebenezer Howard came up with the concept of "Garden City" in his book Garden Cities of Tomorrow published in 1902. So was Denmark at that time (Tab. 3-6). With the setting up of the Town Plan Institute in Great Britain in 1914, urban planning gradually changed from pioneers' individual exploration into systemized professional social work. Influenced and inspired by Great Britain, Denmark established a nongovernmental planning organization in 1928 - Danish Town Planning Institute, and began its research work in urban planning.

Tab. 3-6 Danish population of urban and countryside area (%)[195]

Region/Year	1801	1840	1901	1925	1940	1950	1960	1980	2001[a]
Urban	21	21	39	56	64	68	74	81	85.1
countryside	79	79	61	44	36	32	26	19	14.9

a: Paul L. Knox, Linda McCarthy. Urbanization (Second Edition) An Introduction to Urban Geography, Pears on, New Jersey, 2005, pp.97.

Danish Parliament legislated the first Town Planning Act in 1938-1939. The Act required the local government to plan the use of land every five years in towns that are inhabited by more than 1000 people.[196] The plan could be carried on once it was approved by the Ministry of Internal Affairs of the national government.[197] Only one-sixth of the towns in Denmark met the standard at the time, to demand a physical planning. According to the law then, the planning was classified into two: one was structure planning, the other town planning.[198] The purpose of the former

[195] John J rgensen. Copenhagen Evolution of the Finger Structure [Z/OL]. http://www.qub.ac.uk/ep/research/cost10/ findoc/cs08- Cope.pdf. 2007-01-08.
[196] Dansk By planlaboratorium. Skitsefoslag Til Egnsplan For Stork benhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.
[197] Ibid.
[198] R H Williams. Planning in Europe[M]. George Alle & Unwin Lid, London, 1984.

was to make clear of the future use of the land and its goal, while the latter was to require the towns to clarify detailed regulations regarding the use of land. But new issues came along. Laws only applied to the range of land in towns, but leaving out the vast rural areas lying outside the city. Moreover, the new Act only focused on the use of land, neglecting the socio-economic issues. Therefore, regional planning between towns were unvisited issues, making it, especially economic development coordination, a difficult problem to solve. The situation was more serious in the Copenhagen region. The Danish Town Planning Institute set up a committee before the birth of the Town Planning Act. The members came from all municipalities in the region, related government departments and representatives from public transportation. The committee was only responsible for coordinating and processing various emergency cases in the region at the beginning. The passing of the new Act drew its attention to the open space in the region.

In 1945 after the Second World War, European countries embarked upon the large-scale reconstructing work. Urban planning was in great need. Against this background, the committee proposed to draft a comprehensive plan for the region, which would be co-written by the 29 municipalities of the Copenhagen region at the time. A technical office emerged as the times required, and took up and finished the innovative task of drafting the planning. The idea of “Greater Copenhagen” was first mentioned in this document. At first, the planners merely called it “Plan for the Capital Region” without a specific name. Towards the end of the job, a German secretary put her hand on the plan, and realized it fit the shape of the hand. Then came the name “Finger Plan”. The plan was officially published in early 1948 under the name Suggestions on the Planning of the Capital Region (Skitsefoslag Til Engsplan For Stork benhavn Udaebjdet 1947 AF Egnsplamkotoret) (Fig. 3-18).

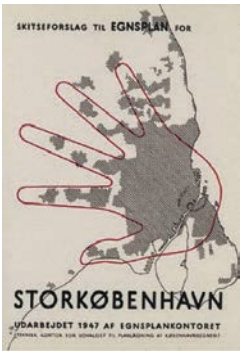


Fig.3-18 Cover page of First Finger Plan proposal published in 1948

3.3.3 Reasons for Proposing the Finger Plan

The Finger Plan was in fact a prediction of the planners then over the population and future socio-economic development. The suggestion for the future planning of Copenhagen was based on the historical experiences of Copenhagen and other major European cities, with Copenhagen as the center and existing railways stemming out of it as the foundation. It equals to what people now call a "conceptual plan".

The four factors of the Finger Plan are:

Firstly, the analysis on the economic and social situations. The office first compared Copenhagen with other European capitals, and came to the conclusion that Copenhagen, populated like all other capitals, is the center of national business, trade, industry and administration, beside the political function as a capital. The downtown then was occupied by 40% of the stores and workshops in the city, approximately 200,000 people commuting between work and home.[199] This caused traffic congestions. As a result, many people would rather live in the

[199] Dansk Byplanlaboratorium.Skitsefoslag Til Egnsplan For Stork benhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.

downtown, especially near the industrial area, which greatly increased the density. So Copenhagen at the time was facing the problem of which is how to solve the density as other cities. On the other hand, since most of the houses were built in late 1800, conditions and equipment were less than satisfactory. Some housing districts turned into ghettoes in the long run. According to statistics, 75% of the downtown houses were built before 1940, 25% in suburbs; over 85% of the houses only had 1 to 3 rooms, whereas such houses made up 50% in the suburbs.[200] Meanwhile, as conditions and environment worsened, many people, especially wealthy families with high income, moved out of downtown, and migrated to better districts north of Copenhagen. Building houses in suburbs became a trendy fashion at the beginning of the 20th century. Although this movement in some extent has decreased urban population density, it also significantly cut down the tax revenue of the city. The amount of money the authorities used for maintenance and construction decreased correspondingly; thus rose a vicious circle. Consequently, the plan in need had to not only tackle with the future use of land in Copenhagen, but also to revive the society and the economy. It must strengthen both its leadership in domestic economy and its competitiveness with other European central regions.

Sencondly, the analysis on the size of urban population. After World War II, the population in Copenhagen already reached 1.1 million people, 1/4 of the total[201]. According to prediction on the future demographic growth, the plan argued that population in this region will not exceed 1.5 million in an estimable time. Development in this region is divided into short-term and long-term; the former was based on 1.3 million, the latter on 1.5 million.[202] New growth would mostly be added outside downtown, which was proved by later demographic

[200] Peder Boas Jensen. Framing the Urban Development [A].Peter Madsen, Richard Plunz,The Urban Life World [M]. London, Routledge, 2002.
[201] Dansk Byplanlaboratorium.Skitsefoslag Til Egnsplan For Storkbenhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.
[202] Copenhagen. Wikipedia [DB/OL]. from http://en.wikipedia.org/wiki/Copenhagen. 2007-01-18.

change (Fig. 3-7). Therefore, scholars later named plans made in this period about demographic growth "limited growth".

Tab. 3-7 Population in the central city of Copenhagen in history[203]

Year	Popu.	Year	Popu.	Year	Popu.	Year	Popu.	Year	Popu.
1850	129,695	1930	617,069	1971	625,671	1983	486,593	1998	487,969
1870	181,291	1940	700,465	1972	610,985	1985	478,615	2000	495,699
1890	312,859	1950	768,105	1973	595,751	1988	468,704	2003	501,285
1901	360,787	1960	721,381	1975	562,405	1990	466,723	2005	502,362
1911	462,161	1960	721,381	1978	515,594	1993	466,129	2006	501,158
1921	561,344	1970	622,773	1980	496,850	1995	471,300	2007	503,699

Thirdly, the analysis on the development model of future cities. Various hypotheses about urban models were raised at the time by western government planning departments and scholars. The planning office once proposed three suggestions to the Copenhagen City and its surrounding regions: ①Decrease the size of the city. At the end of World War II, out of concerns about nuclear weapon, residents in Copenhagen were suggested move out, which meant weakening the capital's status as the central city; ②Construct a coastal city. Taking advantage of the natural surroundings, Copenhagen should expand toward south and north to become a typical band-shaped coastal city; ③The "old town + satellite cities" model. Take the existing city as the center, and build independent satellite cities in a distance. The committee, after serious consideration, decided that none of the three plans work. As the capital city, Copenhagen enjoys irreplaceable historical and cultural values. Since it is also the political and economic center, declining and unplanned expansion are not acceptable. Instead, Copenhagen should lead, preserve and develop the towns through reasonable planning and other effective measures, based on current structure. These towns should form a valid network

[203] Copenhagen. Wikipedia [DB/OL]. from http://en.wikipedia.org/wiki/Copenhagen. 2007-01-18.

(via road, traffic, communication) with Copenhagen, and share some of the functions (residential, working, and production). This could prevent developing Copenhagen at the cost of other towns and an overfilled downtown.

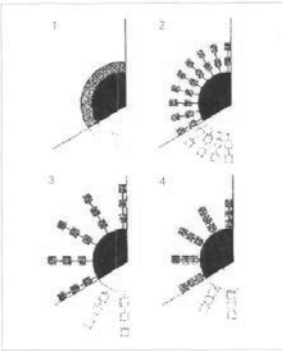


Fig.3-19 Analysis diagram of urban development in four patterns

Finally, the analysis on the geographic location. Copenhagen is adjacent to the sea to the east, boasting fine harbors and convenient ocean channels. The northern topography is uneven, with enormous grasslands, lakes, hills and bathing beaches. The scenery in the South and West is more monotonous, with comparatively flat fields and wasteland. This provides the urban development with more space. Since the citizens have the right to choose where to work and live, if no systematic planning was conducted on the regions, urbanization would go further to the North. Therefore, the direction of the future development should be focusing on the western part, and slowing down the development to the North.

3.3.4 Principles and Content of the Finger Plan

As the post-war economy and social life recovered and became lively again, the demand for housing surged accordingly. The increase of land used for housing in Denmark every week was about 1 to 2 ha. The situation was worse in Copenhagen than in other areas. The continual invasion of urbanization decreased considerable amount of arable land, and increased the commuting time between

home and work. The Finger Plan put forward solutions, providing the development of Copenhagen with a clear blueprint.

3.3.4.1 Principles

Principles can be summarized as below:

Firstly, control the development of Old Town, and construct new suburbs. The plan clearly pointed out that the layer-upon-layer growth of downtown should be prevented, and effective methods should be taken to alter the downtown development. The plan suggested protecting the Old Town, with necessary and limited reconstruction. The key of construction was to improve the infrastructures and as well both environment and the living conditions for the residents. Plans for the new suburbs did not adopt the satellite city model. Instead, it took advantage of the original layout and built new suburbs through planning, making them part of the city.

Secondly, depend on the railways to form the Finger City. At the time, there had been already two railways from downtown of Copenhagen to the West. Plus other lines towaed to different didirections, in total 5 routes of railways, are being planned in the future. Consequently, the plan suggested that the structure of the future city take the railways as the axis, and stations as the centers, to form towns with well-equipped business, cultural and educational services and effective administration system. The Old Town was to be connected with these towns through frequent and convenient train rides, thus constituting an urban layout model, with the railways as "fingers", stations and nearby towns as "pearls", and the downtown as "palm". At the same time, the plan has also rightly predicted the development of future highways, creating opportunities for public transportation enabling the citizens to travel more conveniently. The transportation network composed of railways and highways will draw between the "fingers" and "palm", "fingers" and "fingers", "pearls" and "pearls" closer (Fig. 3-20).

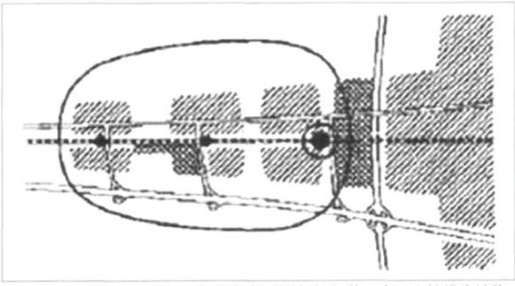


Fig. 3-20 Pearl (town) on the Finger in the proposal

Thirdly, taking up less arable lands as possible, improving the condition of wastelands, and creating living-friendly environments. The Plan suggested that Copenhagen's future development should direct at the broader West and South which had more potentials instead of the North. Because when the high-salary class moved to the better North, more and more ordinary citizens also imitated doing so, which would inevitably exacerbate the pressure and damage to the environment there. It would lead to harm their life quality. Comparatively speaking, although scenery-wise the western and southern parts are a bit inferior to the North, through plantating and building parks to ameliorate the envronment, more citizens would be attracted to move there. By developing the coasts and putting up bathing beaches, the original topography and environments can be beautified, and thus realize the reasonable urban expansion and layout.

Thirdly, keep the green space, beautifying and protect the environment at the same time. The plan mentioned specifically that between each finger, wedge green spaces should be kept, and should stretch to the downtown area as far as possible. The wedge green spaces include grassland, farmland, rivers and wasteland, as well as parks, greens, etc. (Fig. 3-21). Keeping and creating wedge green spaces can, on the one hand, prevent the towns from horizontally expanding, enabling them to reasonably develop in the planned area; on the other hand, it can protect the environment, supplying the citizens with diverse and pleasant recreation spaces.

Fig. 3-21 Rail way (in black) and residential area (in red) in the proposal of Finger plan 1947

3.3.4.2 Contents of the Plan

Firstly, the requirements on the location of the towns. The plan proposed clearly that the new towns should be built upon along the railways, and the distance of the towns should not be 45 minutes away from downtown via public transportation (meaning from home to work).[204] The reason was that the plan took into consideration, that 40% of women have gone out the home and became working ladies. Since they had to run back home after work to take care of the housework, the women should not spend more time on commuting. It was also true that if transportation takes too long, the towns would lose their attractions to the people.

Secondly, the consideration over the size of the towns. The plan set three categories: ①residential unit, inhabited by 1,000-2,000 people; ②neighborhood unit, inhabited by 5,000-50,000 people; ③community unit, or metropolitan district, inhabited by 50,000-100,000 people.[205] The main reason for the classification is that on the one hand demands vary from towns to towns, and people to people. Generally, young people prefer bigger towns, while senior citizens and wealthy

[204] Dansk Byplanlaboratorium.Skitsefoslag Til Egnsplan For Stork benhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.
[205] Ibid.

families like smaller towns better. On the other hand, future industrial areas are mostly located along the railways. It is helpful for production and transporting goods, and also suitable for workers to live. Therefore, enterprises and citizens can choose towns of different sizes based on their own preference.

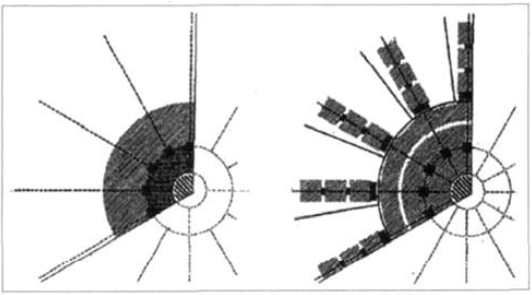


Fig.3-22 Future industry (in black) areas in the proposal, Left is original, right for future

Thirdly, the consideration over traffic in Old Town. While the plan gave suggestions on perfecting the traffic layout from downtown to suburbs, it also looked at the unsatisfying inner-city traffic situation. The plan proposed that public transportation like tram cars and buses should be improved and systemized. It also recommended to upgrade roads and sidewalks.

Lastly, the improvement of the living conditions for downtown residents. In Old Town, 75% of the residents in Copenhagen lived in apartments then, 25% in single-family houses. Most single-family houses had yards, where leisure activities take place. It also became a significant factor in measuring the living conditions. In order to reduce the population density of the city and to improve the living conditions without taking up too much arable land, the plan suggested 35% be the percentage of single-family houses.[206]

[206] Dansk Byplanlaboratorium.Skitsefoslag Til Egnsplan For Stork benhavn Udaebjdet 1947 AF Egnsplamkotoret [Z]. A Summary of the Preliminary Proposal 1948-49, 1993.

From what we have seen, the "human-oriented" planning philosophy was not merely for talking. It was carried out in actual policies, and was combined with corresponding systematic planning. Since the Finger Plan was only a regional planning suggestion, it did not replace the development planning of all towns, especially Copenhagen. Therefore, under the guiding of framework and prirncapes in this proposal, every town needed to make its own plan for its construction and development basedon its own situation.

3.3.5 Conclusion

Although this Finger Plan suggestion was only a nongovernmental document without any legal power or standing, the issues that it focused on and the suggestions had huge influence. On the one hand, the principles and hypotheses in the Plan received broad attention, and laid down the foundation for Copenhagen's future; on the other hand, it had a positive impact on the 1949 City Regulation Act, for this Act was a memorial in instructing regions like Copenhagen. Meanwhile, it opposed cities widely spreading out, and was adopted in the 1956 National Zonal Decisions. In spite of great changes and the few unsatisfying points, the Finger Plan still feels familiar and intimate when people today look back to it. The planners then are sincerely respected. Without their foresight and wisdom, this city would look completely different. The influence and meaning of the Plan still persists today in a world where people explore for ecological harmony and friendly living environment.

3.4 The Background and Processes of Evolution on Copenhagen Finger Plan (Part I)

Abstract: Since it was first proposed in 1947, Greater Copenhagen's Finger Plan has been remade and modified several times. Having been constantly explored and constructed in the past 60 years, today, the Greater Copenhagen region has become a beautiful, comfortable, dynamic and sustainable area for both living and work. The Finger Plan has thus become one of the best

examples worldwide. This paper attempts to analyze, under the constant changes of economic form, social structures and life standards in Greater Copenhagen region during the six decades, how the planning has been developed and renewed, and finally came to life in accordance with the condition change and situation development, on which the initial principles and basic ideas of the Finger Plan was based.

Keywords: Copenhagen region, Finger Plan, evolutional background, evolutional process, public participation

3.4.1 Introduction

A city's developing model is closely related to the natural environmental and geographic conditions, the historical and cultural background of its country, the economic and development situation, the urban planning and administration, and people's way of life. The state of Copenhagen and its layout formed gradually on the basis of its nature, humanity, society, economics and politics.

From the view of process of the historical evolution in Copenhagen, it could be divided into four stages before Finger Plan proposed. ①The stage of the medieval ages, until the 19th century, it has always been a castle city with walls and a moat. The wall obstructed its further expansion. The city was 3 km^2 large at the time, its population being 130,000.[207] Walking and carriage were the primary transportation methods (Fig. 3-23). ②The stage of tram car from the late 19th century to the early 20th century, after the walls were demolished, which obstructed the city's development, the original residents in the inner city areas integrated with nearby external small villages, and it made the town was greatly enlarged, and was connected by new tram cars in 1917 instead of carriages.[208] The population had amounted to 400,000 people, and the territory had expanded to

[207] John Jørgensen. Copenhagen – Evolution of the Finger Structure, 2004, p. 189, Available from http://www.qub.ac.uk/ep/research/cost10/ findoc/ cs08-Cope.pdf.
[208] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning [M]. 1973, Copenhagen, p. 9.

7,000 ha[209] (Fig. 3-24). ③Before the WW II phase, from 1930s, when quick and convenient railway system was put into use (built in 1934)[210], the population increased exponentially to 850,000 people[211], aided by tram cars, carriages and bikes in town. The population in the Copenhagen region also reached 1 million. Until 1945, the size of the city has tripled or quadrupled, and was still in the tendency of getting bigger.[212] ④After the WW II stage from the end of war to the Finger Plan emerged (Fig.3-25). Copenhagen today is a modernized Finger-plan city constantly planned and constructed in the past 60 years. It retains the city's historical tradition, and also integrates elements and functions of modern cities. All these are closely related to the Finger Plan. To some extent, Copenhagen's development has had a clear direction, since the publishing of the first Finger Plan, which is gradually coming true as the city develops.

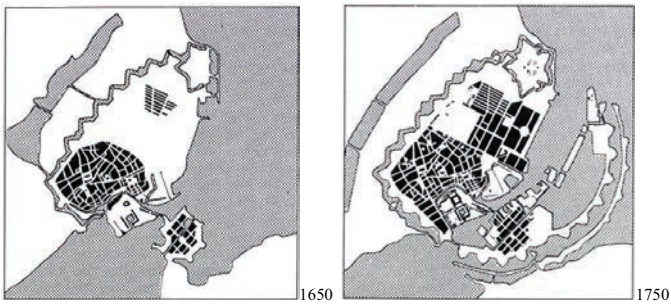


Fig.3-23 Diagrams of the City of Copenhagen in 1650 and in 1750

(Source: Københavnerliv – Før & Nu,by Kay Nielsen and Herlfuf Stokholm)

[209] Kay Nielsen and Herlfuf Stokholm (1981). Københavnerliv – Før & Nu，Herlfuf Stokholm Forlag, Copenhagen.
[210] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning [M]. 1973, Copenhagen, p. 9.
[211] Kay Nielsen and Herlfuf Stokholm (1981). Københavnerliv – Før & Nu，Herlfuf Stokholm Forlag, Copenhagen,
[212] P. Hall. Planning for Urban Growth: Metropolitan Area Plans and their Implications for South-East England [J]. Regional Studies, Vul. 1, 1967, p. 103.

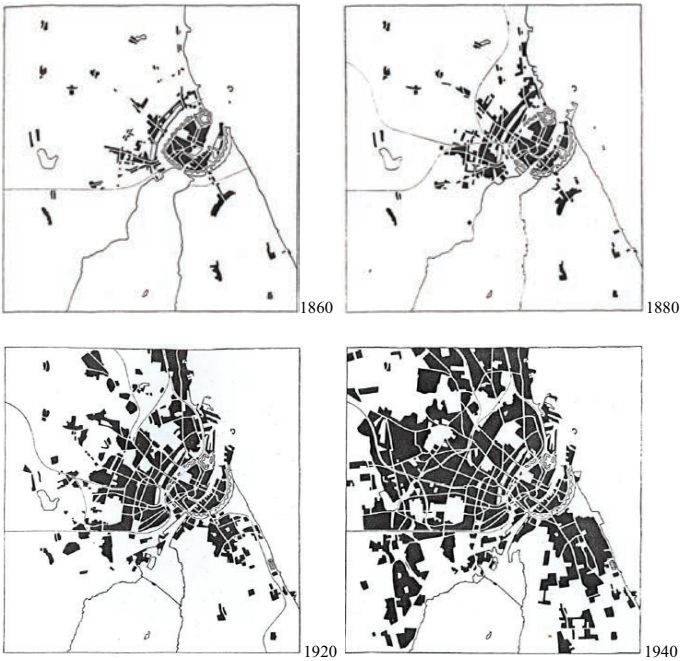


Fig. 3-24 Diagrams of the City of Copenhagen in 1860, 1880, 1920 and 1940

(Source: Picture of 1850 from Københavnerliv – Før & Nu, by Kay Nielsen and Herlfuf Stokholm, Picture of 1920 from København 1840 – 1940, by Dansk Byplanlaboratorium)

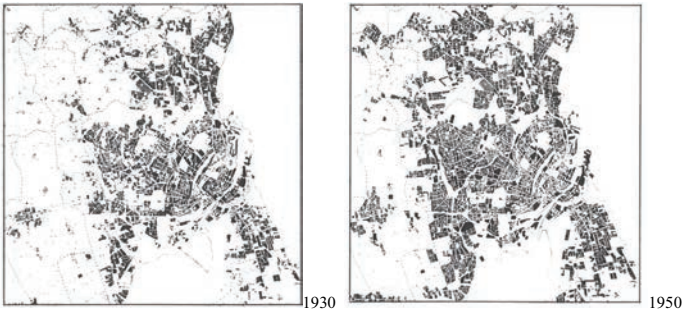


Fig. 3-25 Diagrams of the City of Copenhagen in 1930 and in 1950

(Source: Københavnerliv–Før & Nu, by Kay Nielsen and Herlfuf Stokholm)

In the sixty years of the Finger Plan's evolution, the human society is advancing at a unprecedented speed in history. The ever-renewing scientific technology, abundant material products, and copious artistic creations have all enhanced our life quality. They also further complicated the planning work, making it more comprehensive and more challenging.

The Greater Copenhagen region (the Copenhagen City as its core areas) has experienced industrial revolutions, economic transitions, technological advances, political party changes, government reform and civil activities as same as the city of Copenhagen. Although its development has witnessed ups and downs, its development planning received several revisions and modifications in different times. Altogether there were six versions of the Plan, but most followed the principles given in the first version. The different versions were perfected by practice. The Copenhagen Finger Plan not only enabled cities and villages to develop healthily, but also became one of the most successful examples in world urban planning.

3.4.2 Second version of the Finger Plan - Planning in 1950s-1960s

3.4.2.1 Background

The first version of Finger Plan came out in 1947, with Old Town and new suburbs' future development and layout as the focus. In this version, the assumtion of which based on the "limited growth" of resources as population, housing and land was the plan precondition; the developement mordle of which changed from the unserupulous sprawl to the rational controlibility was the core principle; the developement direction for future city would be to follow the existing and planned railways as fingers. Meanwhile, the centre of towns would be built around railway stations as closer as possible. In this way, it leaded that commuting time of the citizens and transportation costs of enterprises could be cut. Since the industrialization accelerating in 1950s and 1960s, the spead of urban sprawl was

not in the "limited growth" way people had envisioned. Instead, it strongly accelerated. This phenomenon and tendency not only appeared in West Europen cities, but also in Copenhagen region at the time.

From the view of Copenhagen's situation then, we could find that main reasons for making a new round of planning can be summarized as: ①The adjustment of national development strategies. To respond to the requirements of industrialization and urbanization, the central government adjusted the policy of developing the capital area to assisting less-developed areas outside the capital. ②Change in urban population. The population in city of Copenhagen decreased from its peak 750,000 in the 1950s to 600,000 in the 1960s (Fig. 3-26). Reasons were varied. Among the reasons the investment Copenhagen city received and the amount of job positions were decreased, and these definitely contributed to the stagnation or even downfall of the city. Another reason was that many wealthy families moved out from the crowded downtown to better equipped suburbs. These factors lowered the population density, and improved the living conditions. For instance, the statistics shows that population was 600,000 in 1950, and there were 180,000 houses; in 1970, the approximately same amount of people owned 285,000 houses.[213] However, at the same time, government revenue decreased, which also resulted in a dramatic cut in infrastructure expenses. ③The rapid increase in private cars. On the one hand, private cars are a more convenient alternative to travel than railway and public buses. They also increased the demand for rods and parking lots. On the other hand, they also cause the residential area to further expand outwards. ④Because the government encouraged the citizens to move to suburbs for living, this brought a number of "Finger City" residential and villa areas that have a comparatively lower population density. For example, Brondbyoster and Glosstrop built in western Copenhagen, Herleve and Ballerup in the Northwest, Sorgenfri, Lynby and Hjortekaer in the North. High apartment buildings, condominiums and villas were

[213] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning. 1973, Copenhagen, p. 9.

erected. Statistics showed that the percentages of new housing area 0-6 km, 6-20 km, and 20-50 km away from downtown were respectively 67.63%, 19.47% and 11.91% during 1900-1945, 11.97%, 51.7%, and 36.34% during 1950-1965.[214] All these factors combined increased the demand of land. As a result, the Finger Plan in 1947 was shadowed as too tiny and conservative. So new plans were necessary in need to guide and regulate the developing direction and the use of land for Copenhagen city.

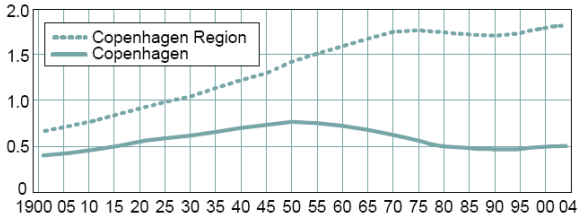


Fig.3-26 Population changes in Copenhagen (by line) and Copenhagen Region (by dot line) (in mil.), in 1900 -2004

(Source: Copenhagen in Figure 2004,by Statistics Office of Copenhagen City)

The department of Copenhagen regional planning revised the 1947 version of "Finger Plan" in order to cope with these new changes, and the planning radius were expanded from 15 km in the first edition to 50 km.[215] In addition to Copenhagen City and the Municipality of Frederiksberg (a municipality located in the city of Copenhagen), the Plan covers three counties - Copenhagen County, Philippine Derek Harrisburg County (County of Frederiksberg) and 55 towns from County of Roskild, making it the true sense of regional planning. Meanwhile, during this period, the regional plannings between counties and urban planning were carried out one after another .

[214] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning. 1973, Copenhagen, p. 9.
[215] Edited by James Berry and Stanley McGreal. European Cities，Planning Systems and Property Markets, E & FN SPON, 1995, London, p. 163.

3.4.2.2 Planning

3.4.2.2.1 Activities

There was no unified leadership in the Copenhagen region planning in early 1950s, but each county and municipal was in charge. Later the Ministry of Housing took over the responsibility. Planning for the capital region, the Ministry has set up a technical committee made up of officials from the Ministry of Housing and experts of urban planning, transportation, energy experts, who are responsible for the preparation of the planning, development and demonstration work. Meanwhile, although the Copenhagen area has Greater Copenhagen Council, it had little impact on the planning, due to the constraints of a variety of reasons. The reason was that the urgent problems it raised in the area were ignored by domestic lawmakers from other regions. Therefore, specific planning was mainly borne by local governments. At the same time, some of the private industry organizations spontaneously conducted planning studies and suggestions. The plan encountered resistance from all sides. However, the establishment of a joint committee was made possible by the support of the government. It was composed of members from six central ministries, the National Railway Bureau, two counties and eight local governments. Together they would be responsible for the planning guidance work.[216]

3.4.2.2.2 Situation

A new round of planning led by the Ministry of Housing started in 1958. Previously, Copenhagen developed a regional development plan in 1954, but it has not been implemented. During this period, results chaired by the technical committee of the planning can be divided into two parts. The first part is the

[216] City of Copenhagen. Ørestad – Historic perspective planning implementation documentation, 2003, p. 32.

Outline Development Plan released in December 1960, and some called it the Strategic Concept For A Regional Plan (Fig. 3-27). There were 12 supporting programs that were released at the same time, but most of them were rejected by public comments. In May 1961, Congress passed its matching program - the Køgebugt Planen (the General Development Plan) (Fig. 3-28). The latter part was the Regional Planning, a deeper revision of the previous planning. The plan has been recognized by planners and state officials of the Ministry of Housing Assessment Committee, and a consensus was reached within the technical committee in 1966, within the Ministry of Housing in 1968. It is known as the second edition of "Finger Plan". Although, like the first edition of "Finger Plan", it is not legally binding, but many central government ministries were involved in the formulation of the plan, so many articles in the plan received implementation to different extents.

Fig.3-27 Cover Papers for Regional Plan in 1960s：Outline Development Plan (left) and Capital Region Structural Plan (right)

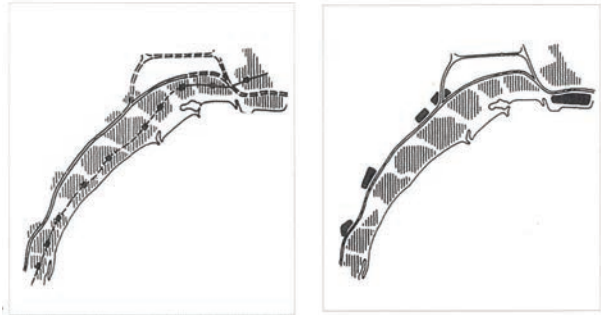


Fig. 3-28 Diagram of Køgebugt Plan

Traffic Planning (black dots for traffic stop) (left), Industrial Planning (black areas for industries) (right), housing areas (in gray)

(Source: Ørestad – Historic Planning implementation Documentation 2003, by City of Copenhagen)

The second edition is mainly based on the Copenhagen population growth prediction. According to the analysis of the economic and social tendencies, the Commission forecasted that in 2000 the Copenhagen area population would increase to 1 million more than the one in 1960.[217] Accordingly, in order to meet the new requirements of the population at work and life, 500 km^2 of new land was expected for construction. To this end, the Ministry of Housing decided to expand the area 3000 km^2 (planning area having far exceeded the actual area of the Greater Copenhagen area).[218] Under the influence of the policy which was reducing-investment-in-Copenhagen, the Commission would create 4 new regional central cities with the scale of a population of 250,000. The intentions of this planning can be summarized as the following aspects: ①Protecting historical and cultural valuesof the landscape, to prevent the sprawl of urbanization to the north of Copenhagen City; ②protecting the historic Old Town, to prevent the intrusion of commercial high-rises; ③protecting downtown and its surrounding area, to reduce the impact of increasing vehicles on the urban living environment

[217] City of Copenhagen. Ørestad – Historic perspective planning implementation documentation, 2003, p. 32.
[218] City of Copenhagen. Ørestad – Historic perspective planning implementation documentation, 2003, p. 28.

and air quality; ④increasing employment opportunities and improve city services for new suburban population; ⑤maintaining the existing urban pattern and avoiding further expansion of the new suburban residential area.

Although these basic principles were in full compliance with the 1947 version of the planning, but there are serious divergences on how to choose new regional centers. The Planning Board implemented the central government's policy of reducing investment in Copenhagen City, and advocated the west and southwest of Copenhagen. However, the wealthy towns north of Copenhagen City and Copenhagen itself hoped to increase investment in their own region by planning, in order to increase the population in the area, and so as to achieve the purpose of increasing revenue (a large part of the local government revenue comes from residents' income tax - the author notes). After intense debate, the Committee formed a long-term and a short-term scenarios, and the long-term planning is divided into A and B two options. The A program focused on the common development of the three "fingers" (i.e., thumb, index finger and middle finger), while the B program concentrated on the "thumb" and "forefinger", as well as the area between the two fingers that connects Mexico City southwest of Køge (as the "thumb" in "Finger Plan", 40 km from Copenhagen- the author noted) and western Roskilde (considered as the "index finger", 30km from Copenhagen- the author noted) (Fig. 3-29, 1 a and 1b, and 2a and 2b). The short-term planning, also known as the "first stage" of the 10-year planning[219], focused only on these two "fingers" (Fig. 3-29, 3a & 3b), intending to build them into cities with a population of 25 million[220]. The support of the central government, especially after the Køgebugt Planen in 1961, made the short-term plan of concentrating on building the "thumb" and "forefinger" two lines possible, especially in the direction of the "thumb". Specific construction are not, as expected, ideal, since the population in

[219] Dansk Byplan Guide (Danish Twon Planning Guide). 1981, Copenhagen, p. 46, 33, 17 (in Dabish).
[220] Regionplan 1973 for Hovedstadsregion, p.46 (in Danish).

the 1970s only reached 150,000 [221]; in the forefinger direction, urban planning and construction did not take shape until the 1970s.

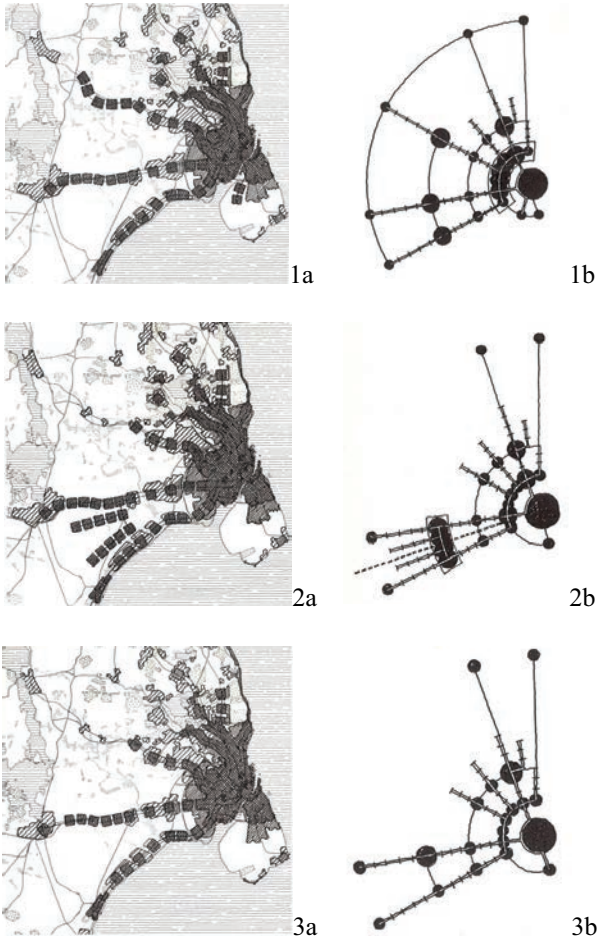


Fig. 3-29 Diagram of second Finger Plan between thumb and point-finger 1a and 1b for A plan, 2a and 2b for B plan, 3a and 3b for short-term plan (Source: København – Et bysamfunds særpræg og udvikling gennem tiderne, by Steen Eiler Rasmussen)

[221] City of Copenhagen. Ørestad – Historic perspective planning implementation documentation, 2003, p. 32.

3.4.3 Third Version of Finger Plan - planning in the 1970s

3.4.3.1 Background

The 1970s was a significant period in Denmark's transition into an industrialized country from a traditional agricultural society. From the economic perspective, the process of industrialization that began in the 1960s continued onto the 1970s. More and more industrial enterprises were gradually built throughout whole country, and also further promoted the balanced development of the national urbanization. The data showed that, across the country in the 1958-1975 period, a total of 18,000 new production and processing sites were built.[222] Many of these enterprises originally located in the urban area were relocated from the large and medium-sized cities to relatively small towns with lower land prices and production costs. From the social aspects, since the 1970s, the national social welfare system in the smaller towns has also been perfected. With the acceleration of suburbanization in Copenhagen and the rise of the Finger City, the attractiveness of Copenhagen's Old Town further weakened. At the same time, with the development of the national economy and the increase in personal wealth, the penetration of the private car increased. During this period, more than 50% of households had private cars, and more than 10% of households possessed their own outskirts vacation villa (summer house). The automobile changed the way of traveling and the lifestyle of people, and also made a further separation between residence and place of work.[223] Every day people travel farther and farther. From political aspect, in Denmark in the 1970s a large reform was conducted over the national government system, its aim being to enhance the coordination of government and to reduce the phenomenons of political chaos caused by varied authorities which held the policy-made right. The contents of the reform involved aspects of education, social welfare, and national and regional physical planning. The power both of the

[222] Dansk Byplan Guide (Danish Twon Planning Guide). 1981, Copenhagen, p. 33. (in Dabish).
[223] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning. 1973, Copenhagen, p. 10.

central and county's administration delegated to some parts of their management rights to the local, so that the local government (municipal level - the author notes) has been strengthened. In addition, since various political thoughts in this period were more active than ever, the public and various public organizations had unprecedented enthusiasm in politics. Concerning urban planning, the survey showed that 3-4% of the people were involved in various forms of planning discussions activities[224].

After the reform, judging from the leadership, on the one hand, the Ministry of the Environment was established in 1973 to take charge of physical planning (i.e., regional planning and urban planning - the author notes). At the same time, it was also responsible for natural and environmental protection and raw material consumption. Matters of Sector Planning like energy, housing construction, agricultural land, transportation and other special programs, respectively, by the Department of Energy, the Ministry of Housing, the Ministry of Agriculture, and the Ministry of Public Affairs. On the other hand, a planning system was established, consisting of four levels of government - the national, regional, county, municipal and local, and each level has its own scope of responsibility. At the same time, research, discussion and design activities of citizen participation were encouraged and supported in the planning. Individual citizens could put forward different views on planning, and also could question the higher level of planning departments. In order to better coordinate and guide the country's development, the Ministry of Environment in 1975 published the first annual report on the activities of the national planning. The report depicted an overview of the national policy on urban development, and divided the city pattern into four kinds of city pattern, the capital region, large-scale provincial capital cities, regional center cities and local town. It proposed that the capital region and the other two provincial capital cities Odense, Aarhus should stop the outward expansion,

[224] Dansk Byplan Guide (Danish Twon Planning Guide). 1981, Copenhagen, p. 17. (in Dabish).

mainly concentrating construction projects in the inadequate existing development areas. This report laid the foundation for later national and regional planning.

From legislative aspect, the *Urban and Rural Zones Act* was enacted in 1969, *Land Use Act* in 1970, *National and Regional Planning Act* and *Municipal Planning Act* in 1973 and 1977 respectively. In dealing with Copenhagen, the *Regional Planning Act for Metropolitan Region* was especially made in 1973. The enacting and execution of these acts both satisfied social needs and perfected the legal system. Of these acts, the *Urban and Rural Zones Act* grouped the land into urban zones, rural zones, and summer cottage areas. It regulated that towns' construction could only take place in the areas-planed. Occupation of rural land without legal approval was prohibited. Taking the special needs into account, such as road construction, two specific laws were enacted to ensure the legitimate change between both urban and rural nature of the land. If rural land was to turn into urban land, not only local approval was necessary, but the land seller also needed to pay off the tax from the difference of the price to the local authorities, in order to avoid the landowners seeking profits and transfer of land without permission. It was clear in the *National and Regional Planning Act*, regional planning is not merely land-use planning, but also includes other sectors planning, such as the protection of natural resources and balance of urban and rural interests. It also provisioned to encourage political parties, social organizations, government departments and the public to participate in the planning activities, planning work to ensure rigor, scientific, and balance; the details of plan should include the city layout mode, residential, industrial and commercial construction, rural planning, public institutions and facilities planning (such as hospitals, schools and transport), etc.; planning proposals would only be submitted by local council to the Ministry of Environment after open question and comments from community and public. The Act regulates that each round of planning lasts 12 years, and the planning of each round was required to be established in the form of legislation. In the meantime, every four years an assessment of the implementation and inspection would be carried out. These

changes in the background of the times brought new challenges and higher requirements to urban planning.

3.4.3.2 Activities

3.4.3.2.1 Organizations

Starting from the late 1960s, in order to strengthen the future development of the capital region and to organize and coordinate the planning in this region, the Parliament approved the establishment of an advisory named "Regional Planning Council", which was responsible to prepare the regional development proposal within the capital region. In order to facilitate the discussion of public for planning, in 1971, the Council published Regional Planning 1970-1985: Basic Situation Analysis (Regionplanlæging 1970-1985: Forudsætninger) and Regional Planning 1970-1985: Regional Planning Proposals" (Regionplanlæging 1970-1985: Regionplan Forslag). After six months of public discussion and subsequent revisions, the Council in 1973 published the new proposal under the name of Structure Plan For The Capital Region Planning 1972 (Strukturplan 1972 the for Hovedstadsregionen). Subsequently, the Council also announced a more detailed Regional Plan For Capital Region 1973 (Regionplan 1973 for Hovedstadsregionen) (also referred to as the Regional Plan 1973). In the same year, the new Capital Region Greater Copenhagen Council made up of term by 37 mayors replaced the original Council's work, and became an institution with real power. The Regional Plan 1973 was approved by the State Ministry of Environment in 1976. It became the third version of the "Finger Plan". Enjoying a different status with the recommendations of the two previous planning, it was not only the first Copenhagen District Planning developed by official organizations, and it was the first time in a legislative form to recognize the Copenhagen regional planning.

3.4.3.2.2 Planning works

The rapid development was still the basic theme for third Finger Plan. The size of the population was expected to increase to 1.9-2.1 million in 1985 from 1.8 million in 1970[225]. The content of the third version involved more in accordance with the requirements of the Planning Act, including not only transportation and residential construction in the whole region, but also environmental protection and hospital layout. First of all, the Plan continued to adhere to the principle of "Finger City", and predicted that the city would further expand in the future and the structure of the city would also have some fundamental changes. On the basis of the idea of building a "thumb" and "forefinger" in the second version (i.e. the 1963 version), it also proposed to expand the buildings to other "fingers". Secondly, It was for continuation with the policy of regional development which supported outside the capital, and meanwhile it would alleviate the development pressure of Copenhagen City. For that, the Plan put forward two new strategies for future development. The first one was to constructe the transport corridors, and the second was to form the junction center. The former envisaged the formation of two new "corridors" of central traffic and activities in the whole easten Sjaelland. One was east-west, the starting point connected with the original finger planning urban area; the other north-south, connected to the five "fingers". The latter was envisaged as a new industrial park built in regional centers in the corridor interchange, at the same time erecting a certain number of commercial centers, public and private service centers, to support a new residential area (Fig. 3-30). According to such ideas, in the structure plan, it suggested the entire region be divided into three types of secondary regions based on different functions. These were finger planning urban areas (basically existing cities), future urban development area (west and southwest areas of Copenhagen) and leisure protected area (north of Copenhagen City area) (Fig. 3-31). The plan suggested 56,000

[225] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning [M]. 1973, Copenhagen, p. 9.

new housing units in the residential area along the east-west corridor, 49,000 in the south-north, and 25,000 on the Vest Amager[226](Fig. 3-32).

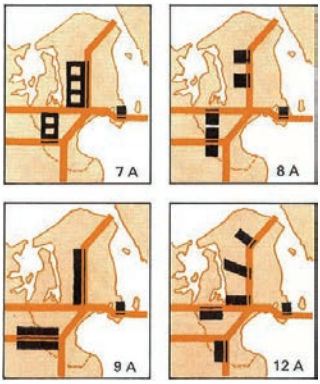


Fig. 3-30 The different patterns for proposed Transportation corridors (in ora nge) and Junction centers (in black) (left)

(Source: Dansk Bypan Guide)

Fig. 3-31 Chart of new business areas (in red) and green areas (in green) in Finger Plan 1972 (right)

1. the Finger Town areas (shading); 2. Urban growing areas (open hatching); 3. Recreational areas (framed)

Shortly after the plan was implemented, the world encountered the outbreak of the 1970s oil crisis, and thus it leaded to the national depression in Denmark, which caused so many projects to be stranded. Among the four key central towns in planning only Høje Tåstrup on the west "index finger" line was built. In order to cope with the changes in the new situation, the previously proposed "better cities over more cities" goal has been prioritized in the agenda[227]. People began to re-locate the finger city and to explore how to make better use of the open space outside the urban area. Copenhagen City gave up upon the strategy of constructing large-scale projects to promote economic development and urban revitalization, and transferred the target to the transformation of the old city. Due to the development of the region "finger City", plus that many administrative privileges in government reform were devolved to local municipalities, this granted local governments the ability to better manage their own

[226] Regionplan 1973 for Hovedstadsregion, p.46 (in Danish).
[227] City of Copenhagen. Ørestad – Historic perspective planning implementation documentation, 2003, p. 38.

things, but also contributed to the local parochialism. Some municipalities took the approach that is conducive to safeguarding their own interests, attracting a number of industrial enterprises and commercial organizations away from Copenhagen City. This directly resulted in the decline and desertion of Old Town, the original industrial zones and residential areas, as well as the waterfront area (Fig. 3-33). So the renewal and transformation of the old town were again prioritized in the agenda. These transformation not only improved the living environment, but also changed the appearance of the city.

Fig. 3-32 Chart of new housing (in orange), business/industries (in red) and recreation (in green) areas in Finger Plan 1973 (lrft) (Source: Regionplan 1973 for Hovedstadsregion)

Fig. 3-33 Diagram of renewal areas in inner city (in green) (right)

(Source: Dansk Byplanlæ ging 1938 – 1992, by Arne Gaardmand, Arkitektens Forlag, 1993)

3.5 The Background and Processes of Evolution on Copenhagen Finger Plan (Part Two)

3.5.1 Fourth Version of the Finger Plan - Planning in 1980s-90s

3.5.1.1 Background

The fourth "finger plan" in 1989 - Regional Plan 1989, came out from a background much different than its predecessors. From the European internal environment, with the enlargement of the European Union, the competition among

the continental European countries have been gradually evolved into the competition among the various metropolitan areas. For a small country as Denmark, Copenhagen was qualified to compete with the "fourth-class" cities (according to a 1989 French study, London and Paris belonged to the first level, where as Hamburg, an equivalent in population to Copenhagen, belonged to the fourth level[228] - the author notes). In order to ensure that the Copenhagen area would not lose its advantage in the competition, the Danish central government was prompted to re-examine some of the policies and practices that inhibited the development of Copenhagen. From Denmark's own environment, on the one hand, since the 1980s, the Danish economy has maintained steady growth, and the economic structure has gradually completed the transition from an industrial economy to a service economy. Employment and social structure have also experienced some profound changes, and people's living standards continued to improve. On the other hand, the Central Government's investment in Copenhagen was far lower than the national average (mainly invested in the infrastructure – the author notes), and every year there were about 800 million U.S dollars flowing from this area to the rest of the country (This situation didn't change until the national policy adjustment in the early 1990s – the author notes)[229]. These factors brought in two direct results. First, the population within the region and the number of jobs continued a downward trend. Take industrial enterprises for example, job vacancies fell from 15,000 to 10,000 between the year 1982 and 1988[230]. Second, Copenhagen is no longer the most affluent area in the country, and the living quality is also lower than the national average. Besides, 40% of the old houses located in Copenhagen[231]. Judging from the situation within the region, after the first proposal of the "Finger Plan" and the continuing development and

[228] Copenhagen Municipal Plan 1993. City of Copenhagen, p. 15.
[229] Peder Boas Jensen，Framing the Urban Development，The Urban Life World，Edited By Peter Madsen and Richard Plunz, Routledge, 2002, London, p.89.
[230] Copenhagen Municipal Plan 1993. City of Copenhagen, p. 19.
[231] Peder Boas Jensen，Framing the Urban Development，The Urban Life World，Edited By Peter Madsen and Richard Plunz, Routledge, 2002, London, p.89.

construction in 1950s, 1960s and 1970s, the blueprint of the "Finger Plan" was realized in 1980s and 1990s, and the city became more dynamic and attractive. For one thing, there were more housing in the "Pearl Town", and the newly built houses were farther away from the urban centers. Data show that between 1970 and 1975, the ratio of newly built houses that located 0-6 km, 6-20 km, and 20-50 km away from the urban area was 8.55%, 37.5% and 53.95%[232]. However between 1980 and 1995, the ratio changed to 16.33%, 29.59% and 54.08% respectively. For another, due to the adjustment of the industrial structure, not only production-oriented enterprises moved out of the old town and settled in the "Finger City", but many multinational corporations began to move to these areas as well. All these factors lead to the increasingly slow development of Copenhagen.

In order to cope with the new trend of international economic development and the European internal development, the National Ministry of Environment issued the National planning Review 1989 in December 1989. The Review clearly stated:" We should see the regional development in Denmark will be carried out in an international perspective in the future. The growing internationalization is the implication of challenges as well as opportunities for each individual region, and also the country as a whole. The differences that exist or may be caused between regions in Denmark must be viewed as the difference within Europe or the whole world. That is why regional decisions must be strengthened in 1990s to avoid marginalization of Denmark in the international context."[233] That means Copenhagen will become the key area of the national strategic development afresh. In fact, since the late 1980s the Central Government and the National Parliament have faced the Depression in Copenhagen brought by the policies since 1960s.

[232] Poul Lyager's Plan Office. København, A short description of the origin of Copenhagen – the City's physical structure and planning [M]. 1973, Copenhagen, p.10.
[233] Copenhagen Municipal Plan 1993. City of Copenhagen, p. 19.

After repeated research and fierce debate, the National Ministry of Environment appointed a "Committee on Copenhagen Port" in 1988 that studies the re-development and utilization of the port areas in Copenhagen. In March 1989, the Prime Minister appointed the "Initiative Group on the Metropolitan Region". The Region submitted a report on *The Capital, What Do We Want to Do with It* that did the in-depth study of the repositioning and existing problems of the capital, and put forward corresponding suggestions. The fourth edition of the "Finger Plan" is the production in the international and domestic context, reflecting the urgent need of the social and economic transition process.

3.5.1.2 Activities

3.5.1.2.1 Organizations

The planning and organization in this period is still chaired by the Greater Copenhagen Council. The formulation of Regional Planning 1989 began in the late 1980s and finished in 1989. On 15 Dec. the same year, it obtained the approval of the Ministry of Environment. On 28 Dec, it was published in the form of legislation: the National Planning Directive. After the completion of the planning, the agency was dissolved by the Parliament. Since then, no unified regional planning agencies have been established. The agencies set up by the three counties and two municipalities are responsible for the planning. The five planning agencies achieved the consensus: "finding an acceptable solution through coordination and balanced ways without the need of the adjustment by the Ministry of Environment". The Central Government proposes and develops the significant development plans and projects that involve the whole regions. Relevant agencies within the region cooperated twice in 1993 and 1997 and formatted two files: Regional Planning 1993 and Regional Planning 1997 based on the planning in 1989, which reflected the political will of harmonious

development in the region. But they only served as the supplementary of the 1989 version without new ideas, so they didn't cause much reaction.

3.5.1.2.2 Planning works

The 1989 fourth Finger Plan included traditional urban and suburban land use and public transportation, and also environmental protection contents. It particularly stressed the need to provide the public with more leisure space. Unlike past planning, the strategic focus of this version focused on "urban-oriented" development ideas, highlighting the central location and traffic nodal point as planning emphasis and functional layout concept. Specific plan is divided into a location of commercial construction, urban pattern, traffic structure, central structure and the building of important parts as Amager Island (Fig. 3-34).

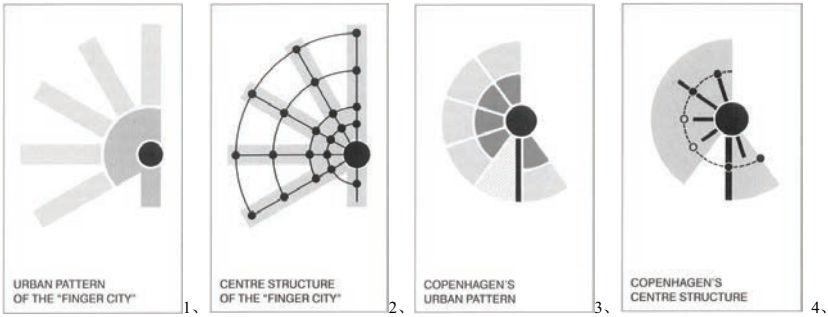


Fig. 3-34 Diagram of urban patterns and structures in Regional Plan 1989

(Source: Copenhagen Municipal Plan 1993, by Municipal Copenhagen)

Division between the commercial/public building location. The Plan clearly pointed out new commercial services institutions and government agencies should be located in the finger city, near the traffic site. New culture, sports and higher education facilities and institutions should be located in the palm area (i.e. center city area). Concerning the layout of urban development, the plan suggested the cities within the region should continue to follow the existing pattern, adhere to

the finger city as the center and the mode of community with different ranges in large or small around. For the structural adjustment of the traffic, the Plan put forward to focus on the construction of three railway lines when improving the overall situation: ①"Airport Line" - the construction of the railway line leading to the airport from the city center railway station; ②light rail line - connected to the metro line from the city center to Ørestad in the Amarger Island; ③Continue to improve the city Inner Ring Road railway construction. For residential construction, the plan particularly proposed the suggestion of close-to-station area, it deepened the past principle of train station as the construction center. The basic content for the residential construction should be at least 1 km near the train station. On the one hand, this can increase the density of residential, rational use of land resources; on the other hand, one can take full advantage of the benefits of public transport, save commuting time, and thus less private vehicles. For the downtown development in Copenhagen, the proposal advocated the planning should take the urban development and environmental protection into account, and adhere to the principle of prioritizing public transport. For the development and construction of Amarger Island, the plan regarded it with great significance in the future in the Øresund region, especially the recent development West Amarger Island. It proposed to build the Bella Centre to a world-class convention and exhibition center. An additional national park of 30 km^2 was also in the plan.

To complement the new regional planning, the central government arranged the following major projects from 1988 to 1991: ①start the construction of a cross-sea bridge and undersea tunnel connecting the Copenhagen region and the Swedish Malmö region; ②improving the roads and highways in and out of the capital airport; ③expanding and improving the public transport system within the region; ④Increase investment in higher education, high-tech industry and research, tourism, cultural and exhibition industry. For example, in the pharmaceutical and

gauges instrument industry for R&D investment respectively, Copenhagen City accounted for 90% and 94% of the country; 53% and 33% for electricity and energy. Copenhagen City employees earned about 28,000 kroner per capita, compared with a national average of only 11,000. In investment in the cultural aspects, Copenhagen City residents had 1300 kroner per kapita, while the national average of 1,100 kronor234. In order to support the construction of West Amarger Island, in 1991, Congress also passed the *Act on the Ørestad Line*, to construct a 4-lane highway and a double track railway leading to Malmo in Southern Sweden that connected with the existing transportation network.

In order to further enhance the competitiveness of downtown Copenhagen, the city combined the Regional Planning 1993 and set up five specific construction goals: "Designing a compact urban structure on the basis of public transportation; rebuilding the workplace according to the traffic sites; strengthening and changing the port areas to promote the growth of the city; strengthening the 'green' work in the city; restoring and protecting the historic look and the change of specific areas in the city".[235] The establishment of these goals laid the foundation for the further development of the city.

3.5.2 From Fifth to Seventh Version of Finger Plan - Planning in the 20th Century

3.5.2.1 Background

Judging from the international background, since 1990s, especially entering 21st century, the international competition has become more intense with the acceleration of the pace of global economic integration and industrial restructuring, with the rapid rise of "BRICs" (namely Brazil, Russia, India and China – the author notes) and with the fast development of some countries in the former

[234] Copenhagen Municipal Plan 1993. City of Copenhagen, p. 76.
[235] Copenhagen Land use and transport planning，Available from www.Eaue.de/winuwd/135.htm. 21-05-2007.

Eastern Europe, Africa and Asia. In European countries especially, the competition expands more and more towards areas acting as protagonists in the competition. In this regard, in 2000 the "local features and new challenges" was set up the theme for *National Planning Report for Denmark*. Upon recalling the planning priorities of European countries in 1990s, the report pointed that all countries are making effort to "form more polycentric urban systems and acquire more power through cooperation. Cooperation between citys as networks can make effective divisions of labor, and help the city to improve as a whole." The report further pointed out the cooperation direction of the Øresund area in the future. The role of cities and urban areasIn in these conpetitions stated, in *the Map of Denmark – Spatial planning under new condition* in 2006, was "Towns and cities play an important role in the knowledge-based society. Only by reaching the innovative level of European cities can Denmark strengthen its position in the world." The report also pointed out that this new type of city can be acquired through spacial planning. It can not only create high-quality working, life and entertainment conditions for Denmark people, but can also create the environment that draw international investment and the settlement of internationally renowned companies. As for the challenges of globalization towards the spacial planning of Denmark, the report summarized "①Urban growth, combined with public transport options, must be able to be improved in a larger urban area; ②Strong and vibrant urban areas can benefit the development of the country as a whole; ③Respect for the nature, the environment and the landscape; ④Maintain clear boundaries between urban and rural areas; ⑤Protect the local uniqueness and differences."[236] Therefore, from the political and policy level, the government pays more attention than ever to the regional planning and construction work.

[236] Danish Ministry of Environment (2006). The Map of Denmark – Spatial planning under new condition, p. 9.

Judging from the domestic situation, on one hand, with the adjustment of the national development strategy in the late 1980s, the country didn't limit its focus on driving the development of the other areas within the country. Instead, it focuses on playing as the central role in Northern Europe. Especially, with the development of the countries in Eastern Europe (particularlly Baltic Seas countries), Copenhagen also needs to play an important role in Baltic Seas area, making it have the strength to be able to compete with Berlin and Hamburg at the same time of becoming the leader in Øresund region. To this end, the 2006 National Planning Report summarized the challenges and tasks facing Copenhagen into the following four aspects: ①handle the relationship between traffic and future city development, coping with the pressure of the traffic growth effectively; ②finish the transformation of traditional business district, making it adapt to the requirement of new commerce and services sectors; ③Regulate the total residential construction and maintain housing prices smooth; ④Perfect the green and recreational spaces and keep the area environment beautiful. On the other hand, in order to build an efficient and streamlined government, Denmark has started another round government reform from 2005 after the last time in 1970s, and a new model of government has started operation in January 2007. In terms of planning, it replaced the former four-level planning system "national, regional, county and local" with the two-level system "national and municipal". At the same time, it decentralizes the planning powers in a large scale again, so that the municipal level government can be more flexible to adapt to the needs of local economic and social development. In order to cope with the new government reformation, the state amended the Planning Act in Denmark in June 2007. According to its situation, the act divides the Greater Copenhagen into four hierachy, namely central city, urban fringe area, and the wedge region and the Greater Copenhagen area, and it set out different requirements for the hierachy: ①the urban development and the update took place in the area of central city

should be within the existing urban areas, and public transport services should be strengthened to facilitate the public; ② the urban development and the update took place in the edge areas (finger city), as well as new developing functional areas, should select the areas with infrastructure which existed or planned. Meanwhile, these development has to take into account for the strengthening of public transport services to facilitate; ③green wedge areas between "fingers" shall not be converted to urban land or leisure facilities; ④the urban development outside of Greater Copenhagen should be connected with the local town center area, or as a part of their town." [237] (Fig. 3-35)

Fig. 3-35 Area divisions of Greater Copenhagen Region in Finger Plan 2007 (left) (Source: Finger Plan 2007)

(Core city in dark red, City periphery in red, recreational are in green, other Copenhagen in shadow)

Fig. 3-36 Chart of Copenhagen region and Malmö region (right) (Source: Regional Plan 2001)

Judging from Copenhagen's internal situation, on the one hand, after the development in the 1980s and 1990s, in 2000 the economy in Copenhagen region formed a new pattern. The research-intensive enterprises and institutions such as consulting and business services played the leading roles in Northern part; the information technology, insurance and financial industry dominated in Northwest; while in the West and Southwest the manufacturing sector. The industrial pattern

[237] Ministry of Environment. The Planning Act in Denmark, 2007, Copenhagen, p. 9.

further stimulated the adjustment of the urban layout, and the transportation-oriented urban structure was greatly eimproved. At present, the total mileage of Copenhagen area rail reached 600 km, 200 stations, and a daily commute by train reached 300,000. Nearly 700,000 people take bus.[238] On the other hand, with the completion of the Øresund Strait Bridge and Tunnel on July 1, 2000, Copenhagen and Mälmo formed a Metropolitan Area with a population of 3.5 million (300 million according to another source), 170,000 companies, 14 universities, and 12,000 researchers[239] (Fig. 3-36). This would play a strong supporting role to improve the Copenhagen area in the international arena, especially when competing within Europe. In addition, the reform of government institutions that took effect in January 2007 expanded the Copenhagen territory, and the population increased. All of these changes placed higher, finer, more humane and more sustainability requirements on urban planning.

Upon entering the 21st century, three development plans of Copenhagen were released in 2001, 2005, and 2007. It showed that the periodicity of planning has greatly cecome shorter, which is a sign for the acceleration of the regional economic, cultural, and social development. It also indicated the national prospect of what kind of role the capital would play in globalization.

3.5.2.2 Activities

3.5.2.2.1 Organizations

The Greater Copenhagen Authority (Hovedstadens Udviklingsrårded, HUR), approved by the Parliament in 1999, was mainly responsible for the spatial planning in the region. It included traffic planning, public transportation administration, regional industrial development, organization of local cultural

[238] The Finger Plan, Available from www.denmark.dk/en/menu/aboutDenmark/EconomyProduction/Infrastructure/TheFingerPlan. 23-05-2007.
[239] The Øresund Region, Available from http://www3.kk.dk/Globalmenu/City%20of%20Copenhagen/A%20City%20in%20Motion /The%20%C3%98 resund%20Region.aspx. 24-05-2007.

activities, the development of Øresund, and represented Denmark to deal with the issues related to cooperation in regional politics and administration with Sweden. Since the Authority was not directly elected, the proposals would not take effect until all county governments reached a consensus.

During this period, the three versions of Finger Plans have been made, and two of them were drafted by the Regional Planning Committee, i.e. *Regional Planning 2001* in 2000, *Regional Planning 2005* in 2005, while the third *Finger plan 2007* in 2007 was by the Ministry of Environment. The reason was that after the new reform in 2007, the original regional planning was taken over by the Ministry of Environment, and local governments had to follow the guidelines when planning their subjected areas. These three plans were regarded as the fifth, the sixth, and the seventh version of Finger Plan (Fig. 3-37).

Fig. 3-37 Cover Papers of Finger Plan in 2001、2005 and 2007

3.5.2.2.2 Planning works

Compared to the past four Finger Plans, what the 5th, 6th, and 7th versions have in common is that the view was further wider to the international perspective and further higher to strategical level, and as well they further deepened the city's coordinating development such as the urban size and function, industry and resources, work and housing, environmental protection and ecological system. All

these aimed to enable the city to meet the requirements of people in working and living. Among the three, the 5th and the 7th are more influential.

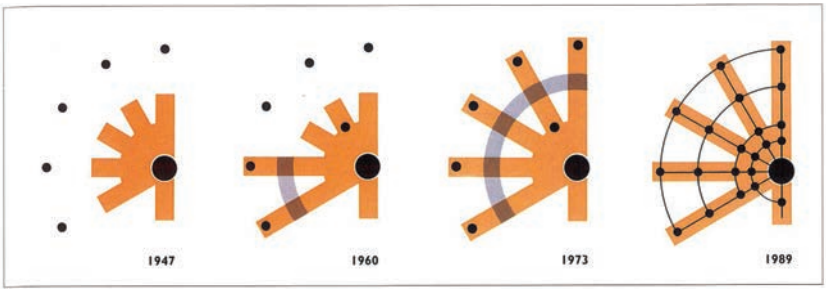


Fig. 3-38 Illustration of the Evolution of Finger Plan from 1947 to 1989

(Source: Ørestad–Historic perspective planning implementation documentation, by Municipality of Copenhagen, 2003)

To meet the challenge of globalization, the planning committee in 2005 conducted an in-depth study of Copenhagen's urban model based on its evolution of the past 50 years and proposed 5 assummed models: Finger city model, dense city model, prolonged finger model, ring model, and municipal center model[240]. By carefully analyzied and compared, it revealed that most people would prefer the prolonged finger city model. At same time, the committee considered that it was necessary and important for remaining the finger city model under the present condition. Therefore, in both 2005 and 2007 planning, the idea of the finger city model was carried out for city layout and patterns in the future.

[240] METREX—The of European Metropolitan Regions and Areas，Analysis Workshop 5，2004, London, Available from http://www.eurometrex.org/Docs/InterMETREX/Workshops/Workshop5/EN_Inter_WK5-London_Mins.pdf. 17-08-2007.

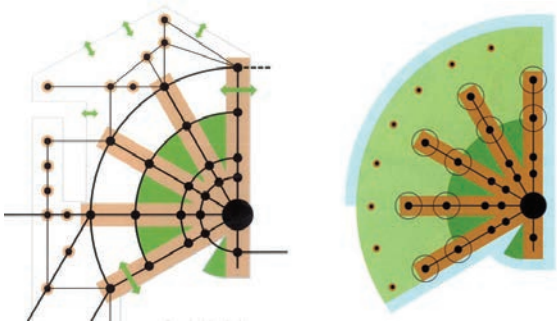


Fig. 3-39 Urban patters in Regional Plan 2001 (left) and 2007 (2005)

(Source: Regional Plan 2001 and Regional Plan 2005, by HUR)

The Finger Plan 2005 is a guide for urban development between 2005 and 2017. Its overall goals are: ①to make Copenhagen region as the centre with the dynamic, creative, and innovative economic centre in the Oresund region; ②to make Copenhagen region as a place with the cultural enrichment, advanced technology, and thriving tourism; ③to make Copenhagen region as a place with advance environmental protection and ecological balance and natural harmony; ④to make Copenhagen region as one of the world's most suitable metropolises for work, living, and entertainment. The Plan composed of three sections: first one was Planning vision and principle; second one was Guiding principle and objective; and third was Appendix. The total page count is 367. Among them, the Guiding principle and objective was the core part, which is divided into 8 sub-chapters. The sub-topics are as follows: urban land use, construction of urban functional spaces (divided into residential, industrial, commercial and vacation home areas), the use of land resources (divided into landscape protection, natural preservation, agriculture, industry, forestry, mineral and transportation), water resource (divided into surface water, groundwater, sea water), transportation, technology development and use of (clean energy, waste disposal) and noise control. According to the prediction, in the next 20 years, the population in

Copenhagen City would grow by 10,000 people per year. Therefore, the Plan also set up a goal of constructing 75,000 residential units.[241] Of them, 25,000 units are intended for the increase in population; 15,000 are for housing upgrades; 50,000 are for the aging population due to increased life expectancy.[242]

Compared to the Regional Plan 2005, the Finger Plan 2005 was more condensed and succinct: it is the first regional development plan proposed by the Department of Environment after the government reform. The Planning 2007 contains 4 sections - Preface, Political Statement, Planning and Explanation, and Environmental Evaluation - and is only 121 pages in length. The section of Political Statement outlines four key principles of urban design, summarized as "four guarantees": ①to guarantee the capital's international competitiveness; ②to maintain the finger city model; ③to ensure the future sustainability of the finger city; ④to guarantee public participation in future urban planning. The section of Planning and Explanation was divided into 8 chapters and outline the developmental goals and requirements for the capital, the "palm" area, the "finger" areas, and the outside of capital areas. In particular, the section emphasizes the full utilization of existing land resources. For example, the Plan proposed that the issues for transportation and environmental protection should consider, when the office building were constructed with the occupied area more than 1600 m^2, and the same time, these buildings should be located within the distance not over 600m away from railway stations.[243] This is a continuation of the railway proximity principle, as outlined in Planning 1989.

[241] Copenhagen Capability, Available from http://www.copcap.com/composite-8109.htm. 12-07-2007.
[242] HUR. Forslag til Regionalplan 2005 – Vision for Hovedstadsregionen 2017 – en stærk og bæredygtig (in Danush), 2005, Copenhagen, p. 21.
[243] Danish Ministry of Environment. Spatial Planning in Denmark, 2007, Copenhagen, p. 15.

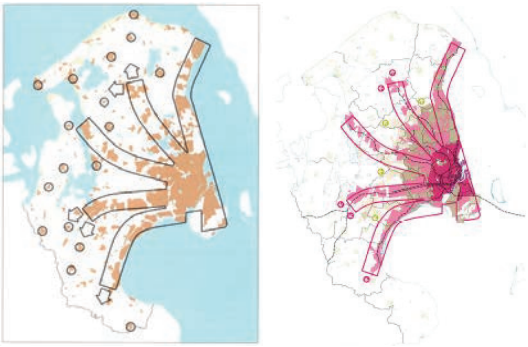


Fig. 3-40 Diagrams of the future urban development in Finger Plan 2005 (left) and 2007 (right) (Source: Regional Plan 2005 and Finger Plan 2007)

3.6 Conclusion

For Copenhagen, a city with more than 900 years of history, the 60-year period from 1947 to 2007 seems like an eclipse. However, looking back the development in the past years, especially, under the situation constant chaging, Copenhagen consisted on the entire view of regional development with the direction of scientific and rational planning, continious and stable planning, open and planning, and harmenious planning.

Yet despite the constant changes in both international and national arenas of the past 60 years, Copenhagen was able to maintain a holistic development model and created a unique trajectory of growth. The continuous improvement in life quality is a result of careful urban planning, which, based on principles of science, continuity, transparency, and dialogue, results in stimulating new industries, preserving existing resources, and integrating both rural and urban areas. As we reflect on these successive rounds of planning, we discover that the finger planning model not only preserves the city's unique historical heritage, but also adds to its modern allure and dynamism. It creates the foundation for its future sustainable growth, too.

The evolution and development of urban scale, function, and forms are the result of myriad factors - natural, political, economic, demographic, and cultural. It is also a symbol and miniature of the social and technological development. The history of Copenhagen's growth reveals that urban planning - including that of the greater metropolitan area - is a critical and strategic task for a city because it affects not only its growth model, but also the quality of life of its inhabitants. Copenhagen's experience with the finger model is a particular lesson for Chinese government officials, urban planners and scholars who seek to find a growth path for China's rapidly-urbanizing cities.

Chapter 4 Green Spaces for Copenhagen City

4.1 Introduction

The European landscaping rooted back to Ancient Greece and Ancient Rome, and witnessed the revolutions during the Middle Ages and the Renaissance. Only after then did there emerge the humanism garden represented by Italy, the monarchical despotism garden represented by France and the bourgeois garden represented by the U.K., each with distinctive characteristics of the times and unique values. Danish landscape architecture went through a similar path of development as other European countries, by originating from early kitchen gardens and cloister gardens, and reaching its peak with royal gardens. In terms of the style, it experienced the Renaissance style of the 17th century, the Baroque style of the 18th century and the Romanticism style of the 19th century. During such process it gradually formed some unique characteristics of its own, but the basic style and pattern are still influenced by foreign culture, most significantly by Italy from the South Europe and France from the Western Europe. In modern times, alongside the industrial revolution and urban expansion, and particularly due to the changing social structure and economic forms, and the increasing population, there have been drastic changes in the urban environment, especially in the neighborhoods where ordinary workers live, where there have been problems such as overcrowded construction, waste pollution, inadequate ventilation and sunshine, severe fire hazard as well as rampant plague. Therefore, citizens' requirement for urban green spaces and for the improvement of environment were increasing, under this background, the gardens which used to be exclusively available to royal families have now been open to the public. At the same time, Denmark, influenced by the "park movements" of Britain and other countries, has included the construction of parks and gardens into its municipal

governance. After entering the modern society, and especially after the reform of national political regime in June 1849, the constitutional monarchy has been established and the constructions of welfare system and social transformation have started, driving the planning and building of urban green spaces into a new path. With unremitting efforts, the cities and towns in Denmark have now formed a green spatial system with well function, and provided a vital material basis for the development of the cities and the improvement of people's life quality.

4.1.1 The Evolution of Danish Urban Green Space

The Evolution of Danish urban green space also originated from parks and gardens. According to current data, early gardens appeared from the cloisters of the Ages. This type of gardens featured functionality, with medical herbs and aromatic plants being the main components, joined by kitchen herbs and fruit trees. In terms of the pattern, the gardens were mostly divided into four squares by horizontal and vertical paths, and each square was further divided into four smaller squares. Vilhelm (1127-1203), Abbot of Æbelholt and Eskildsø Abby, is regarded as the first gardener, as well as Danish patron saint of gardens. As the religious revolution spread to Denmark, many monasteries were reconstructed to serve other functions, thus changing the form of gardens. By the mid 16th century, the Renaissance pleasure garden of Italy had been introduced to Denmark by Queen Dorothea of the Emperor Christian III. In 1562, a garden of this type was built in Koldinghus Castle. The Queen's son Frederiks II (1534-1588) was also keen of garden arts, and built gardens within his severed palaces, among which the most famous was the Kronborg Castle Garden built in 1575. However at that time, the designs of the gardens remained an imitation of medieval style, which featured high walls on all four sides, and hedges with trimmed box. By the era of Christian IV (1577-1648), Danish Royal Gardens had developed profoundly. In 1606, Christian IV purchased 46 pieces of personal lands outside the Copenhagen Wall and started to build his castles and King's Garden,

which was completed in 1624[244] while the castle constantly to expanse for a long period. Based on the Heider statistics of 1649, there were as many as 1400 species of plants in this garden[245]. In 1647, Hans Raszmussøn Blook published Denmark's first literary work on gardening, "*Danish Garden*" (*Horticultural Danica*), in which he passed on his knowledge in garden designing and trimming.[246] At that time, he was not only the leading expert of garden plants in Denmark, but also a specialist in garden designing.

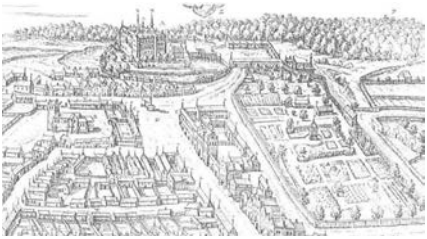


Fig. 4-1 Queen Dorothea's garden at Koldinghus Castle and Kolding town by Braun and Hogenberg, 1587 (left) (Annemarie Lund, Guide to Danish LandscapeArchitecture1000-2003, the Danish Architecture Press, 2003, p9.)

Fig. 4-2 Kronborg Castle in present day (right), (http://en.wikipedia.org/wiki/File:KronborgCastle_HCS.jpg)

Fig. 4-3 Danish king Christian IV (left) (Source: http://en.wikipedia.org/wiki/Christian_IV_of_Denmark)

Fig. 4-4 André Le Nôtre (right) (Source: http://en.wikipedia.org/wiki/Andr%C3%A9_Le_N%C3%B4tre)

[244] MinistryofFinance, Palace and Properties Agency. The King's Gardens.http://www.ses.dk/en/SlotteOgHaver/Slotte/ RosenborgSlotOgKongens Have/kongenshave.aspx. 05-16-2011.
[245] Annemarie Lund, Guide to Danish LandscapeArchitecture1000-2003, the Danish Architecture Press, 2003, p9.
[246] Ibid.

In the late 17th century, French gardeners, under the influence of renowned French landscape architect André Le Nôtre (1613-1700), brought to life the baroque gardens, the style of which was best represented by Gardens of Versailles. Hence, the French garden style started to inspire the rest of the world. All of a sudden, there emerged a hot tide among European royal families to emulate the Gardens of Versailles, and numerous palaces of different features were built. After Denmark ended the war with Sweden in 1720, Danish royal gardens such as Frederiksborg Castle (Frederiksborg Slot) and Fredensborg Palace (Fredensborg Slot) began to be constructed, under the domination of Frederiks IV (1671-1730) and the design of landscape architect Johan Cornelius Krieger (1983-1755). Since the styles of the royal gardens were in imitation of Versailles gardens, the Fredensborg Palace has been hailed as the "Danish Versailles". All of the gardens adopted the axis of the main building as the axis of the garden, and used radial roads and symmetrical layout to demenstrate the authority and nobility of the royal families. However, in terms of the decoration and size, these royal gardens were relatively plainer and simpler than French royal gardens. This might be due to economic reasons or cultural reasons.

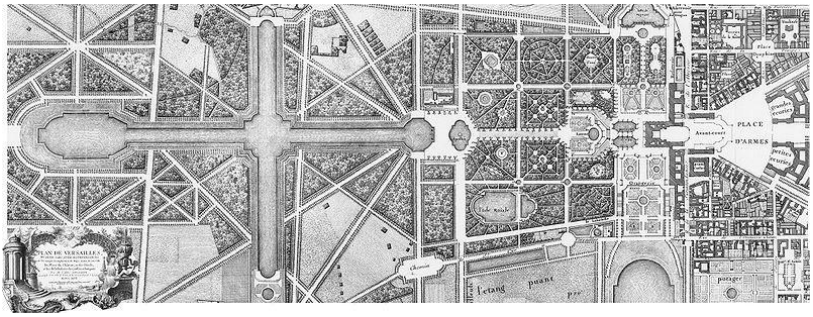


Fig. 4-5 Gardens and palace of Versailles in 1746, by the abbot Delagrive

(Source: http://en.wikipedia.org/wiki/Palace_of_Versailles)

Alongside the rise of the Enlightenment and the emergence of social changes and industrial revolution in the 18th century, huge transformation took place in the styles and forms of gardens. The adoration of French baroque gardens was replaced by the preference of English landscape gardens. As famous British architect and garden designer William Kent (1685-1748) completed the construction of Rousham House Gardens, the landscape garden style officially came into being. The new fashion soon spreaded to Denmark, the fashion-forward royal families have transformed the old symmetrical gardens into English styled gardens, although such trend was more largely influenced by the book "*Theory of Garden Art*" (*Theorie der Gartenkunst*) of Kiel C.C.L. Hirschfeld. By 1760s and 1770s, the concept of English landscape garden arts had disseminated to Denmark, and later the Søndermarken Garden and Frederiksberg Garden were transformed from French baroque style to English landscape style. In the former garden, the regular roads were rebuilt into winding paths, and regular water sceneries were replaced by natural lakes with a Chinese pavilion on the island in the center of the lake. Meanwhile, a lot of nobles and wealthy merchants became enthusiasts of garden arts and garden designing, hence creating English landscape gardens have became a popular thing. During this period, a group of influential garden designers emerged in Denmark, including J.L. Mansa (1740-1820) and Rudolph Rothe (1802-1877). Mansa participated in the reconstruction of the gardens in Frederiksborg Castle and Fredensborg Palace, and has published books about garden arts. One of them is Garden and Cemetry (Haigekatekismus), published in 1787, and another is "English Gardening Facility" (Udkast til Hauge-Alæg i den engleske Smag), published in 1998. Later, Rothe also joined the reconstruction of Frendensborg Palace gardens. He believed that the royal palace gardens should be constructed as natural parks.[247] Besides, in the reconstruction project of

[247] Annemarie Lund, Guide to Danish LandscapeArchitecture1000-2003, the Danish Architecture Press, 2003, p 17.

Jægersborg Deer Park, he placed a lot of woods in the gardens to enhance the natural atmosphere.

Fig. 4-6 William Kent (Source: http://en.wikipedia.org/wiki/William_Kent)

After entering the 19th century, the prevalence of park movements in the United Kingdom, France and other countries promoted the construction of boulevards among measures to beautify the city, to embellish the urban environment and image, and to improve the living conditions of the citizens. Such efforts also had a great impact on Denmark, where many social groups and organizations started to call for the construction of city parks. In response to such demands of the society and the people, Denmark not only opened up the royal gardens for public visits, but also constructed many parks in its capital Copenhagen and the provincial cities. In regard to the opening of royal gardens, in October 27th of 1849, the year when constitutional monarchy replaced monarchy as the national polity, a document of the Ministry of the Interior stated that: "Landscape gardening should be affiliated to the sections of gardens at the royal palaces. Up to now, it has been regarded as ordinary promenades and as the exhibition of keeping with the concepts of the landscape gardening arts. As state property, it should not only meet people's need for walking and recreation, but

also become a school of the art for landscape gardening."[248] In the "*Act of State Gardens*" issued on March 12th 1852, the gardens were classified into three types[249]: ①Kitchen gardens, which mainly consisted of vegetables, herbs, summer flowers and flowers for decoration; ②Landscape gardens, which mainly served for the preservation and aesthetic development of gardens; ③Fruit-tree cultivations. Excepting the kitchen garden and fruit garden landscape gardens were only managed by the State after being included in the list by municipal departments. As for the building of municipal parks, Copenhagen City built a amount of municipal parks on the original site of the city walls. These parks include the Østre Anlæg Park designed by landscape gardener Ove Høeg Hansen(1832-1910) in 1872, and the Ørstedsparken Park designed by other designers in 1876. These parks soon became major places of gatherings and recreations for the middle class. At that time, the form of romanticism prevailed in the garden design is also casted some influence on Danish park designs. Since the 20th century, Danish gardeners have adopted the New-classicism methods in their designs under the influence of the Art and Crafts Movement in Britain. During this period, there emerged many renowned landscape gardeners such as I.P. Andersen (1877-1942), V. Fahricus Hansen (1866-1953) and Gudmund Nyeland Brandt (1878-1945). Among them, G.N. Brandt was the editor of "Gardener Journal of Denmark" (Gartner-Tidende) from 1905 to 1907, and once the secretary of General Gardener Association of Denmark (Almindelig Gartnerforening). During the years from 1924 to 1941, he was an instructor at Danish Academy of Arts, School of Architecture, and was teaching"garden design".[250] Through publishing articles, writing books and lecturing, he casted profound impacts on the landscape architecture of Denmark. By using botanic materials in a unique way, he also created garden spatial patterns with Danish features in the works he designed, such

[248] Jens Hendeliowitz. The Royal Gardens of Denmark, Forlaget Guld og Grønne Skove, Copenhagen, 2005, p 11.
[249] Ibid.
[250] Gudmund Nyeland Brandt. http://en.wikipedia.org/wiki/Gudmund_Nyeland_Brandt. 05-20-2011.

as the Ordrup Cemetery, the Hellerup Coastal Park, and the Mariebjerg Cemetery. In his designs, he often used evergreens to create rectilinear, circle, oval, and even spiral spaces, to create a new, moving form of beauty. G.N. Brandt had a significant influence on the later garden designers such as George Georgsen (1893-1976) and C.T. Sørensen (1893-1979), and also laid the foundation for modern Danish landscaping.

Fig. 4-7 Kungsparken in Malmö, Swedendesigned by Ove Høeg Hansen (1890-1900)[251]

(Source: http://sv.wikipedia.org/wiki/Kungsparken,_Malm%C3%B6)

By the time the Second World War broke out, the scope of professional activities for landscape architects in Denmark had already broadened greatly. It had expanded from the designing of parks and private gardens to the planning of residential areas and the city, including the designing of playgrounds, sports facilities, allotment gardens, courtyards and so on. During this period of 1920s, there rose the designing of recreational green areas in residential areas, which combined the small residential areas to the big public areas with recreation facilities such as playgrounds, largely promoting the improvement of citizen's living conditions. In 1929, Copenhagen established the "Building Code", which had promoting effects on the planning and construction of recreational venues and

[251] Kungsparken. http://www.malmo.com/tourism/city_of_parks/kungs.asp?Menu=Tourism.

playgrounds around residential neighborhoods. As to the planning of large scale for public green spaces, Steen Eiler Rasmussen orgnized the landscape gardeners and designers together in 1936 to plan the green areas of “the Great Copenhagen”, in fact, it was the prelude to the 1947 “Finger Plan”. The event foreboded that the city would open up and embrace nature, and that nature would be better integrated into the green spaces inside the city. Meanwhile, landscape architects like V. Fabricius Hansen and Jacob Bergmann (1899-1991) had started off the designing and building of the “Green Ring” around the city.

During this period, Danish landscape gardeners were still following the direction pioneered by G.N. Brandt in garden construction, which featured the usage of botanic material to create geometrical patterns in the gardens. Among those gardeners, the most influential one was C.T. Sørensen, who is considered one of the most influential landscape architects of Denmark in the 20th century. When designing the Hans Christina Andersen garden in Odense, Sørensen used diamond shapes to divide the spatial units, creating a geometric form of arrangement. In his other representative design, the Allotment Garden in Nærum, he adopted ovals as the spatial units. Other designer, such as Erick Mygind (1916-1978), Morten Klint (1918-1978), Sen Hansen (1910-1989), Ingwer Ingwersen (1911-1969) and Georg Boye (1906-1972), also experimented with various geometric shapes such as hexagons and pentagons in their projects. Therefore, the prevalence of “geometric shape” in private gardens was an significant feature of garden design in the period from 1930 to 1950.

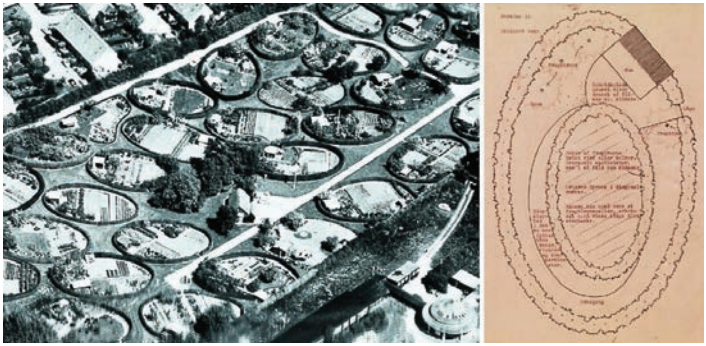


Fig. 4- 8 Allotment garden in Nærum (Source: http://www.vulgare.net/page/13/)

With the recovering and boosting economy after the World War II, the field and scope of Danish landscape architecture profession were broadened and extended, with the construction of Danish cities, new housing estates, elementary and high schools, universities, health-care centers, cultural institutions, sports stadiums, cemeteries, highway networks and other infrastructures. Since most of the landscape designers of that time were graduated from Royal Danish Academy of Arts, School of Architecture, and had been instructed by Brandt and Sørensen, they were able to strike a good balance among the functionality, rationality, practicality and beautifulness in their designs for either private gardens or large scale public projects. Since the 1960s, many Danish cities have made their own "park policies" to set the goal for urban green space development, and to put forward establish requirements and provide guidance to the construction, service, management and designing of urban green spaces. By establishing regulatory policies, the cities laid more emphasis on the design and construction of new parks as well as the maintenance and upgrade of old parks. With such efforts came remarkable achievements in the construction of urban green spaces.

After entering the 21st century, Danish landscape architects, like their peers in other countries, have been more focused on innovation and uniqueness of their designs, and have paid more attention to the hidden meaning inside the designs

and the feelings of the public. As the number of domestic projects decreased as compared to the number in the mass construction period, more and more Danish landscape architects participated in international projects, which enhanced the influence of Danish landscaping upon the rest of the world.

4.1.2 The System of Green Spaces in Copenhagen

Ever since the launch of "Finger Plan" in 1947, there have been clearer objectives for the construction of the Copenhagen green space system. In terms of the macro-layout, the system can be divided into the internal system, which mainly consisted of urban parks and green lands, and the external system in the outer ring of the city, represented by the green wedges between the "Finger Cities". It should be made clear that the notion "Copenhagen" may have different meanings. Geographically speaking, it usually refers to the urban area of Copenhagen, or the region of Copenhagen. In administrational aspects, it refers to the Municipality of Copenhagen or the Great Copenhagen Authority. Here, the internal system of Copenhagen green space system concerns the green spaces in the urban area of Copenhagen (and there are 34 cities and towns in the Copenhagen region[252]), while the external system deals with the region of Copenhagen. Generally speaking, the green space system of Copenhagen consisted of five levels and aspects, namely the plots, lines, lumps, wedges and rings.

The internal system of green spaces in Copenhagen City is composed of "plots", "lines" and "lumps". The "plot" green spaces mainly included green areas such as roadside greeneries, pocket gardens, community gardens and local parks, as well as private gardens, institutional gardens (in companies, schools, churches, etc.), apartment building courtyards, residential green areas and so on. The

[252] Ole Hjorth Caspersen and Anton Stahl Olafssona, Recreational mapping and planning for enlargement of the green structure in greater Copenhagen, Urban Forestry & Urban Greening, Volume 9, Issue 2, 2010, P 102.

"linear" green spaces mainly referred to roadside greeneries and linear-shaped green lands along the railways, high ways and bike lanes, as well as linear water areas including rivers and stream. The green "lumps" referred to large parks and gardens, natural and semi-natural green lands, and natural and man-made lakes inside the city. The formation of the internal green space system went through a long evolution alongside the rise and fall of the city, the decrease and increase of the population, and the expansion of the urban area. (Fig. 4-9)

As for the external system, it is mainly consisted of "wedges" and "rings". Green "wedges" referred to the wedges between finger cities, including the farmlands, woods, natural lands, as well as water areas such as rivers, ponds and lakes. The "rings" referred to the green spaces connecting the cities in between the "fingers". It was developed through more well-defined planning and design, as compared to the internal system. Since 60 years ago when the first "Finger Plan" was proposed, the development of Copenhagen region has been carried out in accordance with the idea of reserving the wedge-shaped green spaces in between the "finger cities". In the Copenhagen region, "finger cities" have long been formed along the four rail lines, including the thumb reaching to Køg, the index finger reaching to Roskild, the ring finger heading towards Hilerød, and the pinky pointing towards Hesingborg. With the four fingers, Copenhagen on one hand effectively blocked the tendency of excessive horizontal expansion of the cities with planning measures, and on the other hand reserved large areas of lands for future construction of urban green spaces and recreational venues. Despite the complicated land ownership issues over the green wedges, government and various interest parties have effectively preserve those regions through coordination and collaboration. (Tab. 4-1) The "arc-shaped" spaces were mainly located outside the Copenhagen urban area, connecting the "linear" green spaces of the "finger cities". Most of these spaces were built upon "arc-shaped" roads (such as highways and local roads). Currently there have formed three

"arc-shaped" green ways, and the Finger Plan 2007 has brought about the proposal to build the fourth "arc" green corridor. (Fig. 4-10)

Fig. 4-9 Illustration of green spaces in Copenhagen Municipality

(Source: Jesper Ole Jensen,Sustainability Profile for Urban Districts in Copenhagen)

Fig. 4-10 Regional green structure of greater Copenhagen

(Source:http://www.sciencedirect.com/science/article/pii/S1618866709000405)

Tab. 4-1 The ownership for land in Copenhagen region

Ownership	Fourth green ring (%)	Existing green structure (%)	Whole region (%)
Public	20.6	65.1	19.3
Private	74.7	25.4	76.1
Other	0.2	0.8	0.6
Unknown	4.5	8.7	4.0
Total	100	100	100

Noted: public (state, municipal, county); private (including association, trust); other (areas owned by different categories); unknown (areas not mapped)

In the big complicated system of green spaces, each level and type has its own function and role. As a whole, the system relies largely on the numerous scattered "plots" green spaces inside the urban area of Copenhagen, which has

been playing a positive role, not only in the daily life, work, study, recreation of the citizen, the improvement of the urban air quality, but also in the adjustment of micro-environmental (such as urban heat island), noise reduction and ecological protection (such as rainfall interception, bird habitation, living situation of small animals and insects, etc.). The green "lumps" serve as the frame and pillar of the system, playing irreplaceable role in urban activities such as major cultural events, festival activities and sports events. In particular, the municipal parks are often the heritage and witness of the city's history, playing an important role in preserving the city's culture and promoting its tourism. At the same time, as the "island of ecology", the "island of flora and fauna" and the "urban lung", this type of spaces serve a vital role as the balancer, stabilizer and generator for the urban environment and ecology. The Botanical Garden of Copenhagen University built in 1874, for instance, covers an area of 25 acres, and boasts a huge collection of over 42,000 botanic species[253], including many rare species, thus having become an important front for the preservation of urban biodiversity. As an essential supplement to the system, "linear" green spaces serve as vital greenways and ecological corridors for they connect and link the green "plots" and "lumps" inside the city, as well as the green "wedges" and "rings" outside the city. The green spaces constituted of "wedges" and "rings" act as the external barriers outside the urban region, and undoubtedly play a supportive and protective role, which in a macro sense helped to preserve and maintain the city's environmental and ecological systems. It is only because the "blue" (water areas) and the "green" (green lands) have been integrated together, complementing each other in functionally and geographically with diversified types and sizes of urban green space, can the city Copenhagen showcase its unique dynamic and charm, and reliably safeguard the high living standard of its citizens.

[253] Copenhagen Parks, Gardens and Copenhagen Arboretums. http://www.copenhagen.world-guides.com/copenhagen parks_gardens.html. 04-29-2011.

4.1.3 The Urban Parks in Copenhagen

The urban parks play a significant role in the inner city green space system, providing not only recreational venues for people's daily life and work, but also habitats for the wildlife in the city. In Copenhagen, there are tens of parks (and green lands) of different sizes and various types (Tab. 4-2). In terms of their styles, some followed the traditional English landscape style and the French regular style, some adopted modern minimalism or geometric patterns, and the others are mini pocket gardens built in recent years. In terms of the types, there are large municipal parks, district parks and also community parks.

Under the influence of the park movement of England, the traditional English landscape parks in Copenhagen were mostly built in the late 19th century to improve the urban environment by providing recreational and entertaining spaces. The main feature of these parks is the way of imitating natural landscape to create poetic sceneries which remind people of nature. Parks usually have broad open spaces where citizens can carry out activities and enjoy nature. ①In terms of the topography, the terrains of the parks were carefully manipulated to show ups and downs, and different levels. The concave lands were made into lakes while the convex lands were made into high hills. ②As to the use of plants, the park chose deciduous broadleaved trees like Oak, Tilia and Aesculus as the major arbors, complemented with evergreens such as pines and spruces. As for the shrubs, the parks mainly used flowering azaleas, cherries, apple, pear, lilac, honeysuckle, forsythia and roses. The herb mainly consisted of lawns and flowers. Aquatic plants were grown on the edge of the lakes. ③The architectures in the gardens mainly included pavilions, corridors, bridges and monuments. ④The roads in the parks were mostly curves which were designed in accordance with the changing terrain and sceneries. ⑤In terms of park facilities, most parks were equipped with

playgrounds, barbeque venues, and adequate supporting facilities such as benches, street lamps, dustbins and toilettes.

Among such parks, the Ørstedsparken Park and Østre Anlæg Park are two very representative examples. The Ørstedsparken Park was built upon the ruins of an old castle in Copenhagen city which was abandoned in 1870. In 1872, the city council of Copenhagen approved the proposal of building three parks upon the relics site, and Ørstedsparken was one of them (with the other two being Østre Anlæg Park and the Copenhagen Botanic Garden). Ørstedsparken covers an area of 6.5 ha (1.8 ha of which is composed of lakes). It was designed by Henrik August Flindt in 1876, and was completed in 1879. H.A. Flindt worked as apprentice in several Danish Royal gardens in his earlier years, and subsequently traveled to England, Scotland and Germany for further study[254]. Therefore, given his familiarity with the popular English landscape gardens, he adapted what he had learnt into his designs, in which he fully utilized the original terrain of the castle remains. He designed a "kidney-shaped lake" in the center of the park and built an iron bridge over it for people to stroll on and enjoy the view. The lake bank is surrounded with undulating terrains so that people could experience the natural mountains and waters in a city (Fig. 4-11, 4-12, 4-13, 4-14). Similar to Ørstedsparken Park, the Østre Anlæg Park also adopted the form of natural landscape. The rectangular shape of the park was converted from the old castle. With the winding rivers in center of the park and naturally grown vegetation, the park presents a natural country sense of beauty.

[254] H. A. Flindt Biography, by Annemarie Lund.http://www.jrank.org/gardening/pages/589/H-Flindt.html. 03-08-2011.

Tab. 4-2 Main urban green spaces in Copenhagen[255, 256]

Name	Built time	Size	Type	Origin
Frederiksberg Park	1699	31,7 ha	City park	Royal garden
Søndermarken	1699	32,3 ha	City park	Royal garden
Kongens Have	1760s	16 ha	City park	Royal garden
Assistens Kirkegård	1760	25 ha	Cemetery	Public land
Tivoli	1843	8.3 ha	Playground	Private land
Kastellets	1860s	50 ha	Urban green land	City wall relics
Vestre Kirkegård	1870	54 ha	Cemetery	Public land
Copenhagen Zoo	1859		Zoo	Royal garden
Botanisk have	1870	10 ha	Botanic garden	University
Østre Anlæg	1870	12 ha	City park	City wall relics
Sundby Kirkegård	1872	10 ha	Cemetery	Public land
Ørstedsparken	1879	6.5 ha	City park	City wall relics
Bispebjerg irkegård	1903	43 ha	Cemetery	Public land
Hans Tavsens Park	1907-08	2,9 ha	City park	Public land
Fælledparken	1908-1914	58 ha	Park greenery	Public land
Kildevæld park	1926-1927	1.3 ha	Lake	Public land
Enghaven	1928-1929	3.6 ha	City park	Public land
Vigerslevparken	1929	41,5 ha	Linear green land	Public land
Amager Strandpark	1934-2005	60 ha	Waterfront park	Public land
Valbyparken	1937-1939	64,2 ha	Park greenery	Public land
Damhussøen	1939-1941	85.7 ha	Lake	Public land
Kagsmosen	1939-1941	15 ha	City park	Public land
Havneparken	1984	3.8 ha	Port greenery	Abandoned industrial land

[255] Byens parker og naturområder (The city's parks and natural areas). http://www.kk.dk/Borger/ByOgTrafik/GroenneOmraader/Parker.aspx. 05-18-2011.
[256] Parks and open spaces in Copenhagen. http://en.wikipedia.org/wiki/Parks_and_open_spaces_in_Copenhagen. 05-18-2011.

The regular style gardens in Copenhagen were under the inspiration of early Italian gardens and late French gardens, especially the latter. This type of parks featured geometricsymmetry and clear axis, with regular symmetrical patterns of vegetation and orderly trimmed green fences. The King's Garden (Kongens Have) were initially constructed in 1624, during the period of Christian IV (1588-1648), and reconstructed in the 18th and 19th century, transforming form Italian Renaissance style to French Baroque style, and latter into English Romantic style. Ever since the 20th century, the landscape of the park has been transformed for several times, but the road pattern and the overall composition have been preserved (Fig. 4-16, 4-17). More attention has been paid to visitors' comfort and convenience, and facilities such as children's playgrounds have been added (Fig. 4-18). The Herbaceous Border was built in early 20th century, on the basis of original vegetable yards in the King's Garden. During its reconstruction in years from 1998 to 2000, British landscape architect and gardener Gertrude Jekyll (1843-1932) drew inspirations from the fine arts, and planned to transform the site (which was originally 120 m long and was extended to 240 m in the 1970s) into a flower garden containing over 200 types of herbaceous flowers every year.[257] Today, over 2.5 million citizens and tourists visit the "King's Garden" every year[258].

[257] The Herbaceous Border. Palaces and Properties Agency, Ministry of Finance. http://www.ses.dk/en/SlotteOgHaver/Slotte/Rosenborg SlotOgKongens Have/kongenshave/staudebedet.aspx. 02-08-2011.
[258]Ministry of Finance, Palace and Properties Agency. The King's Gardens. http://www.ses.dk/en/SlotteOgHaver/Slotte/ RosenborgSlotOgKongens Have / kongenshave.aspx. 05-16-2011.

Fig. 4-11 The location of Ørstedsparken in Copenhagen (left) (Source: http://da.wikipedia.org/wiki/%C3%98rstedsparken)

Fig. 4-12 The plan of Ørstedsparken (right); (Source, same as Fig 10)

Fig. 4-13 A view of Ørstedsparken (left), Fig. 4- 14 The lake of Ørstedsparken (right) (Source: same as Fig 10)

Fig. 4-15 A view of Østre Anlæg (Source: http://en.wikipedia.org/wiki/%C3%98stre_Anl%C3%A6g_(Copenhagen))

Fig. 4-16 The plan of Kings garden (left) (Source: Fredningsbestemmelser for Kongens Have - Rosenborg Have,http://www.dn.dk/files/billeder/Lokale_billeder/koebenhavn/kort_fredninger/Kongens_Have_Fredningskort2.GIF)

Fig. 4-17 A bird-eye view of Kings garden (right)

(Source: http://fotografilia.dk/upload_dir/shop/kongens-have-rosenborg-koeb.w800.h700.jpg)

Fig. 4- 18 The flower carpet in King's garden (Source:http://www.pkaj.dk/images/vindue%20til%20verden/DANMARK/Kongens%20Have,%20K%C3%B8benhavn%20marts%202000.jpg)

Among modern city parks, some are reconstructed on the basis of an old park, and the others are newly designed and constructed to meet the development needs of the city. The design of these parks have not only demonstrated modern landscaping concepts and forms by adopting modern landscape expression elements and modern spatial functions, but also incorporated the history and culture of Denmark, as well as the Danish people's aesthetic and functional demands in the urban green spaces. At the same time, the design of these parks often featured concise spatial layouts, minimalized scene sets, unadorned material use and simple maintenance techniques, so as to create a

green space of multiple functions, various forms and rich connotation. For example, Copenhagen municipal government built the Nørrebroparkenduring the reformation of the Nørrebro region. The park covers an area of 6ha, and was designed by Steen Høyer, professor at the Royal Danish Academy of Fine Arts, School of Architecture. In his design, he utilized the trees and manipulated the micro-terrain, thus effectively dividing and recombining the long and narrow spaces so that citizens could carry out various recreational activities such as taking sun baths, having picnics, skating, and playing soccer or volleyball. The reformation has not only upgraded the quality of the land, but also improved the neighborhood relations in the region (Fig. 4-19). Designed by Mutopia Designing Studio and located in Ørestad, the City Park is another brilliant achievement in Denmark's modern park designing. With an area of 7ha, the park was divided into spaces of various sizes by three horizontal and one vertical road (Fig. 4-20). Furthermore, units of large, medium and small circular spaces were randomly scattered inside the park, with each unit serving its unique function for the citizens to use. These spaces included playgrounds for the children, beach volleyball court for the youngsters, as well as places for people to meet and chat. People of different ages who had different interests were all able to find a suitable place in the park (Fig. 4-21).

Fig. 4-19 A view of Nørrebroparken (Source: Storbyens Grønne, Lunger, http://culturel.dk/en/Articles/~/media/Images/Culturel/Culturel03/parker_norrebro.ashx?w=440&h=287&as=1)

Fig. 4-20 A bird-eye view of City Park (left)(Source: Urban Transformation: Understanding City Form and Design,http://aplust.net/permalink.php?atajo=mutopia_city_park_orestad_city_copenhagen);

Fig. 4-21 A view of City Park (right) (Source: VULGARE, http://www.vulgare.net/page/1/)

Aside from abundant park greeneries, Copenhagen boasts a large coverage of water areas, composed of artificial lakes, canals and natural lakes. Like park greeneries, these water areas not only serve recreational purposes for the citizens, but also play an essential role in protecting the ecological environment of the city.

4.1.4 Conclusion

The ways how people use the parks today differ widely from those 150 years ago in the age of Olmsted, and hencepublic green spaces today enjoy far more diversified forms and types than ever before. One driving force behind this is the essentially different urban developing mode today, where urban planning and construction have become in order, fundamental changes have been made in the city's infrastructure, sanitation status, health care and waste management, and the sustainable development method has been under exploration. Another driving force roots in the changes in people's ways of life. Thanks to the economic growth and improved living conditions, and thanks to the development in road network and transportation, people today have more choices when it comes to travelling and leisure activities. For example, in 2008, as many as 1.1 million citizens visited

the zoo, and over 3.97 million visited Tivoli[259]. In the same year, the number of visits to Enghave Park reached 1.1 million[260]. The third driving force is people's shifted attitude towards nature. With the continuous development in science and technologies, people now have gained a new understanding of the Earth, the living environment for people themselves and the cities, and have taken up a new attitude towards nature and ecology. Therefore, there have been far more public green spaces of various kinds than ever, and more places for the citizens to carry out leisure activities. For instance, by year 2000, the average park and wood area for each citizen of Copenhagen had reached 16m^2, and would have reached 24 m^2 if the playgrounds (approximately 5m^2 per person) and cemeteries (approximately 3 m^2 per person) had been included[261]. The fourth reason is the changes in government responsibilities and management. In western countries, especially Denmark, both central government and municipal governments have been striving, more than ever, to promote the urban environment construction so as to boost the economic growth, improve investment conditions, upgrade urban life quality, and safeguard citizen's health, which has driven the development of urban green spaces.

Although Copenhagen did not win the "European Green Capital Award, 2011-2012" and finished 8thamong the 35 candidates, it was already an recognition and appreciation of its achievements in the construction of urban greeneries and green spaces. Despite the existing imbalance distribution of green areas per capita among different regions due to historical reasons, Copenhagen has already gain huge success in the construction of urban green spaces (Tab. 4-3).

[259] De 50 mest besøgte attraktioner 2008. http://www.visitdenmark.com/danmark/da-dk/menu/ turist/oplevelser/attraktioner/sightseeing/ tophalv treds.htm. 05-18-2011.
[260]Enghaven.http://www.kk.dk/Borger/ByOgTrafik/GroenneOmraader/Parker/enghaven/faktahistorie.aspx
[261] Nature and Environment 2001 – Ministry of the Environment.

Tab. 4-3 Public Green Areas of the "Top Eight Cities"[262]

City	Public open areas,m^2/inh	population living < 300 m from public open area
Amsterdam	33	71%
Bristol)	38	-
Copenhagen	28	79%
Freiburg	32	100%
Hamburg	39	89%
Muenster	32	95%
Oslo	52	94%
Stockholm	86	90%

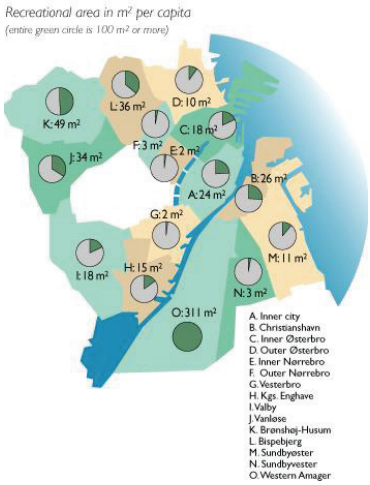


Fig. 4-22 The citizen's average of green space in Copenhagen

(Source: http://www.miljoe.kk.dk/2c4c04c3-9d93-4777-bdf9-8d150bf6088a.W5Doc#1)

[262]European Green Capital. Measuring Urban SustainabilityAnalysis of the European Green Capital Award 2010 & 2011 application round, p20. http://ec.europa.eu/environment/europeangreencapital/docs/cities/egc_analysis2010-2011.pdf. 05-18-2011.

4.2 Harbor Park of Copenhagen

Abstract: The site of Harbor Park used to be a work area of Copenhagen Port on the canal within city. It has been degenerated into an industrial ruin area since the transformation of economic form and the restructuring of industrial configuration. Through redesigning and rebuilding, it has become a hot waterfront park of Copenhageners' favor. This design is simple and plain, as well as accessible and enjoyable. Citizens can enjoy both the scenery and facilities on the land, and the fun of playing and swimming in the water. The ideas indicated in this design, which pay respects to people's will, to the history of site and to the values of tradition, are worth learning and drawing from.

Key words: Copenhagen; city waterfront; site history; park design; residential participation

The word "Copenhagen" means "harbor for the merchants" in Danish (København), which showcases the pivotal role the ports and piers used to play in the formation and evolution of the city. In the mid and late 20th century, however, the original factories moved out of the city due to changes in industrial configuration and economic form, slashing down the amount of cargo transport at the ports, and turning the once prosperous piers into ruins. Since the 1980s, together with the reconstruction and revitalization plan of the city, those waterfront regions of gold locations have been gradually rebuilt and developed into office buildings and upscale residential areas.

The Harbor Park was built upon an old dock work area. The construction began in 1994 and finished in 2000, costing a total expense of 25 million Danish Kroner (excluding the cultural activity center on the site)[263]. The completion of this park provided with citizens of this region an improved living environment, and added to the city another venue for leisure and entertainment, cultural events and sports activities as well. When the old harbor was being reconstructed, efforts were also paid to the pollution control of the water areas, giving the gold

[263] Malene Hauxner. Park Identity in Denmark Today. Landsacpe Architecture in Scandinavia, Topos, 2002, p. 38.

waterway back its purity. As a result, the park became a precious swimming pool and water park for the citizens of Copenhagen in the summers. In recent years, with the growing efforts in environmental protection and investment, the waterfront region has become one of the places with the highest housing prices in Copenhagen, and is thus called the "Manhattan" of Copenhagen[264].

4.2.1 The Historical Background

The Harbor Park is located in the "Islands Brygge" region of the Vest Amager district in the south-west part of Copenhagen. Originally being shallow shoals, this region was turned into a port through reclamation (which was not finished until 1933)[265] (Fig. 2-23). Some of the land served military purposes, and others gradually became industrial lands and construction sites. In 1903, a railway was built to connect the main city with Sjaelland, and the Langebro Bridge connecting the main city was completed in the same year (the bridge was reconstructed twice in 1930 and in 1954[266]) (Fig. 4-24). Officially put into use in 1901, the pier mainly served for the loading and unloading of coal, wood and other materials. With the development in transportation and industrial business, and with the residential neighborhoods being built in 1905, the port gradually expanded into an industrial zone of freight transporting, warehousing and processing all in one. The pier was named "Islands Brygge" because it is mainly used for the trade and transport to Iceland and Faeroe Islands (Fig. 4-25). In the 1930s, the population of the region once reached 2 million[267].

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264 Islands Brygge (in Danish).Available from:http://da.wikipedia.org/wiki/Islands_Brygge.
265 Ibid..
266 Ibid..
267 Ibid..

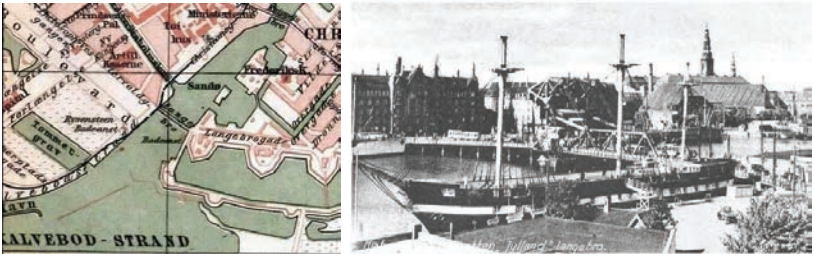

Fig. 4-23 The illustration of Islands Brygge in 1888 (which was a shallow shoal see lower left) (left)(Source: Islands_Brygge (in Danish).
http://da.wikipedia.org/wiki/Islands_Brygge)
Fig. 4-24 The habor in 1935 (and in the background is the temporary bridge) (right)
（Source: Havnen gennem tiden (Danish) (Havnen through time). http://www.bryggenslokalhistorie.dk/havn.）

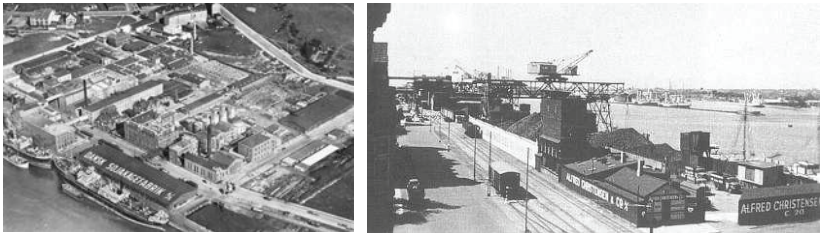

Fig. 4-25 A view of harbor in 1950 (Source: htmlIslands Brygge 100 år (in Danish).
http://home8.inet.tele.dk/oktober/artikler_forum/050827_islands_brygge_100.html)

Due to the depression of the industrial and transport sectors in the 70s and 80s, the population of the region had dropped to below 7000 by the mid 1980s (and remained so till 2003)[268]. After that, the region was gradually transformed into office buildings and residential districts. With the over crowded buildings and narrow streets formed historically, the public spaces of this region fell short to meet citizen's needs. By as early as the 1970s when the pier ceased to transport cargos, citizens from all walks of life had jointly called for the reconstruction of the old pier into community parks. The explosion accident of a chemical firm in

[268] Islands Brygge (in Danish). Available from http://da.wikipedia.org/wiki/Islands_Brygge.

1980[269] made local authorities realize the importance of establishing an evacuation site for emergencies. Since Copenhagen was in the process of planning the city renovation at that time, a "Neighborhood Council" was set up to promote the reconstruction of the port into a park, so as to improve living conditions and safeguard citizens' rights. Permitted by municipal port management authority, local citizens voluntarily worked together and built a small park from a 1ha area of work site in the north of the old pier.

4.2.2 The Site Conditions

Currently, the Islands Brygge neighborhood has a population of 12,000 people (in year 2009), and an area of 1 km^2. In 1995, municipal authorities expanded the park from 1ha to 2.8 ha (or 3 ha according to another source[270])[271]. The waterfront region is 50 m wide and 925 m long. On the east side of the region is a major arterial road parallel to and named after the port, with 6-story residential buildings of approximately the same height on its side. On the north end lies the Langobro Bridge which stretches across the sea, and on the south end lies the residential estates. To the west of the waterfront region are the straight berths and the 300m-wide sea lane. The Kalvebod Brygge neighborhood lies right across the sea, with fascinating skyline composed of buildings and church steeples.

In terms of the entrances, the north side of the Harbor Park is adjacent to the cross-sea bridge and connected to the roads beneath the bridge, and is therefore the main entrance for visitors on foot or on bike. The citizens who go there by bus often choose to enter from the central part of the park where bus stops are located, while the self-driving tourists mostly enter from the relatively spacious south part. Since a larger proportion of visitors enter from the north and central part of the park, the spatial layout is more concentrated in those two parts.

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[269] Edited by Ian Thompson, Torben Dam, Jens Balsby Nielsen. European Landscape Architecture: Best Practice in Detailing [M], Routledge, London, October 2007.
[270] Malene Hauxner. Park Identity in Denmark Today. Landscape Architecture in Scandinavia, Topos, 2002, pp. 38.
[271] Ibid.

Fig 4-26The location of Harbor Park (Source: Google map)

Fig. 4-27 The view of Islands Brygge opposite to the park on the other side of the sea (Islands Brygge. http://da.wikipedia.org/wiki/Islands_Brygge.)

When the citizens spontaneously constructed the park in 1984, they retained the railway tracks and pavements on the coastal side, tore down the ground facilities in the northern part of the park, and built large areas of lawns. Such reconstruction to some extent laid the foundation for the subsequent designing and construction. Since the place had long been used as a cargo wharf, the soil there suffered various levels of pollution. According to the test results from municipal environmental protection authority, the topsoil was not safe for human to touch, which required the replacement of topsoil in the construction.

As a waterfront park, the sea water quality is crucial to the design and use of the park. The water quality of the port region was high enough for swimming until 1953. After that, the water was deteriorated by shipping, industrial production and sewage emission, causing all the outdoor sea water baths to shut down. There remained 93 sewage and rainwater outfalls in the waterfront region of Copenhagen till year 1995. Then the sewage and rainfall emission was largely reduced thanks

to the newly constructed large sewage treatment plants and rainwater storage systems, and the number of outfalls dropped to 38[272]. Such improvement has brought a profound change to the overall water quality of the waterfront region, and paved the way for the realization of the water park design.

4.2.3 The Design of Park

After approving the park project in 1993, Copenhagen municipal departments contracted the designing to architect Annelise Bramsnæs (1941-1999) and landscape gardener Poul Jensen (1929-). At that time, Annelise Bramsnæs was associate professor at Royal Academy of Arts, School of Architecture, Department of Town Planning and Landscape, while Poul was Chairman of "Neighborhood Council" and manager of his own landscape design company. The two of them later became the chief designers of the park.

During the entire process of the design, the two architects kept close contact with government departments and local residents, by listening to the wishes and suggestions from all parties and adopting them into their design. The designing period lasted for over a year, with the final plan epitomizing the joint wisdom of everyone (Fig. 4-28).

4.2.3.1 Overall Layout

As a waterfront city park, its function and essence were oriented to fulfilling citizen's needs for recreational venues. The overall layout was clean, effortless and unadorned. With the wide roads and large areas of lawns as the basic tone, and paralleled roads on the sides as the axis, the park obtained a capacious vision and a orderly fashion. On a micro level, the details of the layout was carefully and delicately designed, with distinctive architectures as spatial nodes, creating a

[272] Copenhagen: From sewer to harbor bath. Available from:http://sustainablecities.dk/en/cityprojects/cases/copenhagen-from- sewer-to -harbour-bath.

waterfront park that is suitable for both sightseeing and recreation by fulfilling the demand of hosting a variety of activities.

Fig 4-28 Plan of Harbor Park (which was later revised)[273]

4.2.3.2 Design of the Roads

The road design for a ribbon-shaped waterfront park can easily fall plain, but the designers studied the site conditions and drew inspiration from the boulevards in Berlin and Paris, ending up with the plan of a 8m wide green avenue composed of 2 lines of Prunus aviums on the east side of the park. The design not only fulfilled the traffic needs, but also helped reduce and block the noise. On the other side of the coastal waterway, a waterfront boulevard of 12 meters wide was designed, in order to provide spaces where people could enjoy the view and get close to water. As for the two rectangular grass terracewith a width of 30 meters in the north of the park, the designers built 3 walking trails with tilted angle of 45°, 60° and 30° to connect the east with the west, thus giving the stiff-looking lawns a dynamic image.

[273] Malene Hauxner. Park Identity in Denmark Today. Landscape Architecture in Scandinavia, Topos, 2002, pp. 38.

4.2.3.3 Design of the Activity Sites

The activity sites can be broadly divided into three sections from north to south, the northern section, the central section and the southern section. The northern and southern sections are similar in length, which the central section covers a slightly larger proportion. The northern section starts from the sculpture of iron ship and is composed of commercial bars, lawns, skateboarding rink, leisure greeneries and arc-shaped scenery walls. ①The skateboarding rink lies to the north of the green terrace, and is composed of a sunken basketball court of 280m2, the adjacent slopes of 140m2 and arc-shaped high skateboarding platforms on both ends (Fig. 4-29). ②The two green terraces are divided into 5 irregular trapezoids by the tilted walking paths. The lawns are 30m in width and 100m in length, with a retaining wall of 36cm tall. ③The brick-red curved walls are perpendicular to the longitudinal axis of the park and beautifully divided into three parts. The scenery walls are curved on the edge, with the front and middle parts of the wall overlapping with each other. Windows have been opened on the walls, and seats are built for people to rest from the wind and sun in the winter or early spring. The middle part of the walls is divided in two halves, with a 40cm high arc-shaped flower alter in the front, also divided in halves by the same pedestrian.

Fig. 4-29 Children playing at the skateboardingrink

The essence of the design lies in the central section of the park which mainly consists of activity venues. It is constituted of steel frames, a cultural center, a steel-structure corridor, “Festival Place”, the wall of Halfdan’s passage and playgrounds (Fig. 4-30), among which, the latitudinal steel frames and corridors, the “Festival Place” and the longitudinal Halfdan’s Passage are the most ornamental places in the park of the most historic and monumental significance. ①The steel structure frames and corridors are located to the north of the cultural center and arranged in an irregular pattern from east to west. The steel structure is made up of 5 sets of frames, each consisting 2 or 3 standing cement boards of 3.5m high and 90cm wide, together with abandoned rail beams of varying lengths. ②The cultural center is the main building of the Harbor Park, with an area of 1650m^2.[274] Shaped like a cabin on the deck facing towards the waterway, the building hosts daily activities for the citizens. ③The steel corridor is located to the south of the cultural center, echoing the steel frames on the other side. Nine sets of 4-meter-high towers that resemble gantry cranes constitute the 5.7 meter-wide steel corridor that stretches from the green avenue to the waterfront boulevard (Fig. 4-31). ④The “Festival Place” is right next to the steel frames. In the center is the “boat pavilion” made of the upside-down old wooden sailboat “Pinen”. A spacious square is surrounded by benches and bushes. In order to highlight the landmark “Boat Pavilion”, the ground of the site is gradually elevated form the north to the south by 65cm. Located on a wood platform of 7 meters wide and 30 meters long, and held up by two wooden scaffolds of 3.5m long, the “boat pavilion” faces the water with an 45°angle (Fig. 4-32). ⑤ Standing on the south side to the boat pavilion, the wall of Halfdan’s Passage was reconstructed from an old pier factory building that was 63m in length. It lies on the central axis of the park, paralleled to the longitudinal axis. A discus court and a volleyball court are placed on one side

[274] Dispensation fra lokalplan nr. 253 "Havneparken Islands Brygge" (in Danish). Available from http://www.kk.dk/eDoc/lukket-Bygge-%20og%20 Teknikudvalget/16-08-2000%2014.00/Dagsorden/23-05-2003%2013.57.38/78C122BA9B584C66C1256D2F0041B3B5.htm.

of the wall that faces the green avenue, and on the other side is the small square built upon the preserved cement floor of a 15 meter-long abandoned factory (Fig. 4-33). Besides, there are another two playgrounds to the north of the "boat pavilion", a climbing wall and a children's playground (Fig. 4-34). The design of the southern park section is relatively concise, with two large green terraces and an arc-shaped square in between. The lawns are in consistent style with the lawns in the northern section. The open space in between the two lawns is about 50 m wide, while the arc-shaped square is 30 m wide.

Fig. 4-30 The layout of middle of harbor Park (①steel structure, ②cultural center, ③ steel structure corridor, ④Festival place,⑤The wall of Halfdan's passage, ⑥climbing wall, ⑦children playground

Fig. 4-31 A view of steel structure walk (left), Fig. 4-32 The boat pavilion at Festival place (right)

Fig. 4-33 The playground at The wall of Halfdan's passage (left), Fig. 4-34 A view of the climbing wall (right)

4.2.3.4 Close-water Design

As a waterfront park, close-water landscape is a vital part of the whole design. Permanente close-water spaces were initially built only in the southern section due to security concerns, since the northern section is close to the Langobro Bridge and is therefore vulnerable to the high and fluctuating speed of water flow. On the south side, however, the surface of the water is much broader and more peaceful, thus suitable for swimming and kayaking. Later, in response to the demand of the citizens and the improving water quality of the port area, sea baths and diving platforms with protective facilities have been built in the northern section, with a maximum accommodation of 600 visitors[275]. Meanwhile, the central section of the waterfront became the venues for temporary close-water sports such as water polo and kayaking.

As for the close-water landscape of the southern section, a wooden close-water platform which was 5 m wide, 300 m long and 90 cm lower than the ground was designed to provide spaces for swimmers, sailors and other people to have fun near the water (Fig. 4-35). The sea pool in the northern section is 45 m in width and 80 m in length. A 2.5 meter-wide wooden platform is built in between the sea pool with the pier, connecting the two parts with slopes and steps. In

[275] Copenhagen Harbour Baths. http://en.wikipedia.org/wiki/Copenhagen_Harbour_Baths.

addition, the terrace-shaped lawn is both perfect place for people to sun-bath and to rest after the swimming, and an ideal place to watch the passing ships and ongoing water activities.

4.2.3.5 Vegetation Design

The design of plants in the harbor park is relatively simple and concise as compared to that of the activity venues. The vegetation design is consistent with the overall style of the park, and also closely related to the functions of the park. Except for the green boulevard, the plants merely play a minor role in the park. Apart from the European cherry trees used for the boulevard, ornamental trees and shrubs, vines, flowers and turf grass are also used in the park. Salix purouea and Salix alba were planted in the children's playground, while Crataegus crus-galli and Lonicera maackii were planted around the benches and in other places. The plants were arranged in a natural way to shade the sun and create the sceneries. Vines were mostly used on the steel structures and walls.

The grass terrace was brilliantly designed to go with its terrain. As the topsoil was being replaced, the designers cleverly manipulated and utilized the waste soil to build the terrace. In this way, they managed to reuse the waste, reduce the cost and at the same time improve the venue for sun-bathing and other activities on the lawn. The cement retaining walls surrounding the lawn is multifunctional, for it can not only protect the lawn, but also provide citizens with places to rest (Fig. 4-36).

Fig.4-35 The wood platform for playing water (left), Fig. 4-36 The terrace grass for recreation and activities (right)

4.2.4 The Inspirations from Harbor Park

Judging merely from the form, the design of Harbor Park, without any marble pavements or mighty sculptures, appears too plain and thrifty as compared to the various waterfront parks. However in some way, the park is more approachable for the public, which brought us at least three inspirations in aspects of respecting the people's wish, respecting the history, and respecting the tradition.

4.2.4.1 Respecting the wish of the public

The citizens are the master of the city, and the city park is a stage holding recreational activities for the citizens. How to build a stage that attracts and pleases the citizens by satisfying their needs for open spaces, is an important issue for not only the city managers and planners, but for the citizens as well. As regulated by Denmark, any designing project that concerns public interest must go through a public inquiry period of at least 3 months. Here, the designers work through their plans to express and coordinate various wishes and demands of the citizens, while the relevant government authorities act as the organizer, supervisor and coordinator of the project. Both the self-motivated construction of the park and the government-sponsored rebuilding and expanding has demonstrated the government's respect for people's voice. During the designing process of the park, the plan was always a hot public issue, and many suggestions came from the

citizens. For example, the skateboarding rink was designed because of its popularity among teenagers. For another example, the designers visited local schools and kindergartens several times to discuss with children and their parents. It was the children who proposed the construction of woods and caves to play hide-and-seek in. Although the proposal was denied by relevant authority due to safety concerns, they built three hills and placed plastic pipes with a diameter of 80cm to serve as caves, in response to the children's demand (Fig. 4-37). To make up for the children's disappointment, they planted some willows on the hills and built a 20 m-long suspension bridge over it. In this aspect, our government officials and planners should learn from them, pay more attention to people's voice, and base the designs on people's need. Let the parks be more functional than decorative, and let there be more respect to people than bureaucracy. In this way, our parks can be more consistent with citizens' need and with the concept of affordability and environmental friendliness.

4.2.4.2 Respecting the history of the site

A city's history is not only recorded by the literature and photographs in books, but also engraved on each and every brick, stone, tree and grass in the city. In the planning and construction of the Harbor Park, the respect to the site's history is not only reflected in the overall designing concept, but demonstrated with every detail as well. Take the waterfront boulevard for instance; they reserved the symbolic landmarks of the pier such as the railroad tracks, the stone pavement, the iron pickets and rings that were used to constrain the boats. The designs of the "Pinen" boat pavilion and the Halfdan's passage both showcased the combination of function, scenery and history. Though they removed the cement floor on the Halfdan's passage to plant trees, they did not forget to exhibit the old cement boards on the site. Those inexplicit scenarios are all recording, telling and carrying on the history of the site. Even the newly designed landscape

is still consistent with the history. The steel corridor, for example, was designed under the inspiration of the cranes used for loading and unloading. Nevertheless, to respect the history does not necessary means to be constrained. While reserving the rail tracks and stone pavements of the boulevard, the designers replaced stone road on the inner side of the site with chipped ashlar to form two “stone tracks” to facilitate those citizens with special needs (wheel-chairs and strollers) (Fig. 4-38). On contrary, many designs in our country only chase after the so-called fashion, trend and avant-garde, with no respect paid to the original history of the site or its significance to the present and the future. Intentionally or not, they cut off the historical connection and lost the rich connotation that should have been seen, leaving the designs hollow and plain.

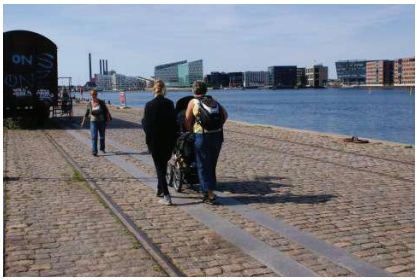

Fig 4-37 Children play at playground (left), Fig. 4-38 The stone track for strollers and wheelchairs(right)

4.2.4.3 Respecting the Traditions

In some sense, the traditions are the spiritual wealth of a country or nation. The respect for traditions in landscape designing should include the respect for people’s lifestyle and habits, as well as the respect for the designing culture. As for the former, the Danish people typically love sun-baths, and they enjoy lying on the lawns and getting exposed to the sunshine. In response to such tradition of “enjoying the sun”, large areas of lawns were designed in the Harbor Park. As for the latter, Danish landscape architecture has a good tradition of simple and elegant design, with detailed techniques and functional effects. The style of the Harbor

Park has completely inherited such essence of tradition. The style is not loud or fancy, but based on practical needs and the users' comfort. For example, the ground of the park was paved with stones and gravel materials, which is on one hand consistent with the traditional pavement in Denmark, and on the other hand good for the drainage system. At the same time, the design is more modern than conservative, given the modern designing concepts it used. The modern qualities can be reflected by the tilting paths separating the lawns, the arc-shaped walls, the cement board decoration of the "steel frames" and the openings in the walls. Such innovation and variation based on the respect for culture and traditions is exactly the quality missing in many designs we see today. How to inherit and pass forward the essence of our traditional landscaping while adapting to new trends remains an urgent problem to be solved.

4.2.5 Conclusion

The design of the Harbor Park may not be perfect, and may have some limitations, but like a mirror, it has refracted some problems in our landscaping designs today. It should be said that the concepts targeted and expressed by the park are exactly what we should pay attention to. Alongside the tide of the reform and opening up, the "new landscape architecture" has experienced unprecedented development in the last 30 years, yet it still appears too young and inexperienced, as compared to the western landscape architecture which has gone through a 100 years of history. We hope that we can avoid the errors caused by short-sightedness and ignorance, and that the Chinese landscape architecture can form its own characteristics through sound development.

4.3 Analysis of the Art Features in the Danish Cemeteries Designs.

Abstract: Cemetery is not only for burying the die people, but also plays other roles such as social, landscape and environmental functions. Danish cemetery as other European countries derived from medieval graveyards, and shapes in the middle of 18th century. In modern time the

style has been designed as modern landscape park. It aims to create a mysterious and solemn circumstance for respecting passing people, meanwhile, it also pay a special attention for citizens daily using, such as providing a place and space for citizens' leisure and recreational activity as a park and also for citizens learning history and died famous persons through their visit as a open museum. Danish cemeteries use more plant materials and create rich sceneries as they could in their design to gain an ideal situation in both circumstance, functions and effectiveness of environment.

Key words: Denmark, cemetery, design art, social function, plant using

4.3.1 Introduction

The cemetery is where the souls of the deceased rest, and where the living commemorate and cherish the memory of the deceased. The cemeteries have been assigned different forms and functions in different historic periods, cultural backgrounds and religious beliefs. In modern Western society, the cemetery is both a special type of garden and part of the urban green space system. At the same time, it plays an important role in promoting the social culture and protecting the environment.

The ancient cemeteries in Denmark rooted back to the Bronze Age, when the main method of interment was soil cavities with a huge stone as the mark, due to the flat terrains. In the medieval period, the cemeteries were managed and controlled by the church. Only people from the upper class or people with prestigious status and wealth were allowed to be buried in the underground tombs in their parishes, while average folks and people from the lower class could only be buried in the graveyards outside the churches. The modern cemeteries came into being in Denmark in the mid 18th century, mainly due to the limited graveyard space in the churches and the booming population, and also partly due to environmental, health or disease control reasons. For a long time after the emergence of modern cemeteries, the cemetery had remained dependent on the social society of the deceased, with disparity in the social hierarchy. The royal

family and upper class had their exclusive cemeteries, while civilians and the bottom class had their destination. Initially, the cemeteries were mostly built upon public-owned lands on the fringes of the towns. Later, with the ever expanding town sizes and the ever growing population, the cemeteries naturally became part of the urban districts. Due to the needs of social development, quite a few cemeteries experienced different degrees of partial modification and redesigning, while some of them were further expanded. Since modern cemeteries mostly take the form of the parks, and often cover a large area, they have become an important part of the green space system of towns and cities. Currently, there are 298 cemeteries of different sizes in Denmark[276]. Except for the three cemeteries in Frederiskberg, which are managed by a private company, most cemeteries are managed by local public departments which are organized by municipal government authorities and churches. In the capital city Copenhagen, for instance, excluding those old small graveyards in the churches, there are 5 major public cemeteries covering an area of 150.43 hm^2,[277] accounting for 6.04% of the total urban park area (2489.92 hm^2 [278]). Among those cemeteries, the biggest is the Vestre Cemetery initially built in 1870. With an area of 53.7 hm^2,[279] it is also the biggest cemetery in Denmark and in Scandinavian region. Today, the cemeteries in Denmark serve more functions than providing a solemn and quiet environment for burials, and have become venues with beautiful refreshing environment for people to learn about the history, memorize the deceased and carry out recreational activities and sports.

[276] Danskirkegårde. http://www.danskirkegårde.dk.
[277] Københavans Kommune – Kirkegårde. http://www3.kk.dk.
[278] Paul Cahasan & Arielle Farina Clark. Copenhagen, Denmark – 5 Fingers Plan, http://depets.washington.edu.
[279] Københavans Kommune – Kirkegårde. http://www3.kk.dk,.

4.3.2 The Principles for Cemetery Design

4.3.2.1 People-Oriented

The cemeteries have special functions, among which the main function is to provide space for the interment of the deceased. Such place must be people-oriented, by treating the deceased equally, satisfying their different needs and providing the users with convenience.

The people-oriented quality of the Danish cemeteries is showcased by its concept of offering the pubic equality and high-quality service. More specifically, efforts are made in the designs to satisfy the different requirements of people of different religions, nations, families and ages, in terms of the grave size, conditions, Pastor services and cemetery conservation. In April 2008, a law was issued to approve the construction of special cemeteries for the homosexual people. The Vestre Cemetery of Copenhagen, for example, contains different types of graveyards, including the family style, individual, group graves (with tombstones and boundaries) (Fig. 4-39), cluster graves (in which the tombstones are embedded in the ground and no boundaries are set) (Fig. 4-40), anonymous graves (without tombstones or boundaries). Each type of the graveyards has different sizes and locations so that the user could choose the burial place during his lifetime, or the family and friends of the deceased could choose according to the deceased's will. To choose the location of the grave is not restricted by the user's profession or social status, therefore it is common to see the celebrities and ordinary citizens share adjacent graves, which embodies the spirit of democracy and equality. The glory of the lifetime is only reflected in the epitaph and design of the tombstone. The cemetery also includes Catholic graveyards and Islamic graveyards to satisfy with their different beliefs and traditions. Since some of the deceased had love for their country of origin, the cemetery accordingly set graveyards for original nationalities, such as Britain, France and Latvia. In addition, a special grave

district in the cemetery is built for and devoted to the German soldiers who died in Denmark during the Second World War, even though they were the invaders stationed in Denmark. Such action showcases the humanitarian spirit (Fig. 4-41). In the Bispebjerg Cemetery (the second largest cemetery in Denmark, with an area of 43.64 hm^2),[280] a special burial district has been built for the military and the police in order to show respect for their contribution in safeguarding the country and maintaining social order (Fig. 4-42).

Fig. 4-39 A view of group graves in Vestre cemetery (left), Fig. 4-40 A view of cluster graves in Vestre cemetery (right)

Fig. 4-41 A view of Germen soldiers graves in Vestre cemetery (left)
Fig. 4-42 A view of Danish soldiers graves in Vestre cemetery (right)

While satisfying the citizens' requirements for the cemetery functions and conditions, the design of cemeteries must also take into consideration the needs of citizens to carry out activities in the cemeteries. Generally, the cemeteries in

[280] Københavans Kommune – Kirkegårde. http://www3.kk.dk,.

Denmark are equipped with benches for people to rest on and enjoy the view, and the facilities and tools for people to water the trees and plants.

4.3.2.2 The Principle of solemnness

A solemn and serene cemetery is both respect to the deceased and consolation to the living. This principle shows respect for the integrity and dignity of the late, and the praise and tribute to life.

In the designs of Danish cemeteries, the solemnness is mainly demonstrated by the uniform layout, the rhythm of ups and downs, the mixture of density and sparseness, the permanence created with evergreens and the cleanliness of the environment. The uniform layout is demonstrated by the regular layout of the roads and burial districts. The rhythm of ups and downs is created through the burial vaults and the mixture of density and sparseness is achieved through the planting method of the vegetation. Meanwhile, the use of plants and the maintenance of the lawns also help highlight the ceremonial atmosphere (Fig. 4-43).

Of course, the solemn and serene atmosphere should not necessarily make people nervous and anxious, and definitely should not be ghastly or horrifying. The cemeteries in Denmark, while pursuing the principle of solemnness, do not cast an unpleasant feeling to visitors. On the contrary, they bring people close to nature, so that people can feel that the heaven and earth are not parted or confronting and that the living and the deceased can communicate. In this way, people feel less daunted by the death, more respectful to life, and more appreciative of their own living.

Among the cemeteries in Denmark, the micro environment of a graveyard is often personally created by the family of the deceased. They can plant trees and

flowers within the grave boundary, or place flowers if the grave is small. Ornaments such as candlesticks, porcelain dolls and birds are often placed on the graveyards to create a lively and warm atmosphere (Fig. 4-44).

Fig. 4-43 The view of roadside trees in Bispebjerg cemetery (left), Fig. 4-44 A view of graves in Vestre cemetery (right)

4.3.2.3 Principle of Functionality

The main function of the cemetery makes it different from any other forms of landscape gardens. While fulfilling its main function, we must also think about how to effectively perform its comprehensive functions.

In Danish cemetery designs, the functionality is mainly achieved through planning and designing to better perform the diversified functions and obtain overall effectiveness. The diversity of the functions of cemetery lies in the fact that it should help protect historical and cultural values, fulfill the communication needs in modern social life, and protect the biodiversity, apart from providing burial places for the deceased. The comprehensive effectiveness includes the embellishment effects, ecological effects and environmental benefits apart from the social effects of the cemeteries.

In terms of historical and cultural values, the cemetery is a special form of historical archive, and a gallery of architecture, designing and sculpture arts. The cemetery recorded both the historical movements and the evolution of science and

technology, as well as arts. Walking in it is like walking in the time tunnel. Therefore, many cemeteries in Denmark provide citizens and visitors with free introductory materials about the great men buried in the graveyards. For example, the Assistens Cemetery, the burial place for the famous Danish fairy tale master Hans. Christen. Andersen (1805-1875), famous philosopher Søren Kierkegård (1813—1855, father of Existentialism), as well as physicist and Nobel-prize winner Niels Bohr (1885-1962), has now become a major tourist attraction in Copenhagen (Fig 4-45, 4-46). In terms of environmental and ecological protection, the cemeteries forbid the use of herbicides and pesticides in their maintenance, so as to prevent the environment and ecology from being jeopardized. The cemeteries have also become important libraries for plant species by bring in and cultivating plants according to careful planning. For instance, the Vestre Cemetery has introduced more than 50 species of rare plants[281]. The large variety of plant species and the favorable environment provide habitats for small animals, birds and insects, and at the same time provide citizens with an ideal place to go for sports and the exposure to nature (Fig. 4-47).

Fig. 4-45 The grave of H C Anderson in Assistens cemetery (left)

Fig. 4-46 Visitors at the grave of H C Anderson in Assistens cemetery (right)

[281] Københavans Kommune – Centre for Kirkegårde, Vestre Kirkegårde. Cemeteries Authority, City of Copenhagen, 1st edition 1995, reprinted in 1999 and 2001.

Besides, through careful planning and designing, the Danish cemeteries have been playing an effective role in aspects such as beautifying and protecting the environment, and maintaining the ecological balance.

4.3.3 The forms of the cemeteries

4.3.3.1 The Overall Layout of the Design

The overall planning of the Danish cemeteries mostly adopts regular layouts where the roads and grave units are arranged in lattice structures, and are often placed symmetrically. Such design does not only fully utilize the land, but also facilitates the transport system in the cemetery (Fig. 4-48, 4-49). Even in those modern cemeteries reconstructed from old graveyards, regular layouts are adopted, and you can see the traces of each expansion from the layouts of roads and graves. Initially built in 1753, the Assistens Cemetery has expanded into a large cemetery with an area of 20 hm^2, from merely a few hectares (see the section A in the lower right corner of Fig. 4-49)[282].

Fig 4-47 people picnic at Assistens cemetery

[282] Københavans Kommune – Københavans Kirkegårde, Assistens Kirkegårde – Assistens Cemetery. Cemeteries Authority, City of Copenhagen, 1st edition 1995, reprinted in 1999 and 2001.

The roads in the park are usually divided into three classes. The main roads usually have asphalt surfaces and a width of 2.5-4.5 m (some roads are as wide as 5-6 meters in Vestre Cemetery and Bisperjerg Cemetery). Vehicles are banned from all cemeteries except the Bisperjerg. The side roads are usually 2 to 3 meters wide, paved with sand, gravels, slates or stone bricks. The paths vary from 0.5 to 2 meters wide, mostly paved with white gravels while some are grass paths. In terms of the composing units, the graveyards are divided into burial areas, grave districts and graveyards. Generally, the burial areas are arranged along the axis of the main road, while the grave districts and graveyards are symmetrically placed around the axis of the side roads and paths. Under common circumstances, the burial areas and grave districts are also designed in regular patterns, especially for the grave districts, in which every tomb has the same format. Besides, some regular-shaped small spaces are often designed in the cemeteries for people to use in activities and recreational purposes.

Fig. 4-48 The map of Vestre cemetery (left) (Source: http://www.3.kk.dk)

Fig. 4-49 The map of Assistens cemetery (right) (Source: http://www.3.kk.dk)

The regular patterns of the designs were also achieved through utilizing terraces, ramps and stairs in accordance with the specific terrain conditions of the

cemeteries. The Vestre Cemetery, for instance, resembles a rectangular lying from east to west, with higher terrain in the middle and lower on both sides. The lowest part in the west was 6 meters lower than the central part. Meanwhile, the south part was also lower than the north, with an altitude disparity of 2 meters. Therefore, the cemetery took the form of a terrace garden, with stairs and ramps as connection and transition. The west part of the cemetery was designed as two stories of 30m wide terraces. In addition, curved or diagonal roads were designed for the cemetery to create changes and diversification, as well as to avoid the rigid look of straight roads.

4.3.3.2 The Freestyle Design of the Details

On the basis of regular overall layout, the Danish cemeteries adopted freestyle designs in the details. This is firstly showcased by the interior design of the grave districts where symmetry and asymmetry coexist, and variety is brought by the randomness of the layout. Secondly, such freestyle can be seen in the creation of natural landscape in the cemetery parks. For example, when the Vestre Cemetery was redesigned by Charles Ambt and Hans Jørgen in 1883, a natural-looking lake was designed out of a swamp in the center of the park, and the removed soil was made into a hill. Such landscaping techniques have added a touch of vividness and closeness to the cemetery. The cemetery has been chosen by many artists, scientists and politicians as their final destination, and thus having been called a honorable cemetery. In addition, small landscapes including monuments, pavilions, pergolas, ponds, sculptures and vegetated alters (Fig. 4-50) are often used in the cemeteries to enrich the sceneries. The freestyle is also shown by the scattered trees and vegetation. Different from uniformly planted road side trees, these plants have filled the cemeteries with a variety of colors and forms.

The fact that the design of the details is partly accomplished by the users of the cemeteries also demonstrates the freestyle quality. As regulated by the Danish

cemetery management authorities, the boundaries of the graveyards offered to the users are defined with green fences, and the users may plant trees and flowers within the boundaries. In general, most users would fully utilize this limited area through careful designing, planting the trees and flowers that were most beloved by the deceased or that can demonstrate the love of the living to the passing. In this way, a unified grave district can demonstrate a wide various of beauty, making the cemetery an exhibition of landscape designs while enriching and refining the overall design of the cemetery (Fig. 4-51). This is especially true for old burial areas where the saplings have grown into tall trees and have become an important part of the cemetery landscape.

Fig 4-50 The sculpture, trimmed green fences and trees at Brønshøj cemetery (left)

Fig. 4-51 A view of Brønshøj cemetery (right)

4.3.4 The Design of the Plants in the Cemetery

4.3.4.1 Choices of the Plants

Despite its high latitude, Denmark has an average temperature of 0℃ in January and February, and 15.7℃ in August, thanks to the seas on three sides (the North Sea and Baltic Sea). Located in temperate climate zone and coupled with good soil conditions, Denmark boasts a wide variety of plant species. In terms of floristic phytogeography, Denmark belongs to 2 subtypes, namely the Atlantic

mixed forests and Baltic mixed forests.[283] Therefore, the plant use of cemeteries enjoys a wide range of choices. Meanwhile, as Europeans have a tradition to collect rare plants, the cemeteries enjoy a rich variety of plants like botanic specimen exhibitions. Danish cemeteries consist mainly of evergreen trees, complemented with deciduous trees and shrubs. Among the evergreens, the most commonly used types are the pine, cedar, cypress and other coniferous species, including the Chinese pine, black pine, white pine, fir, yew, hemlock, Japanese cedar, arborvitae, American arborvitae, juniper, Cedrus and so on. Apart from those tall trees, some shortened species of evergreen coniferous trees are also widely used in cemeteries. Evergreen broad-leaved trees include rhododendron, holly, boxwoods and so on. Commonly used deciduous tree speciesinclude the larch, ginkgo, oak, linden, birch, willow, poplar, elm, maple, walnut, yellow pineapple, Liriodendron, Cyclobalanopsis glauca and beech. The shrubs include the Magnolia, lilac, rose, bloom, pear, cherry, plum, apple, plum, elderberry, forsythia, honeysuckle, Caragana arborescens, Spiraea, sumac, Xylosma racemosum, etc.When choosing the trees for the cemeteries, the planners did not only consider the landscape, but also took into consideration people's needs of appreciating the trees, smelling the flowers, enjoying the fruits and observing the leaves. Moreover, with the wide use of herbaceous plants such as lawn grass, ferns and flowers, aquatic plants such as lotus, reeds and rushes, and vine plants such as ivies, clematis and grape vines, the plants in the woods, beneath the woods and on the ground have been connected together, adding a brilliant touch to the cemetery.

4.3.4.2 The Forms of Plant Use

The method used to plant the trees is the major part of the form of plant use in a cemetery. In Danish cemeteries, trees are mainly planted in forms of coupled planting, row planting, belt planting, cluster planting and solitary planting. Couple

[283] Denmark, http://en.wikipedia.org/wiki/Denmark.

planting is often used in various nodes, to highlight the scenery or serve as signs. Row planting is mainly used for the greening and embellishment of road sides and cemetery surroundings. For example, Sundby Cemetery mainly uses birches and apple trees; Assistens Cemetery uses lindens, white pines and oaks; while Bispebjerg Cemetery mainly uses white pines, spruces, and C. glaucas. Belt planting is commonly used to separate the spaces, and it often takes the forms of separation walls, belts and lines. Arborvitae, boxwood and oak trees are often used for belt planting. The separation walls, often of 1.8-2.0 m high and 0.6 m wide, are used to divide the burial districts and block the views. The separation belts have a average height of 0.5-1.5 m and a width of 0.3-0.5 m, and are used to separate smaller districts, while the separation lines are 0.3-0.5 m tall and 0.1-0.3 m wide. Carefully trimmed separation walls and separation belts are not only a form of spatial segmentation and a measure to create solemnness, but also a demonstration of beautiful trimming techniques (Fig. 4-53). The cluster planting and solitary planting are mainly used to create landscape sceneries. Thanks to the long history of Danish cemeteries, many trees have already grown into such towering trees that sometimes one tree can create the magnificence of a forest.

Fig. 4-52 A view of pool with lotus and graves at Vestre cemetery

Fig. 4-53 A view of sections with hedge at Sundby cemetery (right)

Vegetation arrangement is not only an essential part of plant design, but also a major landscaping technique. In his work "*The International Book of Trees*", British scholar Hugh Johnson categorized 4 types of tree arrangements in the garden: urban style, classical style, pastoral style and romantic style.[284] The urban style is often used for street greeneries, presenting a beautiful rhythm of uniform types and sizes. The classical style emphasizes purity and simplicity, and pursues a beautiful coordination between the buildings, the plants and the environment. The pastoral style embodies the natural yearning for the countryside and homeland, and demonstrates the classic beauty of suburban plants and pastoral environment. The romantic style stands for the exploration of novelty and innovation while creating a fantasy of various plants in a limited space. All of the four types can be seen in Danish cemeteries. The urban style is used in the overall planning, while the other types of tree arrangement are dispersedly used in different areas of the cemeteries (Fig. 4-54, 4-55, 4-56, 4-57). Generally speaking, the plant arrangement of Danish cemeteries emphasized the combination between different species, such as between evergreens and deciduous, between coniferous and broad-leaved trees, between single-leaved and compound leaf plants, between green leaves and coleus, between flowers and ornamental fruits, etc. The planners also pay attention to the combination among different tree shapes, including vase-shaped trees, tower-shaped trees, conical trees, cylindrical trees, irregular-shaped trees and sagging-shaped trees. Attention is also paid to the mixture among different levels, such as trees, shrubs, vines, ferns and herbs, as well as mixture among leaf colors, such as dark green, light green, gray, orange, red, purple, gold and coleus, etc., so as to fully take advantage of the morphological, ecological and physical characteristics of different plant species

[284] Hugh Johnson (1999). The International Book of Trees [M], Chancellor Press, London, p248.

(Fig. 4-58). In addition, in some cemeteries, trees are often trimmed into different geometric shapes to enhance the beauty of the park.

Fig. 4-54 A view of classical style landscape at Vestre cemetery (left)
Fig. 4-55 A view of pastoral style landscape at Bispebjerg cemetery (right)

4.3.4.3 Maintenance of the Plants

As part of the social benefit system, Danish cemeteries shoulder the public interest, and are thus in charge of a specialized government authority, the Center of Cemetery Administration (Centre for Kirkedaarde, in Danish). The graves are generally leased to the family friends of the deceased, with a relatively low rent. For example, a cluster grave usually covers an area of 1.5~2 m^2, and costs an annual rent of 200 Kroner (approximately 300 RMB). The lease term of a grave is usually 10 to 20 years, and can be renewed after expiration. During the lease term, the user is responsible for the regular maintenance (watering, pruning and refilling) and cleaning-up (eliminating the weeds and dead plants) of the plants grown or placed within the grave area. For example, the Sundby Cemetery requires the users to clean up the graves at least twice a month. Of course, for the users who cannot fulfill such requirement due to work, health or migration reasons, they can pay the cemetery staff to do the maintenance.

Fig. 4-56 A view of romantic style landscape at Sundby cemetery (left)

Fig. 4-57 A view of pastoral style landscape at Bispebjerg cemetery (right)

Fig. 4-58 The color combination of trees at Brønshøj

Each cemetery has different number of staffs who take charge of the regular planting, trimming, watering, and other maintenance of the plants in the cemetery park, as well as the hygiene and security of the park. The complete management system and the highly qualified staff, including some experts in landscape architecture and plant application, are the reasons why Danish cemeteries have been able to maintain a solemn, neat and beautiful environment.

4.3.5 Conclusion

The cemetery is the final destination of life, and the permanent home of the deceased. In terms of its social functions, the cemetery is of great significance to both the deceased and the living. Therefore, the planning, designing and management of the cemeteries is an important part of the social benefit system of Denmark. In contrast, though our nation used to have the custom and tradition of elaborate interments, such tradition has been largely streamlined and weakened due to various factors and constraints, with the changes of times and progress of the society. Due to historical reasons, the planning and construction of public cemeteries has a relatively short history in our country, and the number of social welfare cemeteries has been declining. Driven by economic interests, commercial cemeteries have experienced rapid growth over the last decade, partly fulfilling the public needs. Judging from the trends of the diversification of social values and the revival of traditions, the public demand for social beneficial cemeteries will continue to rise in the future. Therefore, it is of practical significance for us to draw experience from the designing and management of Danish cemeteries, and to design and construct the cemeteries suitable for our national conditions.

4.4 The Historical Development of Danish Playground and Inspirations

Abstract: In this paper, through reviewing and exploring its evolution, the author reveals the results of construction and development of Danish children playgrounds in its different phases from its origins in the middle of 19 century to modern times. And then, the author introduces Danish landscape architect Sørensen' idea and style for his "Advantage Playground", and his unique influence and contribution in Denmark and abroad. Finally, the author points out several inspirations from Danish experiences including social concerns, government domination, legal protection and design innovation for developing and building Chinese children playgrounds with our own identity.

Key words: Denmark; children; playground; development of history; unique contribution; inspirations

Playground is an important part of city public space and also one of the important material environments for the best growth of children. It can provide children with not only a place of entertainment, but an environment to have more contact with the outside and improve techniques as well. With the marching of times and the development of society, Denmark has accumulated rich experiences in planning, constructing and managing children's playground and has formed its unique feature through 100 years of efforts. With the 30-year rapid development of Chinese economy and society, construction of children's playground in China has aroused people's attention gradually. The development experiences of that in Denmark might bring us some beneficial inspiration so that we can better build Chinese-characterized children's playground.

4.4.1 The development history of Danish playground

The development history of Danish playground can be divided into four periods; Starting period from late 19th century to 1920s, booming period from 1930s to 1940s, steady increasing period from 1950s to 1970s and improving innovation period from 1980s till now.

4.4.1.1 The rise of Danish playground

In the early stages of industrial society, the city of Demark and other surrounding open space were used to cope with the housing demand for rapid growth of population and were not attended to the needs of playground just like many other European cities at that time. For example, playground was still an unfamiliar concept in Copenhagen before 19th century. At that time, narrow streets and small open space around houses with poor conditions of light and ventilation have become the main place for children to play (Fig. 4-59). For elder children, open space between buildings became their playgrounds. In the 19th century, there was a rapid expansion of population (increased from 100 thousand

by the 18th century to 144,000 in 1850 and to 358,000[285] in 1900) and city size due to industrial and commercial activities. By the mid-19th century, the original castle fortress and moat for military defense was abandoned and the neighboring children used these places as their own natural playgrounds. In November 1867, citizen representative, Economics professor William Scharling, proposed that children's playgrounds with protective facilities should be set up in the park. Architect Prof. Ferdinand Meldahl supported the proposal and suggested that the ruins of fortress be leveled into playgrounds.[286] With the emergence of carefully-designed Ørsted Parken on the ruins of an abandoned fortress and moat in 1897, the city of Copenhagen had its first public playgrounds.[287] However, the playground was located in the corner of the park with only 14X20 feet (approximately 4×6 m) size, and was open only for upper-class families. There was another larger playground in this park around 1890.[288] During 1870 to 1885,the Copenhagen municipal government built a large playground in Østre Anlæg with a variety of ball games carrying out on the lawn, which makes it a playground for children who had no opportunities to go to playgrounds before. Thereafter, in 1891, the establishment of Playground Association by writer Rigmor Bendixevoked concerns and enthusiasm for building playgrounds. In the following August, the city built the first public playgrounds with facilities like swings, seesaws and balance beam (Fig. 4-60). By 1907, the number of playgrounds in Copenhagen has reached eight.[289] The number reached 22 by 1913 with all kinds of efforts (Fig. 4-61, 4-62, 4-63, 4-64).[290]

[285] T. Kidokoro, N. Harata, L. P. Subanu, J. Jessen, A. Motte, E. P. Seltzer edited. Sustainable City Regions: Space, Place and Governance, Springer, Japan, 2008, p204.
[286] Playground's history. http://www.kk.dk/Borger/ByOgTrafik/GroenneOmraader/Legepladser.aspx&hl=da&langpair=auto|en&tbb=1&ie =utf-8. [2009-3-15]
[287] Ibid.
[288] Historien om Københavns Offentlige Legepladser. Stadsgartnerens kontor, Stadsingeniorens direktorat. Københavns, Okt. 1989, p6.
[289] Ibid, p11.
[290] Ibid, p12.

Fig. 4-59 The urban street situation in the mid-19century of Copenhagen (left),

(Source: Historien om Københavns Offentlige Legepladser)

Fig. 4-60 The upper class children with their parents at playground in Ørsted Parken in 1890 (right),(Source: Same as Fig.4-59)

Fig.4-61 The upper class children with their parents at playground in Kongens Havnin 1900 (left);(Source: Same as Fig. 4-59), Fig. 4-62 Children play at backyard in slum block (right),(Source: same as Fig.4-59)

Fig.4-63 Children play at community playground in 1908 (left); (Source: Same as Fig 4-59)

Fig. 4-64 Children play at Fællledparken playground in 1914 (right) (Source: Same as Fig 4-59)

Generally speaking, the emergence of Danish first playground was about the same time as the emergence of the first one in Britain in 1877 (built in Burbery, England) and the first one in the United States(built in Boston).[291]This period was mainly exploratory stage of the construction of the playground and necessary experience was accumulated for later development.

4.4.1.2 The development of Danish playground

1930s and 1940s, especially the Second World War period, were the hard time for the development of European countries. However, it was the developing period of Danish playground. Still take Copenhagen as an example. During this period, although the children's population(under the age of 15—Note by Author)[292] in this city increased from 120,000 in 1913 to 130,000 in 1939 [293], the number of public playground increased to 50 in 1936 and then 109 in 1947, thus laying the basic pattern of playgrounds of the city.[294] The increase in the number of playground is inseparable from both the huge efforts of urban management department in site selection and financing and the attention and support of the community, which also reflects the foresight of Danish society on the future development of their own nation.

In addition to the construction of public playgrounds, the Copenhagen City equipped the major playgrounds with full-time specially-educated game instructors and the number of instructors increased as the number of playgrounds. The number of game instructors was 7 in 1939, 10 [295] in 1943 and reached 18 [296] in 1967. Their major work is; Firstly, provide guidance and help for children's activities. Secondly, keep order of the playground and the safety of the children.

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291 Helen Woolley, Urban Open Spaces, Spon Press, London and New York, 2003, p73.

292 Historien om Københavns Offentlige Legepladser. Stadsgartnerens kontor, Stadsingeniorens direktorat. Københavns, Okt. 1989, p12.

293 Ibid, p14.

294 Historien om Københavns Offentlige Legepladser. Stadsgartnerens kontor, Stadsingeniorens direktorat. Københavns, Okt. 1989, p14.

295 Ibid, p16.

296 Ibid, p18.

Thirdly, check and maintain the playground and game facilities. According to data in 1939, for example, every game instructor gave guidance to average 135 children per day in summer and 65 in winter.[297]

While the public playgrounds were under construction, the Copenhagen city also make full use of legal means to give requirements on new residential construction projects in order to promote the development of the playgrounds in residential area. According to the *City of Copenhagen Building Act* adopted on March 29th, 1939: playgrounds should be built in the construction of residential projects with more than 8 families and the site be separate from courtyard for other uses.[298]This rule played a significant role in improving the condition of game for children who live in the residential areasand gradually changed the situation of lacking dedicated playground.

4.4.1.3 The Enhancement of Danish Playgrounds

After World War II, 1950s to 1970s was the critical historical moment when Danish economy and society were transformed from agricultural to industrial. With the establishment and improvement of the country's social welfare system, the change of public lifestyle, the improvement of life quality and the development of playgrounds in Denmark also entered a new phase. First of all, ensure the development of playgrounds by means of legislation. In the *Town and Country Building Act*implemented on March 1st, 1961, it is proposed that a certain amount of open space be planned and reserved for playgrounds in the planning and design stage of the proposed housing.[299] In order to solve the lack of funding and management issue raised when first building public playgrounds, the *Children and Juvenile Welfare Act* was enacted in June, 1964. The Act requires that departments and social organizations that related to children and youth welfare at

[297] Historien om Københavns Offentlige Legepladser. Stadsgartnerens kontor, Stadsingeniorens direktorat. Københavns, Okt. 1989, p16.
[298] Jens Sigsgaard. The Playground in Modern Danish Housing, Danish Foreign Office Journal, No 54, October 1965, p4.
[299] Ibid, p4.

all levels work together to ensure the good operation and functioning of all kinds of playgrounds, leisure venues (including communities and schools) with social education. The Act also regulates that 45% of the required funds for playgrounds is borne by the central government, 35% by the local government and the rest by other institutions and organizations. Besides, 4/7 of the mortgage loans and interest used for venue construction should be borne by the central government and 3/7 by the local government.[300]

Secondly, establish a network system with neighborhoods as basis, public space(including playgrounds in communities and green parks) as backbone, and venue from agency subsidiaries as complementary so that children of all age groups can use the nearest space to carry out their favorite games. This network system means that the focus of the development of playgrounds transferred from the rational layout of playgrounds and ensuring children's basic rights to play at the beginning to the improvement of both site conditions and facilities and the quality of the games and making it the second classroom for children's growth.

Furthermore, establish professional associations for playground planning and designers. In 1959, Danish Playground Association was established and Danish famous modern Landscape Architect C. Th. Sørensen (1893 -1979) was named chairman.In 1961, International Play Association was set up in Copenhagen, aimed at protecting children's right to play and promoting the development of the playgrounds. Sørensen was elected as the first President. The establishment of professional associations put on the right track the plan and design of playgrounds and provided the designers with a platform to exchange ideas and learn from each other.

Fourthly, actively carry out research work related to children's games and playgrounds. On the one hand, studying the preferences of children's game

[300] Jens Sigsgaard. The Playground in Modern Danish Housing, Danish Foreign Office Journal, No 54, October 1965, p5

provides reference for planning and designing to improve the attractiveness of the playground and the facilities. On the other hand, studying the references can prevent and reduce the occurrence of accidents in the course of the game, thus improving the safety of the playground and the facilities.

Fig. 4-65 A view of courtyard in Vesterbro, 1960s before renewal (left),（Source：Træk af Byens Ansigf 1938-1978, p40）
Fig. 4-66 A view of same place in 1970s after renewal (right), (Source: same as Fig 65)

During this period, there were 200 public playgrounds in the Copenhagen City and 80 game instructors (1978).[301] This not only fundamentally changed the condition and environment of children's outdoor games, but also provided more facilities. As for the status quo that playgrounds were poor in the old neighborhoods that have high density, small space and poor environment especially those built in 1880s and 1890s, buildings and fences in the backyard of the old residential area were dismantled in conjunction with urban transformation since 1970 so that the courtyards were connected into open space and opened up more new playgrounds (Fig. 4-65, 4-66). Since the old game facilities are simple and mostly steel structure, more playgrounds of different kinds were being built to meet the needs of children with different age group. At the meantime, the design of the facilities used brighter color, more cartoon shape and wood and soft materials (such as rubber, rope, etc.). Also, traffic playgrounds that enable

[301] Magistrateens 4. afdeling, Træk af Byens Ansigf 1938-1978 (Teature of the City's Face), Kobenhavn, 1978, p61.

children to be familiar with all kinds of traffic rules were designed and built due to the sharp increase of the private cars and deterioration of traffic. In 1965, there was the Europe's largest "animal feeding" playground in Remiseparken which gave children access to tame animals such as poultry and livestock.

4.4.1.4 The Improvement of Danish Playgrounds

After entering the 1980s, especially since 21st century, the development of Danish playgrounds stepped into a more mature stage with the further transformation of Danish economy and society. During this time, on the one hand, the form and content of children and teenager entertainment and games changed dramatically since the rise of mass media and the popularity of the computer. Parents and educators are concerned with the addiction to TV and electronic games. Voice for increasing outdoor activities and games are higher. On the other hand, people are more demanding with quality of public space, green parks and living environment. In this context, people had higher expectation on the development of playgrounds, thus promoting the integration between the development of Danish playgrounds and the construction and improvement of green park system, and urban transformation and renewal project and the requirement of adults' place for creation, entertainment, fitness and cultural communication. The development of Danish playgrounds has enter the stage where the focus shifts from concerns for rational layout, beautiful form and complete function to concerns for environmental construction, innovative design, renew and reconstruction and scientific management, embarking on the road that is consistent with social development, civil requirement and the idea of sustainable development.

Tab. 4-4 The evolution of playgrounds in Copenhagen[302]

Time	No. of playgrounds	No. of managers
1907	12	1
1913	22	4
1950-59	137	15
1960-69	125	-
1975	166 a	-
2000-09	129b	25

(Source: a. Stadsingeniorens direktorat, Redaktion (editional) Stadartnenerens Kontor, Offentlige Legepladser i Kobenhavn, september 1975; b. Helle Nebelong. Designs on Play. Available from http://www.freeplaynetwork.org.uk/design/index.htm.)

In the Copenhagen City, although the number of children had rebounded in the 21st century (from 55,000 in 1995 to 75,000 in 2005[303]) , some small playground of low usage was integrated or dismantled due to the road construction. This decreased the number of playgrounds. In 2009, there were 129 playgrounds [304] and 25 game instructors (Tab. 4-4, Fig. 4-67). The number of playgrounds and game instructors decreased but the human and material invested in the development didn't decrease and the construction and redesign of the playgrounds were important measures to promote playgrounds. Merely the investment of the municipal government in redesign and reconstruction for public playgrounds reached 3 million US dollar per year.[305]

[302] Historien om Københavns Offentlige Legepladser. Stadsgartnerens kontor, Stadsingeniorens direktorat. Københavns, Okt. 1989.
[303] Copenhagen City. Statistical ten-year review 2005, http://www.kk.dk/FaktaOmKommunen/KoebenhavnITalOgOrd/StatistikOm Koebenhavn OgKoebenhavnere/UdgaedePublikationer/BlandedePublikationer/~/media/332C4F5D993F4B64A5054D413EB3C9E7.ashx. [2009-7-18]
[304] Helle Nebelong. Designs on Play. http://www.freeplaynetwork.org.uk/design/index.htm. [2009-5-15]
[305] Niels Tørløv. A Lifestyle Choice (An Active living Research Conference 2009). http://www.activelivingresearch.org/files/2009_ InternationalPanel_Torslov.pdf. [2009-7-18]

Fig. 4-67 The map of children playground in Copenhagen (red dot) (Source: Managerial Center of park and nature, Copenhagen)

During this period, the Danish playgrounds formed 6 styles with its unique characters; traditional, modern, adventure, natural style, Robinsonstyle and romantic style playgrounds. The traditional playgrounds had structured design techniques, regularized configuration and embodied style in the late 20th century (Fig. 4-68). The modern playgrounds adopted new technologies in design and new materials in construction, more focused on the children's needs for novelty games(Fig. 4-69). The adventure playgrounds are places that provide children with a certain size of space and tools and materials to play with under the guidance of the instructors (Fig. 4-70). The natural style playgrounds used timber, dead trees, sand, stones and plants as materials for site design and facility construction. This kind of playgrounds was quite local and rustic, satisfying people's needs to contact the nature (Fig. 4-71). The Robinson-style playgrounds were built in non-fixed and non-regularized way. They used specially-processed log to decorate and build gaming facilities to create the artistic conception of adventure and wilderness (Fig. 4-72). The romantic style playgrounds with exaggerate design and site construction created dramatic scenes and vivid game

environment (Fig. 4-73). The adventure, natural style and romantic style playgrounds were more vivid and charming among them.

4.4.2 The Impacts and Contributions of Danish Playgrounds

The influence and contribution Danish playgrounds made to the world lie mainly in the design of sites and facilities, especially famous for the creation of "Adventure Playground", which has changed the way of games for several generations of children and enriched the games. The explorer of this kind of playgrounds is Danish Landscape Architect C. Th.Sørensen.

4.4.2.1 The Appearance of "Adventure Playground"

In the beginning of the 20th century when Danish playgrounds reached a considerable scale, people started to be disappointed by the identical in design and standard facilities what was popular then. In this context, Sørensen published in 1931 *Park Policy in Parish and Town*. In this book, "the landscape architect's design includes entertainment place and playground, school garden, sports place..."[306] In the book, he also mentioned the idea of "Junk Playground". He wrote, "To some extent, we should experience what is called 'Junk Playground'. I think, for elder children to play games, we could use a larger area separated by dense vegetation and collect some litter for children in the residential buildings to play as children in the rural area do. Litter could be trimmed branches, old crates and planks, scrapped cars and tires as well as other things."[307]

[306] C. Th. Søresen.Wikipedia. http://da.wikipedia.org/wiki/C.Th._S%C3%B8rensen. [2009-5-8]
[307] Nile Normen. Pockets of Disorder, The Hoistory of Adenture Playg, http://www.cityprojects.org/cityprojects_content.php?id=167&=9. [2010-5-15]

Fig. 4-68 A playground at Horenhanns community in Copenhagen (left)

Fig. 4-69 A playground at Fredensgads street in Copenhagen (right)

Fig 4-70 A view of adventure playground in Copenhagen (left)

Fig 4-71 A natural style playground in Frederiskborg (right)

Fig. 4-72 A Robinson style playground in Horenhanns, Copenhagen (left)

Fig. 4-73 A Romantic style playground at Østre park in Copenhagen (right)

They could make use of all kinds of waste materials to carry out and perform their creativity and imagination, such as building houses, hiding holes, gardens and even constructing road. All his thoughts were very consistent to the idea" learn from practice" by American famous educationist John Dewey (1855-1952). These thoughts were the origin of the Adventure Playground campaign. Soon after, he and Hans Dragehjelm (Hans Dragehjelm, 1875-1948, a Danish teacher), together with Workers Cooperative Housing Association designed and built the first "Litter Playground" in Emdrup town, northwest in Copenhagen. The project started from 1938, and was open to public in August, 1943. The place was covered with green grass and had an area of 6000 m^2. The place had an entrance and was surrounded by soil 2 meters high. There were plants outside of the soil embankment.[308] There were restrooms, tool room, indoor workplaces, warehouses etc. and materials such as scrapped cars, old furniture, trashed wood, bricks. Children can either play in the rooms or carry out activities like building houses under the guidance of game instructors (Fig. 4-74). This place was warmly-welcomed by children and attracted about 900 children per day at that time (Fig. 4-75).[309]

Fig. 4-74 The houses made by children at adventure playground (right) (Source: Huts, Emdrup Adventure Playground, Copenhagenhttp://www.flickr.com/photos/rethinkingchildhood/674836196/page2/);

Fig. 4-75 Children play at adventure playground in Emdrup 1949 (left) (Source: Legepladsproblemer,http://haabet.dk/users/willy_f_hansen/legeplads.html)

[308] Helen Woolley, Urban Open Spaces, Spon Press, London and New York, 2003, p5.
[309] The History of adventure playground. http://www.adventureplay.org.uk/history.htm. [2009-7-20]

This new kind of playground aroused the interest of Johe Bertelsen (1917-1978, psychologist, educationist for children, the person in charge of Emdrup playground). He played an important role in the later prevailing of this kind of playgrounds. He wrote in his diary after visiting the playground in 1946 that, "Adventure Playground" (changed into this name when the diary was translated to English) is a replacement of playground for urban children. Since the city has no room for children to use imagination and play, they can only develop their potential in the playgrounds."[310] More and more "Litter Playgrounds" of different kinds showed up in Demark after Sørensen.

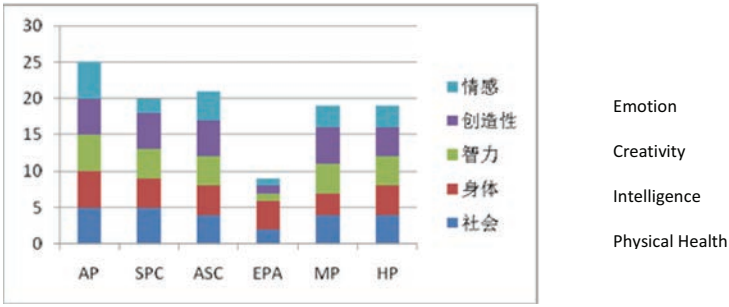
4.4.2.2 The spread-out of "Adventure Playground"

The appearance of "Litter Playground" is not only an innovation of playground form but also enrichment for education method for children. In 1946, shortly after World War II, Lady Allen of Hurtwood (1897-1976, formerly known as Mariory Allen, British Landscape Architect, Sponsor and first Director General of World Organization for Early Childhood Education), chairman of Nursery School Association of Great Britain, visited this playground companied by John Bertelsen and gave a high remark when traveling around North Europe. When back in Britain, Lady Allen gave introduction to the public by public speech and articles. This new design aroused people's concern not only in Britain but also Switzerland and Germany and formed a wave of building this kind of playground in 1950s and 1960s. Many countries established associations to study, improve, and popularize this new phenomenon. However, since the time when "Litter Playground" was called "Adventure Playground",Sørensenbecame the Pioneer of this kind of playground. There are about 1000 playgrounds of this kind in Europe now, scattering at Denmark, Switzerland, France, Germany, Holland, Britain, etc. Germany alone has 400 playgrounds,[311] while

[310] John Bertelsen. http://www.adventureplay.org.uk/johnbertelsen.htm. [2010-4-25]
[311] Adventure Playgrounds: Achildren's world in the City. http://adventureplayground.hamshire.edu/history.html. [2010-2-5]

London has more than 80 playgrounds.[312] (Anothersource shows that there were 100 playgrounds in London in 1977, and 150 playgrounds in other places of Britain.[313]). In Denmark, there had been more than 100 playgrounds by 1970s.[314] 10 "Adventure Playgrounds" are still preserved in Copenhagen at present.[315] Besides, Japan, the United States and Canada have this kind of playgrounds too.

Due to the change of times and conditions, the form and context of games changed after reached its peak in the mid of 1970s. "Adventure Playgrounds" moved into a smooth developing period. Although this kind of playgrounds was once been resisted concerning its safety, it made undeniable efforts in reforming the design of playgrounds. Its popularity itself explained its necessity and reasonableness (Fig. 4-76). Later, "Natural Playground", with its "Free Play" idea (contrary to "Fixed Play" idea—Note by Author), also had a close relation to the design of Sørensen.



Note：AP- Adventure Playgrounds, SPC-Staffed Play Centers，ASC-After School Clubs, EPA-Equipped Play Area, MP-Mobile Playground, HP- Holiday Playschemes (Source：PlayAction Guide, http://www.fairplayforchildren.org/pdf/1200486832.pdf.)

Fig. 4-76 A survey on different kinds of children's playground in Canada shows thatthe adventureplayground got the only full score for all 5 criteria

[312] Adventure Playgrounds. London play working for a capital where all children can play. http://londonplay.org.uk/document. php?document_id=40.[2010-7-10]
[313] A little bit of history, Londonplay – working for a capital where all children can play. http://londonplay.org.uk/document. php? document_id=1140. [2010-5-10]
[314] Jeppe Villadsen. Children play with rubbish, http://kulturikanon.kum.dk/Childrens-culture/Building-Playground/. [2010-5-11]
[315] YNKB TEMA6. Adventure Playgrounds Copenhagen 2003. ISSN 1602-2815. http://www.ynkb.dk/pdf/tema6a4.pdf. [2010-5-21]

4.4.3 The inspirations from Danish playground development

The course of development of Danish playgrounds brings us useful inspirations. Generally speaking, the promotion of the construction of playgrounds is inseparable from social consensus, government guidance, legislation and design innovation.

4.4.3.1 Social consensus is the basis of development

Games are important in children's growth and children's lives. Therefore, playgrounds are the important guarantee of children's rights and welfare. "If the youth are wise, the nation will be wise. If the youth are strong, the nation will be strong." To some extent, to provide children with a playground with good environment and safe and convenient facilities is to pave the way for prosperous nation, social development and country's future. Many factors constitute the volatility and creativity of Denmark. Yet, it cannot be neglected that good growing environment of children might be the basis for everything. Comparably, China has a long way to go on the design and construction of playgrounds due to historical and social reasons. Playgrounds are far from enough. Thus, our society should concern about the importance of developing playgrounds, create an atmosphere where the whole society care about site planning of playgrounds and devote ourselves to a better growth environment of the next generation.

4.4.3.2 Government guidance is the key to development

Denmark's experience shows that if governments of all levels regard playgrounds as an important part of social welfare and city infrastructure, with careful planning, construction and managing, the whole society would receive huge benefits with the healthy growth of generations after the war and the progress of the whole country, whatever its economy is, developed or underdeveloped. After 30-year construction, China has created and accumulated

huge social wealth to provide good conditions for the promotion of playgrounds. Governments of all levels should bear a sense of mission to shoulder the responsibility of promoting the playgrounds under the situation of constructing harmonious society and socialist market economy. Therefore, we should make realistic policies for developing playgrounds in our country, strive to do all the work of the organization, planning, construction and management in order to ensure the game rights of children, just as what we do for infrastructures like energy, transportation and communication.

4.4.3.3 The improvement of law is the core of development

Ruling the country according to the law is one of the principles of the development of the modern society. Denmark has set a good example in the construction of playgrounds. We should improve the law and regulations about site planning, design and construction of the playgrounds as soon as possible nationwide. This includes setting up technical standards for different kinds of game facilities to make it an important social and charitable infrastructure construction supported and protected by law. It is extremely necessary and urgent to adjust and deal with the relationship between the construction of playgrounds and that of the municipal projects, residential area and schools by law especially during the current period of rapid development of urbanization. If we can make use of the current opportunity to build up a network system of constructing playgrounds, we can lay a good and firm foundation for future development of the playgrounds.

4.4.3.4 Design innovation is the guarantee of the development

Design innovation is the important source of the continuous development and innovation of Danish playgrounds as well as the major factor that attracts children and their parents to experience and visit. Relatively, China not only is short of playground designers, but also lags behind in research of related area. In site

design, we simply use other's experience. In game facilities design, we also have problems. Therefore, we should encourage landscape architects to broaden their minds and actively participate in playground design on the one hand. On the other hand, we should cultivate more talents of this area to solve the restraints of shortage of experts on the long run. At the meantime, we should also encourage professions of all areas such as teachers, artists, psychologists to cooperate with landscape architects to provide useful advice to their design. Landscape architects should also spend more time with children to understand their thoughts and needs to design playgrounds that serve them well.

4.4.4 Conclusion

As you can see from the course of development of Danish playgrounds, although the work targets and focus shifts with the change of historical conditions, from providing a safe game place at the beginning when living conditions were bad in the urban area to focusing on the quality of playgrounds and safety of the facilities later when children's welfare and rights are greatly concerned, the idea to focus on the happy and healthy growth of the next generation and the function and importance of the playgrounds to children's growth remains the same. If our society is able to treat this issue in this way, playgrounds will soon be on the right track of development

4.5Analysis of the art of designing in Danish Children Playground

Abstract: playground is an important place for both children and the community. Its design and construction level incarnates the city's image and progress on its way to civilization. In this chapter, four basic types and corresponding features of Danish playgrounds are first introduced. Then six designing principles, namely the safety, healthiness, attractiveness, edutainment, participatory and comprehensive consideration, are analyzed and summarized. Finally, diverse aspects of artistic characteristics pursued and embodied in the design layout are discussed, which include centralization or dispersion, regulation or latitude, simplicity or delicacy, with or without themes, natural or rigid look and modernity or conventionalism.

Keywords: Denmark, children playground, design principal, design layout

4.5.1 Introduction

Play, an intrinsic and essential part of children's life, is a vital way for them to mature physically and psychologically. Properly designed and well-equipped playgrounds are important premise and basis for children to involve in various play activities. Moreover, to children, playgrounds serve as both a place for entertainment and development, and a learning environment for them to practice communication skills, to be close to nature, and to foster talents. Hence, the playground in its planning, designing, building and managing does not only concern the healthy and sound growth of our next generation, but incarnates the city's image and progress on its way to civilization. In Denmark, a typical developed country, both government and community pay close attention to the design and construction of children's playground, which is deemed as a major public service and welfare cause. With judicial and financial guarantees and supports, playgrounds in Denmark achieved great success in all aspects such as planning, design, maintaining and management.

The United Nations Convention on the Rights of the Child defines a child as any human being under the age of eighteen.[316] In respect to the design of playgrounds, children are normally divided into four groups according to their age in the western: toddlers (between the age one and three), kindergarteners (between the age three and six), school-age children (between the age six and twelve), and teenagers (between the age twelve and eighteen).[317] Other scholars may divide children before school-age into four classes: zero through three, three through six, six through eight and eight through twelve.[318] In Denmark, children under fifteen

[316]FACT SHEET: A summary of the rights under the Convention on the Rights of the Child. http://www.unicef.org/crc/files/Rightsoverview.pdf.[2009-4-18]
[317]Marta Rojals del Alano. Design for Fun: Playground. LINKS international, Barcelona, Spain, 2003.
[318]KOMPAN PLAY INSTITUTE. http://www.kompan.dk/index.php/COR/KOMPAN-play-institute.html.[2009-3-17]

are considered the major users of the playgrounds, whose various needs are catered in the design and layout of the field.

4.5.2. Types of Children's Playground

After hundreds years of ceaseless effort since the systematic building in the twentieth century, Danish children playgrounds have formed a network architecture, in which residential land serves as foundation, public space (such as playground area in communities and parks) as mainstays, and institution field (such as playground area in kindergartens, schools, hospitals and churches) as supplement. According to a survey conducted in April, 2007 among 299 Danish children aged five to fifteen, 82.3 percent of them believed it was fairly easy to find a playground outdoor.[319] Such result indicated that the network could duly fulfill and suit the demand for children's playground.

4.5.2.1 Playgrounds in Residential Area

Currently, eighty five percent Danish citizens live in urban areas[320], seventy percent of whom live in residential housing estates of different kinds in the cities. Children playgrounds in those neighborhoods are normally invested and built by developers as matching facilities of real estate projects. Their maintenance cost, on the other hand, is covered by rent or property management fee. In the case of government-invested neighborhoods, the playgrounds will also be built by the government. As property management of Danish residential estate has strict respect for ownership, playgrounds inside the neighborhoods, especially ones adopting enclosed management, become the main recreational sites for children living in the neighborhoods. These playgrounds usually lie in courtyards surrounded by buildings or space in between buildings. The size and form of the playground and the amount and distribution of its facilities all depend on the condition of the land.

[319] Børn savner forældre som legekammerater Naturen er det bedste legetøj mener mange børn (Children need parents who legekammerater. Nature is the best toy, many children). http://www.unilever.dk/ourbrands/healthyliving/Bornsavnerforaldresomlegekammerater.asp. [2009-5-21]
[320] Denmark in brief. http://www.denmark.dk/en/menu/About-Denmark/Denmark-In-Brief/. [2009-7-5]

Moreover, its layout and facilities will be designed separately for kindergarteners and school-age children (Fig. 4-77).

Fig. 4-77 The playgrounds within different kinds of communities
(Left: in neighborhood on Marskensgade Street, Right: in Stjernen)

4.5.2.2 Playgrounds in communities

Playgrounds in communities mainly rise from the need to resolve the issue of layout in limited residential area (mostly old neighborhoods). They are also aimed to assuage the issue of restrained interaction among children caused by separation of neighborhoods. Often accompanied by street plaza gardens and green filed, these playgrounds are mainly located in the common open space of the community. Their layout and design chiefly serve for kindergarteners and school-age children (Fig. 4-78). Such playgrounds are usually built and maintained by the government, while some may be sponsored by organizations and enterprises.

Fig.4-78 Playgrounds within the communities (Left: in Forum, Right: in Læssøesgade)

4.5.2.3 The Playgrounds in the Parks

Playgrounds in parks provide a place for social activities such as family outings on weekdays and holidays, recreations of nearby children and gatherings among friends or relatives. Since these playgrounds are public-oriented communal sites, government divisions are responsible for their building, and parks management department is in charge of daily maintenance. Without restrictions from limited space, playgrounds of this kind are often spacious, providing facilities catering for children of all ages, while primarily for younger ones(Fig. 4-79).As for teenagers, who enjoy a larger variety of interests and activities, their playground sites are separately planned.

4.5.2.4 Playgrounds in institutions

In Denmark, educational institutions and public services like kindergartens, day cares, schools, and some churches and hospitals are equipped with children playgrounds. In addition to performing their intended functions, these playgrounds are also open to public, except day cares and kindergartens (both public and private ones), which has to be kept under enclosed operation due to safety reasons. Consequently, these playgrounds become a popular site for children nearby, and thus a supplement for public playgrounds (Fig. 4-80). Investors of the playgrounds may vary with regard to the institution owners: private ones are built by the property owners, and public ones by the departments concerned.

Fig. 4-79 Playgroundsin parks and green field (left: Park Kydebanehaven, right: in Park Valby)

Fig. 4-80 Playgrounds in institutions (Left: in Nyelandsvej Primary School, Right: in Helligaandskirkeen Church)

4.5.3 The Principles for Playground Design

The design of a Danish playground involves both designing the site and surroundings, and choosing and designing the equipment and facilities. These two aspects have been specially combined in the design of public playgrounds. The special nature of children's playgrounds requires the following principles being followed in the design.

4.5.3.1 Principle of Safety

Safety is commonly regarded as the most essential principle in playground designing. First of all, safety should be guarded by the protectiveness of playground equipment and facilities. In Denmark, the designers should not only stick to the technology standards of their own country, but abide by the standards set by EU as well (namely, *the European Committee of Standardization*, issued in 1998). Take the DS/EN 1176 and 1177 for example, the former is "*Playground Equipment –Safety requirements and test methods*", and the later is "*Impact Absorbing Playground Surfacing –Safety requirements and test methods*". Since children are persons with no capacity or with limited capacity due to their limited strength, knowledge and experience, their perception of the sizes of objects and the spatial dimensions may suffer a certain deviation. The negligence in the design of a playground would undermine its future use after the construction. Therefore,

designers must avoid the hazard by accurately measuring the equipment and facilities and adopting reasonable sizes and proportions. In addition, the usage of different colors can serve as warnings, and the adoption of proper pavement material can help avoid and mitigate the injuries caused by falling. Secondly, the safety principle should be realized with the preventive measures. Normally, the playgrounds are separated from the outside by fences, so as to prevent outside intervention and invasion. Inside the playgrounds, the placement of equipment and facilities must leave out appropriate spaces in order to prevent the children from interfering with each other (Fig. 4-81). Thirdly, the safe principle is shown by the emphasis laid on ruggedness and durability. Any material used for playground equipment and facilities, no matter if it is wood, steel, plastic or other material, all must follow unified and stringent requirements in the size and ruggedness, so as to fundamentally ensure the safety and reliability.

4.5.3.2 Principle of Healthiness

The health protection during the games is a highly emphasized issue for both parents and the government. The principle is primarily implemented through careful evaluation of the site conditions. Generally, the designer would conduct in-depth investigation and analysis of the air, soil, water conditions of the site before the designing, and would later transform the site and compliment its defects with the design. For example, the original site of the playground of Copenhagen Valby Parkused to be piled with waste soil and garbage of the park. The construction was not started until the 0.5 meter deep of soil under the ground surface had been removed together with the waste and garbage, and the hole was refilled with new healthful soil (Fig. 4-82)[321]. Moreover, the healthiness is demonstrated by the material choice for equipment and facilities. When the children are playing, their bodies make frequent contact with the surface of playground facilities. If the coatings

[321] Helle Nebelong. Designs on Play, [2009-7-11] http://www.freeplaynetwork.org.uk/design/dophn2.htm .

or the materials of such facilities are harmful, the children's health will be threatened. Therefore, due to health concerns, natural materials such as wood, stone and sand are used in more and more playgrounds. The principle can also be seen in the plant choice. The designs usually avoid the use of barbed or poisonous plants to protect children from being stabbed or food poisoning.

Fig. 4-81 A view of playgrounds for different age groups of children at Weidekampsgade

(1. playgrounds for different age groups; 2. playground for toddlers; 3. playground for pre-school children; 4. playground for school-age children)

Fig. 4-82 A view of children playing in the sand, playground at Valby

4.5.3.3 The Principle of Attractiveness

The ability to attract children into playing is the most important proof of a successful playground design. Danish designers have demonstrated excellent professional abilities in this aspect through the following qualities. 1. Innovation: The designers would usually integrate together different elements such as architecture, cartoon, furniture and sculpture to give the playground facilities more refreshing appearances and more unique functions, attracting the children with bright colorful decorations (Fig. 4-83). 2. Challengingness: The safety and the challenge are often contradicting, because the excessive emphasis on safety makes the playground less thrilling or challenging, leaving the playground plain and boring, thus unattractive to the kids. Therefore, under the circumstance of controllable risks, it is important to moderately increase the challengingness of the playground facilities so as to attract children. In this aspect, the Danish designers are often able to grasp a good balance (Fig. 4-84).

Fig. 4-83 A view of playground at Halvtolv residential estate (left);

Fig 4-84 A view of playground at Rantzausgade residential estate (right)

4.5.3.4 Principle of Edutainment

Educational entertainment is a basic function of playgrounds. In the designs, the principle of edutainment should first be realized through the demonstration of knowledge. In a playground, any game facilities, desks and benches, as well as the

trees, flowers and insects can trigger the curiosity of the kids, and become their objects of recognition. Therefore, the functions of the facilities and the changes of the seasonal plants can all teach the kids to observe and understand nature. Edutainment should also be achieved by boosting the creativity of the children. Since the kids are often full of fantasies and imagination, the designers should strive to provide the children with opportunities and conditions to live out their fantasies so as to boost their intelligence, with proper playground layout and facility choices. The "broken airplane and sank boat" in the playground of Nørrebroparke is a good example, which exhibits a broken plane on one side, as well as three boats in the form of disintegration and overturning (Fig. 4-85). Hence, Danish designers have been paying much attention to this aspect in their designs.

Fig. 4-85 The view of "broken airplane and sank boat" at Nørrebroparken

4.5.3.5 The Principle of Participatory

It is common in Denmark for the public to participate in social activities and social affairs, which is both the practice of national democratic system and the

manifestation of citizens' democratic rights. In the design and reconstruction of playgrounds, like in other social affairs, the public are not only highly motivated to participate, but also encouraged by the government and the designers to give their opinions and suggestions. In this way, the site can better meet the various needs and preferences of the citizens, which is beneficial to the use of the sites and the improvement of local environment. Generally speaking, the designing and reconstruction of sites such as school playgrounds must include the opinions from not only the teachers of the school, but also from the students and their parents. Therefore, in Denmark, to draw the public into the design of a project is an important guarantee of the success of the design.

4.5.3.6 The Principle of Comprehensive Consideration

The comprehensive consideration is shown in two aspects: firstly, the design of a playground should both satisfy the needs of the children and take into consideration the needs of other social members. For example, in the design of a residential area playground, pedestrian access must be taken into consideration, and so are the needs of the residents to use the gardens for drying clothes, communicating with neighbors and gathering with friends. Secondly, the design of a playground should include not only the design of the site itself, but also the design of its surroundings, so that the playground area could form integration.

4.5.4 The Patterns of Playground Design

The key of playground layout lies in cleverly handling the relations between various facilities and the site, between the forms and the functions, between the main facilities and the supporting facilities, and between the lighting and ventilation. The detailed design is achieved through the following measures, which are, of course, not contradicting with each other, but penetrating and complementing each other.

4.5.4.1Centralization and Decentralization

To adopt centralized layout or decentralized layout depends on the natural conditions of the site, the orientation of the buildings, and the designing concept and techniques of the designer. That is to say, in a housing estate with limited space, some sites are designed with concentrated game facilities while others are designed with scattered lay outs. A centralized pattern of the playground is often centered around a large group of slides, with swings, seesaws, sandpits and dollhouses placed around according to age groups (Fig. 4-86). In a decentralized pattern of playground, however, the facilities are often placed according to the site conditions, so as to integrate the facilities with the landscape, to provide convenience and equal opportunities, and to combine the safety protection with the lighting and ventilation.

4.5.4.2 Formality and Freestyle

The formal pattern refers to the way of placing the facilities orderly in the playground, while the freestyle pattern enjoys more casualties. The former emphasizes the uniform orderliness, while the latter is more romantic than demure. Both types are commonly seen. In some of the formal patterned playgrounds of large parks and green lands, game equipment and facilities are arranged in an order to keep the balance between the left and the right. For example, in the playground at the north end of Helgesvej Street Park in Fredriskberg, four groups of game facilities were orderly places on both sides of the axis, separated by green fences and connected by pedestrian paths (Fig. 4-87). In other formal patterned playgrounds, facilities are just evenly distributed on the ground. Meanwhile, the layout of a freestyle playground may seem more random, but is always designed in accordance with the theme of the park, the overall landscape and the terrain conditions. Though the facilities may appear randomly placed and unrelated to

each other, these playgrounds enjoy greater diversity, which meets the children's sporadic interests in the playgrounds.

Fig. 4-86 The layout of concentrated style playground at Blågrdsgade

Fig. 4-87 The layout of formal style playground at Helgesvejl

4.5.4.3 Simplicity and Refinement

The pursuit of simplicity is part of Danish culture and value. Therefore, Danish playgrounds generally appear more simple than elaborate, especially compared to those of other western countries pursuing the trends ofpeculiar shapes and complicated structures. However, such simplicity does not strike people as humble or plain, but presents much fun and taste. In many playgrounds, you can see how designers have manipulated and utilized the local resources by peeling the dead tree and placing it inside a sandpit for the children to climb; or by placing stone bricks in the sand to form a pedestrian bridge; or by turning some round wooden piers into chairs or watchtowers (Fig. 4-88). Such simplicity has freed the

playgrounds from excessive accessories, thus creating a characteristic of simple appearance and practical functions. Meanwhile, the refinement of the playgrounds can be demonstrated by the details of the designs and the elaborate craftsmanship of the construction. The baffle of the sandpit, for example, is often constituted of thick wooden boards in a simple style playground, and made up of a row of wooden stakes of the same size in a refined style playground. For another example, the designers have designed inside the Asistian playground a small wooden bridge over a small creek, which goes from one side of the site to another side to form a small pond for children to play in (Fig. 4-89).

Fig. 4-88 A view of "balancestakes" at Stjernen (left);

Fig. 4-89A view of "Bridge and creek" at Hans Tausenvest (right)

4.5.4.4 With or Without a Theme

Children love to fantasize and imagine about their own world, and the playground is the ideal place to live out their imagination, especially with the themes, scenarios and stories built in the playground which help trigger their imagination and imitation. A lot of playgrounds in Denmark have been designed around a specific theme, making the site more popular with children and their parents. Take the four residential area playgrounds at Mjølnerparken in Nørebro district of Copenhagen for example, site 1 is themed "modern and nature", with the central part designed into a mound, and with modern facilities on its sides; The

inspiration of Playground 2 was “castle by the lake”, and therefore a 4 meter-tall castle was built on the east side, and sandpits were built in the central and west part of the playground to simulate the lake, with small wooden bridges, islands and sailboats placed inside. Site 3 is a “spider world” theme playground, mainly containing one large and one small spider-shaped slider. The theme of site 4 is “game paradise”, and facilities such as slider group, overhead cable and swing are placed on the playground in an orderly fashion (Fig. 4-90). As for the playgrounds without a theme, the layout is usually formal.

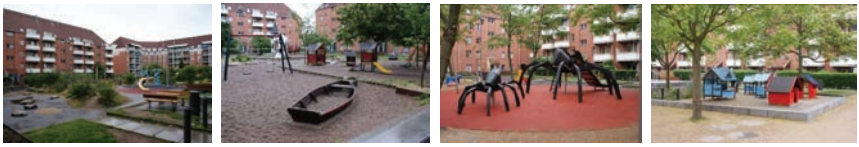


Fig. 4-90 The four different theme playgrounds at Karre
(Site 1: “modern and nature”; Site 2: “castle by the lake”; Site 3: “spider world”; Site 4: “game paradise”)

4.5.4.5 Nature and Orthodox

In the Danish orthodox designs in the past, most facilities of the playgrounds were standardized and unified, with the same combination of slide groups, swings and dollhouses everywhere. Nowadays, people are leaning towards diversity and personality, bringing a new trend of naturalization to the playground designs. In a naturalized design, the designers would rationally utilize the terrain of the site and adopt more natural materials and elements, such as trees, water, stone, sand and wood, to work with the spatial enclosure, the landscape scenes and road connections, and to build game facilities. Helle Nebelong is a representative of the natural style playground designing in Denmark. In the Valby Park playground she designed, she thoroughly utilized the naturalization techniques, by creating hills for children to climb on, and creating ring-shaped wooden plank roads and sand seas for children to walk on and play in. At the same time, other supporting facilities provide the children and their parents with optional games and rest areas

(Fig.4-91). Meanwhile, the orthodox designs mainly adopt traditional layouts and facilities, but more and more playgrounds today start to incorporate the natural style while maintaining the orthodox settings.

4.5.4.6 Modern and Tradition

With the progress in science and technology, more modern elements have been incorporated into the playground designs. Such elements mainly involve electronic games and trendy game facilities. In 2006, Copenhagen municipal government had invested and constructed the first video game playground in the city, just on the other side of the original playground in Ørsted Parken, the oldest park in the city. With 9 different types of computer programmed games, the playground provided children with the options of different games on various facilities (Fig. 4-92). In addition, with the reconstruction of old playgrounds, a series of modern facilities and equipment have been adopted, largely changing the images of playgrounds. Such new facilities,such as group equipment, rotating bowl, BLOQX and skateboarding rinks, have completely different forms and functions from the traditional facilities (Fig. 4-93). The old-fashioned cartoon style and fairytale style group slides have also been gradually replaced by the more naturalized Robin style (Fig. 4-94).

Fig. 4-91 A view of playground at Valby (left);
Fig. 4-92 A view of playground at Ørsted Parken (right)

Fig. 4-93 The Climbing the ball at Lindevangssparke (left)

Fig. 4-94 The Robin-type slides at Hans Tausenvest (right)

4.5.5 Conclusion

It is often said that the children are the future of the country, the hope of the nation. How to create an environment good for the children's development is an important question concerning the whole society. In the past three decades, the huge social progress achieved since the reform and opening up has brought significant improvement to people's material living conditions and cultural living qualities, as well as huge development in the environment and conditions of children's development. The children's playgrounds have not only increased in the quantity, but also improved in terms of planning and designing qualities. However, there is still a big gap between our standards and the advanced standards of more developed foreign countries. The achievement of Danish playground designs may bring us some useful inspirations, and may help us find a way to design playgrounds with national characteristics by integrating our national conditions and reality into the designs.

Chapter 5 The Philosophies of Danish Landscape Architecture

5.1 Introduction

The development and achievements of Danish landscape architecture should be attributed to social evolvement and people's pursuit of a better life; should be attributed to the study and research on the culture and art of other countries; and most importantly, should be attributed to the relentless efforts and explorations made by generations of landscape architects. From the first known Danish gardener Vilhelm (1127-1203) to all the landscape architects and designers today, they have been not only striving to improve people's living conditions and make landscape architect a respected profession, but also actively engaging themselves in the international landscaping field, presenting to the world their pursuit for a better life, and thus gaining the respect and reputation.

The prosperity and development of Danish landscape architecture started in the 18th century, when gardening activities began to flourish, and Danish gardeners gradually formed their style in garden designing and construction, and created a number of works of high artistic value. Johan Cornelius Krieger (1683-1755) was the main representative of Danish royal family gardeners during the Baroque time. Between the 1720s to the 1740s, he designed or reconstructed Fredensborg Castle, Frederiksborg Castle, Fredenlund Manor, Vøll Castal、Rosenborg Palace、Hirschholm Palace and King's Garden in Odense. In those designs, Krieger sophisticatedly utilized various techniques of the French Baroque style, such as axis and symmetry, as well as various elements such as flower beds, waterfalls and terraces. When English garden style prevailed, there emerged some professional landscape architects such as J.L. Mansa (1740-1820) and Rudolph

Rothe (1802-1877), as well as many amateur designers and garden enthusiasts. Later, landscape architect OveHøeg Hansen (1832-1910) and Henry August Flindt (1822-1901) did a large number of designs for the emerging city parks, and they also designed many private gardens. Flindt also participated in the re-designing and reconstruction of several royal gardens. Influenced by Flindt, Edvard Glæsel (1858-1915) (who had worked for Flindt for a period of time) designed many cemetery parks, including the Western Cemetery and Bispebjerg Cemetery in Copenhagen (Fig. 5-1), as well as the "New Cemetery" in Sorø. When designing the Fælledparken, Glæsel chose not to use the landscape elements with curiosities or sentimentality, which were in fashion back then, so as to achieve the effect of pure scenery. He also designed the garden of Copenhagen City Hall and Bispebjerg Hospital, in which he adopted the "architectural style" and was therefore hailed as "the last landscape gardener of Denmark".[322]

With experience accumulated in the 18th and 19century, Denmark had gradually form its own style in landscape architecture by the beginning of 20th century, which could not have been achieved without the explorations and efforts made by many landscape architects. Through studying French gardens and English gardens, Danish landscape architects had gradually gained deeper insights into the landscape architecture in all aspects, including the aesthetics and artistic aspects, forms and functions, architectural and technical aspects, as well as natural and ecological aspects. This is, of course, also inseparable from the development of science and arts in Denmark. In 1895, Danish Botanist Eugen Warming (1841-1924) published the concept of "Ecological Plant Geography". It said: "Ecological plant geography is a completely different subject compared

[322] Annemarie Lund, Guide to Danish LandscapeArchitecture1000-2003, the Danish Architecture Press, 2003, p19.

Fig 5-1 Bispebjerg cemetery (Source: http://www.kk.dk/Borger/ByOgTrafik/GroenneOmraader/Kirkegaarde.aspx)

to flowering plant geography. It guides us to understand how plants and plant colonies adapt their forms and habits to different planting conditions, such as the heat, sunlight, nutrients and moisture conditions."[323] Though his work was about botanic study, it has casted a significant influence on not only subsequent landscape architects and gardeners, but also the plant use of gardens. In particular, the book has drawn landscape gardeners' attention to the use of wild flora. By the end of the 19th century, gardeners had turned to large-scale designs, but in the mid 19th century, the main focus of landscape architects was still small gardens in residential areas. However, the gardens back at that time seemed to be "comical landscape architecture"[324] because the designers had not yet grasped the essence of garden designing, and had done nothing but copying the magnificent English landscape style gardens onto smaller residential gardens. This phenomenon was not changed until the Erik Erstad-Jøgensen published his masterpiece "*Villa haven*" (Villa Garden) in 1900. Meanwhile, Edvard Glæsel (1858-1915) was the leading figure of large-scale design in that period. Many books such as "*Illustrations of landscape architecture of the Northern Europe*" (Nordisk

[323] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p27.
[324] Ibid, p28.

illustreret Havebrugsleksikn, in Danish) also emerged. In the first edition of Encyclopedia published between 1987-1902, Glæsel described "garden art" as "decorative arts", and stated that "When designing every garden, it is always necessary to plan the layout for the garden. Even for tiny gardens, an overall plan must be set."[325] The early garden designs were restricted to the manipulation of original terrain, without intentionally following the natural beauty to create and decorate the gardens. The early garden style was exactly what Britain adopted in the early 19th century, and Denmark was still imitating the style in the end of 19th century because the style was unconstrained and did not require careful planning or designing. Meanwhile, due to the unsatisfying outcomes of plant use, designers added many elements such as inscriptions, sculptures, temples, caves and even artificial ancient ruins replicas, so as to the gardens to make them less monotonous. Therefore, those gardens were not as natural as they

5.1.1 Erik Erstad-Jøgensen's Contribution to the Garden Art

Erik Erstad-Jøgensen was the major proponent of Danish garden designing at his time, and the first ever to call himself "garden architect". In 1901, he stated in his book "Haven" (The Garden) that: "When you step into a garden (small villa garden, surrounded by defined boundaries and separated from the outside), you will have the feeling of being in a space free of strangers' stare. Though in the outside the air is drifting and the sunlight is splendid, you will have your private summer room, a space full of flowers, a space for children to play in."[326] He regarded the garden as part of the residence, and emphasized that the garden should be separated from the outside and enclosed with green fences or walls so as to protect family privacy. Erik Erstad-Jøgensen was very renowned and influential in the era he lived in, by designing gardens for the middle-class and the city

[325] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p28.
[326] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p30.

residents. In his designs, he highlighted not only the balance of the building and the garden in terms of functionality, but also the balance of the building and the garden in terms of protectiveness. He emphasized that the garden should be an integrated part of the building, rather than merely an accessory. He based his designs on careful observations of the users' lifestyle, so as to better satisfy their distinctive needs. He drew inspirations from Italian, French and German elements, but most essentially from the English prototypes, especially in such aspects as the architecture and the softening effect of plants.[327] Nonetheless, he laid more emphasis on leaving enough space for the plants to grow. The biggest contribution Erstad-Jøgensen made to the Danish landscape architecture is the introduction of "architectonic style garden". Besides, he also promoted the education of landscape architecture in Denmark. Due to his deep affection for "architectonic style garden", he examined and compared the Royal Danish Academy of Fine Arts, School of Architecture and the Joyal Veterinary and Agricultural University, and chose the former as a more appropriate academy to develop landscaping education, because the trainings in painting and spatial sense are crucial for landscape architects. In 1921, both schools hired specialized professors and started to cultivate landscaping talents.

After he had passed away, the debate over the old and new gardening styles continued. In 1920, the first issue of *Havenkunst* (Garden Art) published two articles, one was "Transitional Times" written by I.P. Andersen, a student of Erstad-Jøgensen, and the other was *Æstetikog Havekunst* (Aesthetics and Garden Art) written by Aage Hansen (1872-1935). The author of the former article had not yet decided whether to call himself "landscape gardener" or "garden architect", while the latter author portrayed himself as "landscape gardener". The former article revealed the fact that Denmark was in the transition from the old

[327] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p 37.

"landscape style of garden" to the new "symmetrical and architectonic design", the design style of Erstad-Jøgensen. The latter article stated that people back then mainly designed the gardens as artworks, that is to say, the garden designing was an aesthetics-oriented art.[328] The article said: "Here in Scandinavia, we did not previously regarded landscape gardening as a special art, despite the fact that it harbored many aesthetic values. However, its position should be close to 'fine arts'. Though garden architecture is closely related to building, it should be brought closer to painting through landscaping techniques."[329] In the comparison of these two styles, Hansen did not define either one to be the dominant style, but held the opinion that the two styles should be combined to satisfy people's different artistic tastes. In fact, British landscape gardener Humphry Repton (1852-1818) had already done so, and Danish landscape gardener Rudolph Rothe (1802-1877) was the first in Denmark to have done such experimentation.[330] It is safe to say that such discussion and attempts casted significant influence on the later formation of Danish landscape architecture philosophies.

5.1.2 G.N. Brandt's Contribution to the Garden Art

Following E. Erstad-Jøgensen, there emerged several influential landscape gardeners in Denmark in the first half of the 20th century, among whom the most greatest was G.N. Brandt. He was born in a family of landscape gardeners, with his father Peter Christoffer Brandt being a gardener, and her mother's sister Stephen Nyeland (1845-1922) being the famous founder of Vilvorde School of Horticulture, and also an enthusiast of garden history. The Brandt family lived in the city of Frederisksberg, with a close distant to the Frederisksberg Castle Garden and the Sødermarken Park, therefore Brandt used to visit the gardens frequently in his early times. After he graduated from high school in 1897, he began his training

[328] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p 39.
[329] Ibid.
[330] Ibid.

in landscape architecture, and enrolled himself in Copenhagen University to study philosophy in 1898. To further his education in landscaping, he studied under the plant nursery supplier N. Jensen between 1899 to 1901, and continued his study in the U.K. between 1901 to 1902. Later, Brandt travelled to Paris, Germany and Belgium to work and study. He returned to Denmark in 1914 to work for Gentofte Municipality, where he became the manager of the Park Administration Department in 1920 and devoted himself to the development of parks and cemeteries in the city (Fig. 5-1, 5-2, 5-3). He had been teaching in the Royal Danish Academy of Fine Arts, School of Architecture since 1921, and was an associate professor from 1924 to 1941. During this period, he had cultivated numerous talents for the Danish landscape architecture through teaching and writing articles[331]. From the angle of a landscape gardener, an artist and a philosopher, Brandt taught his students the importance of landscape architecture to nature and society[332]. While he was teaching, he also designed numerous large projects in which he utilized not only conventional elements such as orchards, meadows and forests, but also unconventional elements. For example, in the "June Garden" he designed for Svastika (in Rungsted) in 1926, he installed square flower beds to plant yellow and white flowers, and designed rectangular grass terraces on the sides of the pedestrian roads as decorations. In his own garden in Ordrup (which is now a public park), he adopted the conventional design techniques of Villa Gamberaia from Italy, while in other designs he utilized the designing concepts of British park designers such as William Robinson, Edwin Lutyens and Gertrude Jekyll.

[331] Annemarie Lund, G. N. Brandt Biography,http://www.jrank.org/gardening/pages/240/G-N-Brandt.html,
[332] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p 59.

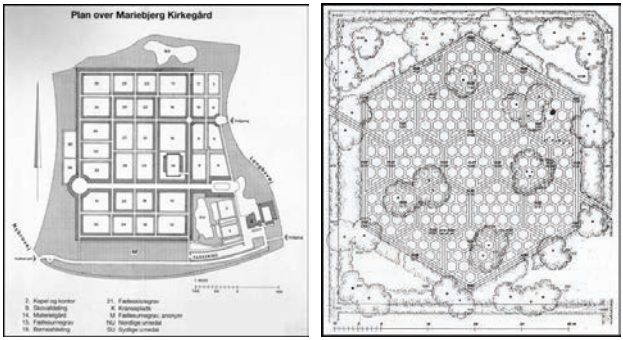


Fig. 5-2 Plan of Mariebjergkirkegård (left); the anonymous funeral in shape of a hexagonal plant, and each hexagons again subdivided into small hexagons that form the unit (right)

(Source: http://www.arkitekturbilleder.dk/bygning_Mariebjerg_kirkeg%C3%A5rd_%24%24168)

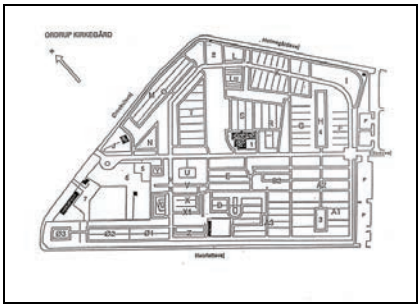


Fig. 5-3 Hexagonal grave in Mariebjergkirkegårdnowadays (left) (Source : http://petergaunitz.blogspot.com)

Fig. 5-4 Plan of Ordrup Cemetery (right)

(Source: http://www.arkitekturbilleder.dk/bygning_Ordrup_kirkeg%C3%A5rd_%24%24162)

Fig. 5-5 Ordrup Cemetery by Brandt, 1 Ladies drinking coffee in Ordrup Cemetery in the 1940s; 2 the entrance for Cemetery; 3 The main avenue in Ordrup Cemetery.

In particular, Brandt spent a lot of efforts in dealing with the relation between architectural elements and natural elements in the gardens, which can be demonstrated through his designs, including the Marienlyst Palace (!919) in Elsinore, the neoclassic styled Hellerup Coastal Park (1912-1928) in Hellerup, the Ordrup Cemetery (1919-1930) (Fig. 5-4), the Solbakken Allotment Gardens (1935) in Elsinore, the Tivoli Wonderland gardens in Copenhagen, the roof gardens on the Radio Building, and the Mariebjerg Cemetery.

Though Brandt worked closely with architects, he was more fond of the title of "garden architect". Thanks to his reputation, the occupational title of "garden architect" had gradually been accepted by the public. Brandt personally was not interested in drawing blue plans, even though the few blueprints he left demonstrated that he was skillful in painting. His working method was to get completely involved in the project and to draw a simple draft that can accurately present his designing ideas for the partners. When choosing a partner, he not only valued their designing abilities, but also valued their comprehension abilities because he usually inspired the partners to further accomplish and perfect his visions. In general cases, when Brandt took charge of the design of a project, he would plan in his head the whole layout and every detail of the project, and then would let the assistants paint the ideas out. His vision was very refined as he took into consideration all aspects including the lighting, the wind, the shadows and the angles of the light.

Brandt had also done a lot of explorations in the theoretical ground. He published *Stauder. En Vejledning for Havevenner* (Perennials. A Guide for Garden Lovers) in 1915. Subsequently, he co-published several other books about landscape gardening. Besides, he composed many articles concerning landscape architecture and the environment. The key of his designing concept is the objection to rigid aesthetic dogma and the advocating for independent innovation

with periodic features based on in-depth study of the history, without being constrained by rigid dogmatic styles. At the same time, he actively studied the functions and forms of future gardens. Of course, his theoretical thinking of future gardens was under the influence of other scholars and gardeners back then. He brought forward five proposals on the future gardens: ①The layout of the garden must be economic; ②The garden must be easy to maintain; ③The garden must be useful; ④The garden must be plaything; ⑤The garden must enhance the pleasure of flowers.[333] These theories of Brandt have been quite influential to the successor designers.

5.1.3 C. T. Sørensen's Contribution to Danish Garden Art

C.T. Sørensen was not only regarded as the greatest gardener in Danish landscape architecture history, but also regarded as one of the most distinguished landscape gardeners of the world in the 20th century. He finished as many as 2000 landscape garden designs in his life. Born to a family of coach maker, Sørensen lost his father when he was 4 years old, and lived with another man since his mother remarried. He left home when he was 15 to become an apprentice in Nørlund Manor. Three years later he left for Copenhagen where he studied under landscape gardener Erik ErtadJørgensen (1871-1945). Since 1916, he had started to participate in garden designs as a garden architect, while studying effortlessly. In 1922, he left E. Jørgensen and started his own practice in landscaping. Despite his apparent talents, he could not get enough designing commissions due to his young age. Therefore, he became an artistic medium of G.N. Brandt in 1925 and started his career of a landscape architect. During his time in Brandt Design Studio, he had the opportunity to meet some famous Danish architects and to participate in some informal discussions, and therefore his talent was gradually recognized.

[333] Lulu Salto Stephensen, Garden Design in Denmark – C. N. Brandt and the Early Decades of the Twentieth Century, Packard Publishing Limited, Chichester, 2007, p123-124.

Since the 1940s, Sørensen had been teaching in the Royal Danish Academy of Fine Arts, School of Architecture. He worked as a professor their between 1954 to 1963. As he was awarded the professorship, his position in Danish landscape architecture was formally recognized.

Sørensen was largely under the influence of Brandt, but was also influenced by landscape gardener J.K. Jørgensen (1864-1930), who was once the President of Danish Royal Horticultural Society. Based on years of studying, designing and researching, Sørensen gradually formed his own artistic style, which mainly featured the sophisticated utilization of pruned hedges to create various geometric forms, a style that some scholars called the "sculptural style".[334] The style mainly involved the use of geometric forms, especially circles, to divide and enclose the spaces in the gardens. Masterpieces of this style included the famous "Allotment Garden" in Nærum, and the "Geometric Garden" he designed in 1954 (which he called the "Musical Garden"). The "Geometric Garden" Sørensen designed was made into being in the Herning Art Museum in 1983 (Fig. 5-7). The garden was constituted of a straight line, a circle, an oval and six polygons of various shapes. The geometric spaces enclosed by green hedges were connected to each other with a narrow walking path (Fig 5-8). Besides the "Geometric Garden", the campus design Sørensen created for Aahus University in 1931 was another important manifestation of his talents and master works. In the design, he fully utilized and manipulated the original terrain conditions to create a poetic bucolic style for the park. The park boasted a broad lake, undulating grass lands, wandering paths, and oak wood forests, exposing the students and teachers to nature, and providing recreational venues for the nearby residents (Fig. 5-9). He also took advantage of the terrain to design a large open air theatre paved with lawns next to the campus building. The theatre later became the students' favorite outdoor activity venue.

[334] C.ThSørensen Biography. https://ww.jrank.org/gardening/pages/1565/C-Th-S%C3%B8rensen.html#izziSU7a8Cpq. 07-20-2011.

One significant contribution of Sørensen was his invention of the "adventure playground" (skrammellegeplads, in Danish). His ground-breaking invention spread around Europe in the 1950s and later spread to the North America. It has changed the boring monotonous status of playgrounds and has brought happiness to numerous children.

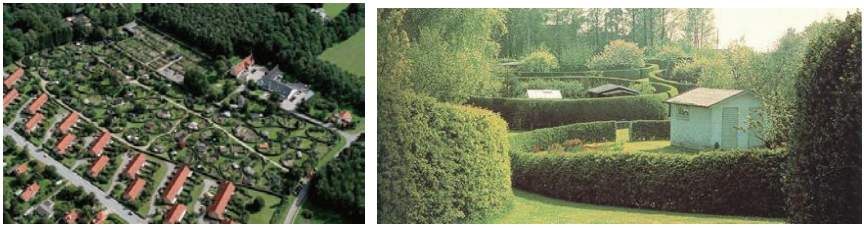


Fig. 5-6 Allotmentgarden in Nærum (Source : http://www.vulgare.net/page/13/)

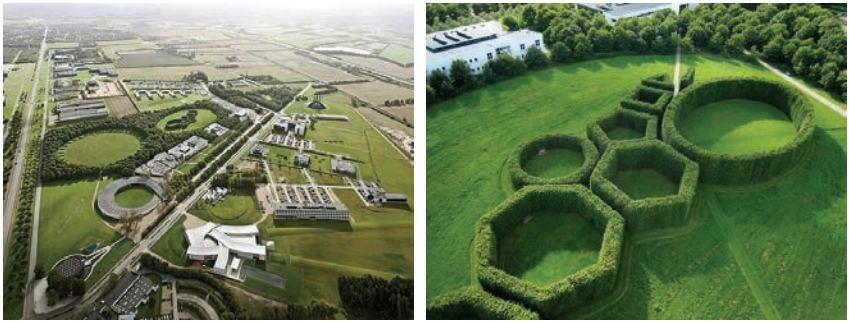


Fig 5-7 A view of Herning Art Museum (left) (Source : http://3.bp.blogspot.com/_36qp77-oETc/TSaAqfKNKnI/AAAAAAAAdws/Y34gMeqj9_c/s1600/Herning+Museum+of+Contemporary+Art+%2528HEART%2529+By+Steven+Holl+Architects-Photo+%25C2%25A9+Iwan+Baan+-01.jpg)

Fig. 5-8 Sørensen'sGeometric Garden at Herning (right)

(Source : http://www.flickr.com/photos/kap_cris/1036711522/in/photostream/)

Fig. 5-9 The Lake of Park atAahusUniversity campus (left)
(http://en.wikipedia.org/wiki/File:Aarhus_Universitet_-_Lake_and_library.jpg)

Fig. 5-10 Open air theatre at Aahus University's campus (right) (Source: http://www.qtvr.dk/panoramas1/aarhusuni.jpg)

Apart from his great achievements in landscape garden designing, Sørensenhas also made great contribution to landscape architectural theories in terms of researching and summarizing. He is the author of eight books and the editor of two, and he also published hundreds of articles[335], including *Europe's Garden Art* ("*Europashavekunst*", in Danish, 1959), *The Origin of Garden Art* (1963), *39 Garden Plans* (*39 haveplaner*, in Danish, 1966), and his biography *Gardens: Thoughts and Works* (Haver: tanker, arbejder, in Danish, 1975) in which he summarized his whole life. As a modern landscape gardener, Sørensen laid much emphasis on dealing with the relation between garden art and visual art, between garden art and nature, and between garden art and building art, and regarded these relations as the core of garden art. The motifs of his designs consisted of common elements of the Danish cultural landscape, such as woodland edges, open fields, hedges and groves. The presence of these elements can be interpreted as his adherence to ethnic and cultural regionalism. His design always gave priority to people's comfort, which showcased his people-oriented concept.

[335] Sven-Ingvar Andersson and Steen Høyer. C. Th. Sørensen Landscape modernist, the Danish architecture press, Copenhagen 2001, p 11.

In regard to garden art, he always examined his designs from the angle of a garden artist. He once wrote: “Here, I’d like to emphasize that the products of fine art and fine craftsmanship are not two different things, but the opposite ends of one same thing. As to the garden art, it is closer to the art of painting and sculpture rather than architecture, for it has an aim in itself, which is seldom understood.”[336] In regard to nature, he believed that garden designers should embrace nature with an open arm because nature itself provides the material elements for gardens. In regard to the history of garden art, he analyzedvarious gardening styles from the angle of a garden creator and classified garden designs into two categorizes, namely the proper garden and stylized landscape, which respectively developed into two types of gardens, the normal garden and the landscape garden. The English landscape garden is not nature, but a type of garden art. He was against treating the imitation of nature as the method and goal of garden art, and instead he believed that imitation is inimical to any form of art[337]. Therefore, he did not imitate any existing pattern, but utilized the traditional elements in a flexible manner.

BesidesSørensen, Sven-Ingvar Andersson (1927-2007) was another man to have made great contributions to modern Danish landscape architecture. Andersson was a Swedish landscape architect, who later worked in Denmark as an instructor at Royal Danish Academy of Fine Arts, School of Architecture. After Sørensen retired in 1963, Andersson took over his professorship and taught until 1994, and had made great impact in promoting the development of the Danish landscape architecture. S. Andersson received his education in Sweden in his early life and started his career as a landscape architect.

In short, it was because of the relentless exploration and creation of these landscape architects, including E. Erstad-Jøgensen, G.N. Brandt, C. Th. Sørensen

[336] Sven-Ingvar Andersson and Steen Høyer. C. Th. Sørensen Landscape modernist, the Danish architecture press, Copenhagen 2001, p47.
[337] Sven-Ingvar Andersson and Steen Høyer. C. Th. Sørensen Landscape modernist, the Danish architecture press, Copenhagen 2001, p 38.

and S. Andersson, was the Danish landscape architecture able to prosper. As the pioneers of modern Danish landscape architecture, they all adhered to the realistic conditions of Danish history, culture and traditions to create a unique style of Danish designs, and thus have established their names in the world. In their long-time process of exploration and creation, Danish landscape architects, through innovating and learning, have formed their distinct features that combined simplicity, practicality and artistry together with the emphasis on environmental protection, ecological balance and native styles.

5.2 Philosophy and Its Expression in J. A. Andersen's Landscape Design Works

Abstract: J. A. Andersen is one of the representative figures in Danish contemporary art of landscape architecture. In recent years, Andersen has been active in the Danish landscape design circle as well as in the international stage of landscape designs and exchanges. His design philosophyand works display the traditions of Danish and Nordic countries and the modern conceptions. In his works, Andersen expresses his elegant forms in a Spartan style, the deeply concern of human feelings and the respected relationship between humanbeings and the nature. It helps us understand Danish landscape architecture in modern time, and to develop China's native landscape architecture through introducing his works.

Keywords: Landscape Architecture; J. A. Andersen; Study; Landscape Design; Harmony with Nature

5.2.1 Introduction

Denmark is a small country on the Scandinavian Peninsula, but it proudly possesses its distinct influence and charisma in terms of landscaping science and art. In Denmark, 70% households have their own gardens, with an average area of about 800m^2. Family gardens not only provide the place for family members and friends to gather together, for children to play games and for the senior to plant flowers, but also play an important role in greening and beautifying the

environment, as well as protecting ecological balance for the city. In addition to the private gardens, Denmark also has a careful planning and designing of landscape gardens and urban public spaces that embellishes the homeland, safeguards the ecological balance, improve the city's image and functions and actively enhances the life quality of the citizens. Danish architects have made great contributions to both private and public sectors. As stated by Geoffrey Jellicoe (1900-1996), the first President of IFLA, "we have always believed that landscape architecture was one of the pioneers that would lead us to the new world after World War II."[338]

Established in 1931, Association of Danish Landscape Architecture now have 450 members (and 200 student members). Famous landscape gardener Sven Hansen was one of the founders of IFLA. JeppeAagaard Andersen (1950-) is one of the leading modern landscape architects. As one of the vice presidents of IFLA, he is not only a skillful landscape architect, a versatile artist, but also an enthusiastic social philanthropist. Andersen was born to a family of artists, with his father Guuar Aagaard Andersen being an artist and college professor, and his mother being a sculptor. The artistic family atmosphere had triggered his interest in art when he was a little boy. After graduated from college in 1980, he participated in the environment designing project of the new Triumphal Arch in Paris as one of the landscape architects. Since he started his practice in 1987, Andersen has overseen more than a hundred designing projects, mostly large projects, and most of them were obtained through international bidding. These projects have gained reputation for not only himself, but his Danish counterparts. His designs have not only lightened up Denmark, but also travelled to the whole European continent, Australia and Peru.

[338] Jan Woudstra. Danish Landscape Design inthe Modern Era (1920- 1970) [J]. Journal of Garden History, 1995 (2): 222- 241.

Anderson's designing projects have shown a wide range, involving both residential areas and urban environment, both the restorationof ancient relics and the creation of modern landscape, both private spaces like gardens and public spaces such as parks, green lands and squares. He is especially skilled in large-scale environment planning such as urban districts, port terminals and airports. Some of his works have won domestic and international awards. His designs have been a consistent manifestation of his artistic philosophies of pursuing simplicity, culture, refinement and nature, a brilliant combination of the modern and the traditions, the regional features and the international standards, and a vivid demonstration of good spatial and morphological senses, as well as the interactions between human and nature.

5.2.2 The Style of Design: Simplicity

Like other Nordic nations, Denmark is a nation that values pragmatism, practicality and effectiveness over extravagancy. Therefore, all of the Danish art designs, from architecture to industrial products, have embodied such spirit. As Andersen said: "The pursuit of visual clarity is no longer new in Danish landscape architectural designs, for it has been demonstrated in many ancient gardens. In fact, even some Baroque style gardens displayed clear simplicity and minimalism." He also believed that "the garden designs are supposed to be simple, besides functional"[339]. Apparently, he himself has been greatly influenced by such tradition. Simple forms can be seen throughout his designs. Judging from his works, Andersen's style of simplicity can be summarized as two aspects: the conciseness and lightness of the forms, and the simplicity and practicality of the decorations.

[339] JeppeAagaardAndersen.Principle of Danish Landscape Architecture [A].Catalogue ——Jeppe Aagaard Andersen 2006 [C]. 2006.

The “Old Dock” (Gammel Dok, 1996-1998) reconstruction project is a good example. The “old dock” lied in between a building district on the east side of Copenhagen’s waterway. The central part of the dock was a courtyard garden enclosed by the sea on one side and three office buildings on the other sides. The trapezoidal courtyard, with the length of 80m and widths of 50m and 60m on opposite sides, was originally a place to dry boats. The buildings on the north and south sides were reconstructed from old storehouses, and are now national monument buildings, while the building on the north side is the Danish Architectural Art Center. The priority of the reconstruction project was to meet the staff’s needs for vehicle parking, and the second object was to embellish the environment. With originality and ingenuity, Andersen’s design adopted a long strip-shaped pool to divide the courtyard into two parts, each providing enough space for two rows of vehicles. Meanwhile, to connect the two sides, he divided the pool into three parts with walking paths and one driving lane in between (Fig. 5-11). To inject a vividness to the pool and avoid rigidness, he designed an arc-shaped stone shore for the south bank of the pool, and left the north bank open, with underground drains rather than stone shore. The bottom of the pool was sloping, 25 cm deep on the south side and even to the ground on the north side. Whenever a sea breeze ripples the surface of the pool, the water would surge out from the open north side, creating an illusion of tides. The inner side of the pool close to the courtyard extended to the walls of the office building on the opposite side, and was designed into a small waterfall by the building. The outer side of the pool was adjacent to a round island of trees on its south, with half of the circle embedded in the pool (Fig. 5-12). Andersen adopted an arch-shaped layout to arrange the decorations such as road lamps and benches on the south edge of the north parking lot, echoing with the arc-shaped south bank of the pool. Besides, there were no plants in the courtyard except for the five trees on the tree island. The entire design of the courtyard consisted of clean, smooth lines. Similarly, the campus of Royal Danish Academic of Fine Art, School of Architecture, that he designed was

also extremely simple. The main campus of architecture school was 80 m wide, enclosed by two buildings on the north and south sides with a length of 150 meters. There were also buildings on the east and west ends, as well as in the central part. The south building was further away from other buildings on campus. Therefore, Andersen focused his design on the long narrow space between the south building and the 4 meter-wide avenue behind it. Corresponding to the exits of the south building, he designed this space into six 5 meter-wide rectangular lawns surrounded by 10cm-thick iron boards, with a line of linden trees planted in between. The other two places were also designed into lawns, with linden trees and street lamps (Fig. 5-13). His entire design echoed with the existing buildings on campus, while providing activity spaces for the students (Fig. 5-14). The simplicity presented by Andersen's works does not equal to merely humbleness, or crudeness, but was the extraction and sublimation of artistry. His seemingly simple designs contained in-depth understanding of the relation between human and space, therefore the seemingly simple geometric shapes demonstrated high artistic values. As Andersen has been frequently using geometric shapes in his works, he has been titled the "urban geometrician" in Denmark.[340]

Fig 5-11The pool and parking plot in GammelDok (left), Fig. 5-12 The tree island and the pool in GammelDok (right)

[340] Annemarie Lund. Danmarks Havekuns t III [M]. DanmarksNationalbanksJubilaeums fond, 2002.

Fig. 5-13The belt-shaped greening in the campus of Royal Danish Academic of Fine Art, School of Architecture (left)
Fig. 5-14 A view of greening in the campus of Royal Danish Academic of Fine Art, School of Architecture (right)

5.2.3 Designing Conception: Human Dimension

Landscape architecture should serve to improve the living conditions and working environment for human beings. Therefore, giving full consideration to the needs and feelings of the public, the convenience and comfort of the users and the respect and protection of culture and history should be the value orientation of the designers. Such spirit has been displayed and embodied by Andersen's works.

In the project of the "City of Tomorrow Bo01" (1999-2001) in Malmoe, Sweden, Andersen was in charge of the design of a 500m long waterfront landscape on the west side and south side of the housing estate. Since the housing estate had already been well-designed and well-equipped with small squares, greeneries, playgrounds and parking lots, the design of the outside landscape was highly anticipated. However, Andersen was faced with some unfavorable site conditions. The west part of the housing estate was adjacent to the enormous stone embankment of the seaon one side, and indented buildings on the other side. On the south side of the residence was an irregularly shaped yacht pier. The challenge facing him was to create beautiful sceneries under such conditions while providing the citizens with facilities to enjoy the sea and water. In the west coastal area of the housing estate, Andersen built a three-story close-water wooden platform with

a length of 250 meters. Each level was 40cm tall; the bottom level was 1.6 m wide; the middle level was 80cm wide; and the top level was 1.6m wide. At the north 1/3 point of the platform, he extended the bottom platform towards the sea and designed a 20 m long, 8m wide close-water platform. People can walk seven stairs down to the seaside, where 7 giant square concrete platforms have been placed. Sitting on the wooden platform, people can not only see the tides and boats, but also appreciate the texture and shape of the thick, rugged boulders on the sea shore. The wooden boards of the platform contrasted with the giant boulders, adding an urban and modern sense to the scene. By not placing any guardrails, street lights or plants on the platform, Andersen has enabled people to better appreciate and get close to the sea, and created the conception of embracing the ocean (Fig. 5-15). More importantly, the anti-slippery wooden boards could protect the safety of visitors and swimmers. He chose to use asphalt pavement for the sidewalk between the wooden platform and the buildings, while paving the rest of the roads with granite stone patterns. The originality of the design lied in the way he irregularly placed 3 meter-long strip-shaped ground light boxes and wooden planks in between the asphalt pavement and the granite stone pavement as the connection and transition. Apart from the light boxes, he also used disjointed street lamps to create a changing night-time scenery and to provide enough lighting for the ramblers (Fig. 5-16). These people-oriented conceptions in his designs have gained him the public's affection. The reconstruction project of Sydney University, Australia (2004-2010) was also a manifestation of humanity values. The core of the project was the narrow space between the new and the old buildings, lying in the center of the campus (Fig. 5-17). Before the reconstruction, the passerby seldom lingered there because the place lacked attractiveness. Andersen intentionally planted trees to change the spatial layout, built roads to attract pedestrians, and created certain space for people to stay. In this way, he intended to slow down people's paces and increase their communications.

Fig 5-15 The platform in the project of City of Tomorrow, Bo01 (left)

Fig. 5-16 The pavement and light design in City of Tomorrow, Bo01 (right)

During one interview, Andersen summarized the main essences of landscape architecture designs into three aspects: 1. the conditions and limitations of the site; 2. the will of the commissioning party of the project; 3. the introduction of the designer's conceptions. In fact, in order to better satisfy and relect the needs of local citizens, Andersen would always participate in the seminar before the beginning of every project, listen to the suggestions and thoughts of all parties and strive to integrate the public's ideas into his design. Meanwhile, he would often exchange opinions with various sectors during the process of designing and planning, so that the design could live up to people's expectations.

Fig 5-17 The map of re-plan for the campus of Sydney University, Australia

5.2.4 The Language of the Design: Harmonious Exquisiteness

Landscape design is the combination of science, technology and art. Therefore, the designers must cleverly deal with the relationship between the three and effectively organize various design elements through proper techniques, so as to meet both functional and aesthetic requirements. The harmonious exquisiteness that Andersen pursues refers to on one hand the harmony between the classic and the modern, and on the other hand the harmony between functionality and aesthetic values. In terms of the former, he said, "Danish gardens have a timeless quality, and the use of plants is not subject to any trends. Therefore, despite the passage of time, Danish gardens have seldom changed. The inspiration and influence of the gardens go beyond the boundary of time." The key of such timeless vitality lies in grasping the features of the times and inheriting the traditions. As for the latter, he believed that "one of the distinctive features of Danish landscape gardens is its maximized freedom of design, which is based on both functional and aesthetic requirements."[341] Therefore, Andersen has been keen on drawing inspirations from classic garden arts, integrating the historic elements with modern spirits and creating new forms, so as to interpret the functional and aesthetic relationship between modern space, natural environment and cultural connotation with classic design techniques.

His design concept of exquisite harmony is fully embodied in the garden design along the elevated road at Ørestaden metro station in Copenhagen. The project concerned a 5 km-long linear region with newly developed residential areas, university campus and commercial centers on its sides, including a large area of reserved area (the Nature Park). Andersen was in charge of the design of the gardens underneath the elevated road, in the residential and commercial areas. Here again he demonstrated his affection for water, which he believe is the soul of

[341] Jeppe Aagaard Andersen. Principle of Danish Landscape Architecture [A].Catalogue———Jeppe Aagaard Andersen 2006 [C]. 2006.

classic Italian landscape gardens. For the 2 km-long space east to the elevated way, he designed a series of rectangular water pools ornamented with lotuses. These pools boasted a sense of rhythm and a sense of openness. The starting point of the pools lied in the square in front of a high-story building, where Andersen designed a 30m×40m square water tank to go with the tall buildings. To prevent the large tank from appearing vain, he placed several small cement platforms in side the pool (which were actually the small window roof of the underground bicycle parking lot—author notes) and planted water lilies in the pool (Fig. 5-18). In response to the slowly sloping ground from the south to the north, he accordingly designed a few small waterfalls in the pool (Fig. 5-19). At the places with flat terrain, he designed the pool into four parts of 100m-long canals, resembling the Grand Canal of Versailles Palace as described by Le Notre (1613-1700). To add some diversification, he extended the last part of the pools which originally lied east to the elevated way to the axis beneath the elevated way, creating a sense of "sailing across the river" (Fig. 5-20). In between the pools, he separated the roads with square grass lands and trees, allowing the design to present changes of views while meeting the traffic requirements, thus presenting a sense of uniformity and integrity (Fig. 5-21).

Fig 5-18 The pool around station in Ørestaden (left), Fig. 5-19 The small waterfalls around station in Ørestaden (right)

Fig. 5-20 The grass lands and the pool under the elevated metro line in Ørestaden (left)

Fig. 5-21 The greening under the elevated metro line in Ørestaden (right)

Andersen's designs have demonstrated his rigorous and relentless pursuit of art. In the "Gammel Dok" project, the seemingly ordinary pavements showcased his idea of exquisiteness: The parking lot in the courtyard was paved with asphalt; the waterfront area was paved with wooden planks, which reminded people of the decks; the rest of the place was paved with granite stones, offering people a sense of security.

5.2.5 The Design Principle: Integration of Nature

Environmental protection in Denmark has been broadly supported by the society. The country had established the first Natural Conservation Act by 1917[342]. Needless to say, landscape garden planning and designing shoulders an important responsibility in environmental protection. In his designs, Andersen has paid much attention to dealing with the relation between the project and the surroundings, especially with the natural conditions of the site. "Let the site speak for itself" is a major principle of his design[343], which means to fully take advantage of the inherent potentials of the site, to fully utilize and properly manipulate various site conditions in order to create the best landscape. More specifically, the keys are: 1.

[342] Denmark. www.denmark.dk

[343] Lulu Salto.Jeppe Aagaard Andersen [J].Landsksbap, 1995(7): 157- 167.

to value the use of natural elements including the terrain, the topography, the water, vegetation and climate factors; 2. to highlight the integration and combination of the project with the existing environment.

His design of European Film College campus (1993) is a masterpiece that best showcases his design principle of abiding by nature. In the design, he strived to hide the hint of artificial designing and made efforts to present a natural looking outcome. The college is located on a small mountain in Aarhus near Ebeltoft, with beautiful surroundings. The hill is covered with wild herbs except for a small pine forest and some scattered shrubs. The main building complex of the campus consisted of two parts: five interval small buildings arranged into a curved layout and a narrow rectangular-shaped tall building. The essence of the design was showcased in the main scenic area which lied on the side hills behind the main building. To add more dynamic and changes to the hill, he appropriately manipulated the valley by removing some soil and piling the soil on both sides of the hill to create steepness and a sense of layering. At the same time, he retained the existing vegetation and added some trees and shrubs. The treatments of the terrain did not destroy the natural beauty, but on contrast, enriched the scenery. The dense forests, spacious grasslands and scattering trees have added a pastoral touch to the place, naturally resembling the English landscape architecture style. The same design principle has been adopted in the project of DGS Headquarter (Danish Gymnastic and Sports Association headquarter, 1993). The Headquarter is located in a valley surrounded by steep cliffs and green trees, with a stream on the bottom. Through collaboration with other designers, Andersen cleverly utilized the changing forms of the terraces to connect the buildings with the surrounding slopes, and blended the buildings into the woodlands. The winding stream added a charming touch to the scenery. Such design technique displayed similar exquisiteness as that demonstrated by the “Falling water villa” design of the famous American architecture Frank Lloyd Wright (1869-1959). In Andersen’s

opinion, the site is more than just the symbol of nature, but is also the carrier and element of the design, and, more importantly, the manifestation of the soul of nature. Therefore, the designer must fully utilize, rather than being constrained by, the existing natural conditions and strive for the brilliant combination of natural beauty and man-made beauty, which is the best demonstration of the value of the designer.

5.2.6 Conclusion

Though he has already achieved huge success and great worldwide reputation in the landscape community, J.A. Andersen has never stopped his pursuit. He has been adhering to his own design visions despite the changing trends in the fast growing modern landscape architecture. In his view, only the classic and the traditional can survive the test of time, and only by respecting and inheriting the history can landscape architecture better develop. When accepting the Nykredit Architecture Prize in 1993, he said: “The expressive methods of architecture often changes with the times, but the art of landscape architecture relies on a timeless platform that travels through centuries. Maybe because of the long life cycle of the trees, landscape gardens mainly utilize concise art forms and architectural elements unaffected by the changes in society, giving the gardens a timeless and permanent quality.” This easily showcased the art realm Andersen has been pursuing.

In the search for new inspirations and deeper understanding of the landscape arts of different times, Andersen followed the traces of history and traveled to Italy, France, Britain, Germany and other European countries to visit the ancient gardens and famous parks, while taking every opportunity to study and understand the landscape art of other countries. For example, the Herning Square (1996) he designed was inspired by the Kungsträdgården Square of Stockholm, Sweden. For another example, the green avenues in some of his works were inspired by the Le

Notre's design of the Versailles Palace. When he studies the art of landscape architecture, he does not only study the gardens, but also investigate into the historical background, environmental conditions, cultural references and local features. Currently, Andersen is invited to participate in over 30 international biddings every year, and he maintains a high winning rate. His success lies in his great abilities to break through the old pattern, to draw inspirations from others, and to think independently, which is enlightening for other designers.

5.3 Philosophy and Its Expression of Landscape Architecture in S. L. Andersson's Design Works

Abstract: Stig Lennart Andersson is one of the few renowned Danish landscape architects in the worldwide. His design works are becoming the favorof people thanks to their unique features, comfortable and romantic atmosphere, local identity and human dimension. In this paper, the author attempts to help people understand his works well by analyzing his design philosophy and methods through his works. His philosophy could be attributed into four aspects: using human-oriented ideals to enhance social harmony, using native elements to promote cultural inheritance, using artistic renovation to drive the development of landscape design, and adopting the principle of sustainability to improve life quality. And his expression could be summarized as simple design forms, multi-functional spaces, abundant visual experiences and elegant detail dealing.

Keywords: S.L. Andersson, landscape architecture, design philosophy, artistic expression

5.3.1 Introduction

Stig Lennart Andersson is one of the few renowned Danish landscape architects in the worldwide. His company SLA, which was named after him, also enjoys great reputation in Denmark and Europe. In his early years (1978-1982), S. L. Andersson studied civil engineering at Technical University of Denmark. Subsequently, he studied Japanese art history at East Asia Institute, Copenhagen University during 1985 to 1986, and obtained the master degree in architecture at

School of Architecture at the Royal Danish Academy of Fine Arts in 1986. He later took an opportunity to further his study in Japan for 3 years from 1987 to 1989. Between 1990 and 1991 he worked as a landscape gardener for the studio of famous Danish architect Sven-Ingvar Andersson (1927-2007). Later he worked as instructor and researcher at different universities in Denmark, Sweden and Norway. His abundant academic background and work experience played a huge role in his career and success. When he was working as a university professor, he had established his own designing studio in 1994, which was re-named to SLA in 2004 and has grown into a large company now. The business scope has expanded from merely garden designing at the beginning, to including general urban planning, landscape planning and detailed installations now. Since he started his practice as landscape architect, he has undertaken various types of commissioned projects and over 70 bid projects, among which 34 projects won the first prize and 1 project won the second prize in bidding. The projects included gardens, courtyards, parks, zoos, campus, stadiums, sports centers, residential areas, squares and roads, as well as the planning of new cities, the reconstruction of old cities and general urban planning. His landscape designs did not only flourish in Denmark, but also can be seen in Sweden, Norway, Iceland, Italy, Nigeria, China and other countries. Andersson's designs have won over 10 professional awards from home and abroad, including the "European Landscape Award" sponsored by Topos in 2002, the "Eckersberg Medal" awarded by the Royal Danish Institute of Fine Arts, the "Road Prize 2009" and the "Nykredit Architecture Award 2010". Besides, the works of Andersson and his team have been included in and introduced by both domestic and international academic books and professional journals for over a hundred times. During the "International Horticulture Exhibition 2011" in Xi'an, China, Andersson, as one of the nine invited masters, displayed his design works theming "Yellow Mud Gardens", with a hope to be recognized by Chinese public and peers. Through the examination of his design

philosophies and artistic expressions, this thesis hopes to help people better understand his works and learn about the status quo of the landscape architecture in Denmark.

5.3.2 Philosophies of Andersson's Landscape Architecture Designs

In Denmark, any landscape design project has been injected with more connotations than merely pursuing functions and visual effects. The understanding and pursuit of such connotations, together with the implementation and expressive forms of the connotations, constitute the different designing conceptions of different designers. The designing philosophy of Andersson and his team is based on the search for trans-disciplinary connection and collaboration. More specially, it refers to the efforts to combine the unique artistic visions with the democratic processes involving the users and clients, so as to offer a solution that scientifically deals with the interaction between human experience with the physical, geographic, climate and resource factors of the site. Andersson's design philosophies can be summarized as the following four aspects: to use designs to enhance social harmony, to promote cultural inheritance, to push forward the development of landscape art and to improve the quality of life.

5.3.2.1 Using Human-oriented Ideals to Enhance Social Harmony

Ever since the 1830s when the city park movement emerged in Britain , landscape architecture designs in the western countries have been performing the functions such as narrowing the disparity between social classes, promoting social justice and enhancing neighborhood harmony. In his designs, Andersson has always regarded social liability as his priority and strived to display the "people-orientation" conception through his works. The "North West Park" is a good example. The park is located in an impoverished district with relatively serious environmental pollution and high crime rate. Therefore, the design and

construction of the park not only concerned the reformation of urban public spaces, but also concerned the reconstruction of a neighborhood and civil life. In 2006, SLA obtained the commission to design the project by winning the first place in the bidding. The park covered an area of 3.5 ha, and originally consisted of bus terminals, garages and parking lots. To deal with such a tricky, irregular-shaped site, Andersson and his team established in-depth communication with the local residents, listened to their wishes and integrated their requirements into the design (Fig. 5-22). Firstly, in response to the surrounding grey building complex, the team decided to plant 1001 trees to change and improve the tone of the surrounding environment. Secondly, in terms of the status quo of the large proportion of foreign immigrant population, they determined to use colorful lighting that resembled ethnic cultures so as to encourage the interaction between different cultures. Next, the team designed a diversified spatial layout to complement with different activities and satisfy different users. With the combinations of different shapes and colors of the trees, straight roads and winding paths, different colors and volumes of the lighting, and different textures of the grass lawns, the park was filled with vitality and liveliness (Fig. 5-23). The park was constructed in 2009 and 2010, and is now open to public. The completion of this park has not only largely improved the public spaces of the region, but also greatly changed the conditions of civic life by increasing the dynamic of the neighborhood, promoting the communication between residents and maintaining the security and stability of the community.

Fig. 5-22 Plan of North West Park (left), Fig. 5-23 A view of night in West Park (right)
(Source: http://www.sla.dk/byrum/nordvgb.htm**)**

5.3.2.2 Using Native Elements to Promote Cultural Inheritance

Native features can serve as both inspirations and elements of the design. With the prevalence of the so-called "international style" today, using native elements has become both a method of protecting local landscape and a measure of cultural inheritance. Native elements involve the historic and cultural heritage of the site as well as its geographic features. In his designs, Andersson highly values the exploration and utilization of local features, so as to preserve the native identity and promote the cultural inheritance of the region. In his point of view, the designing element itself "can evoke people's feelings and imaginations".[344]The design of "City Dune" is a great illustration of his designing vision. The project was to design a courtyard for the Copenhagen headquarter of SEB Bank, but it was not just an average courtyard. The site was located in between two irregular-shaped office buildings in the waterfront area of Copenhagen, covering an area of 7300 m^2. The challenge was to design a site that could harmoniously complement the buildings, connect the public spaces, and at the same time, meet the requirement of the bank clerks and provide a high-quality venue for local citizens. Andersson drew the inspiration of "Dune" from the geographic

[344] Malene Hauxner, Supergraphik und Superlogik– Super graphics and superlogic, Topos(vol. 40), Munich,2002, p 81.

characteristics of Denmark. Firstly, the “Dune” symbolized the sand dunes, a unique natural landscape in the northern part of Jutland Island of Denmark, and also resembled the beautiful snow scenes in the winter of North Europe. Secondly, the irregular shape of the “Dune” echoed with the irregular shape of the buildings, while the white “Dune” echoes with the blue buildings, forming a beautiful synchrony (Fig. 5-24). In addition, the trees planted on the “Dune” displayed a sense of liveliness and hope, and mitigated the rigidness and coldness of the building and the ground (Fig. 5-25). Native elements have been widely used in many of Andersson’s works.

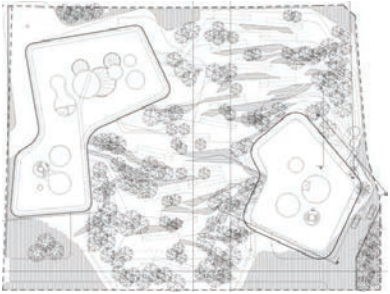


Fig. 5-24 The Plan of City Dune (left)，

Fig. 5-25 The view of City Dune (right)(Source: http://www.sla.dk/byrum/sebgb.htm**)**

5.3.2.3 Using Artistic Innovation to Promote the Development of Landscape Industry

Artistic innovation is the source and driving force of the development of landscape industry. To think outside of the box in the design is the demonstration of innovative abilities. It is one of Andersson’s principal goals to constantly try out new forms and contents. Most of his design projects were obtained through bidding, which could only be won with artistic innovation and exploration. From small gardens of a couple hundred square meters to large city parks of dozens of hectares, Andersson could express in them his unique understanding of the site,

demonstrate his true concerns for the users and display his persistence in exploring the landscaping art.

In the “City Dune” project, the “dunes” are constituted of layers over layers of irregularly shaped concrete boards that stretch from the ground to the second floor, reaching a total height of 7 meters. Between different layers of the “dune”, irregular strip-shaped greeneries were designed to plant trees and other plants. The surface of the “dunes” also had round tree pools in them for tree planting. The intertwining evergreens and deciduous trees formed a sharp contrast against the cement ground (Fig. 5-26). Besides, Andersson also created a metropolitan romanticism with the designs of the lighting and the spraying mist. The design was awarded in 2011 by the Academy of Danish Architecture with the “Årne Store Arne” Prize, which was named after the famous Danish architect Årne Jacobsen. Meanwhile, in the design of “Solbjerg Square” in “Frederiksberg New Urban Spaces”, Andderson showcased his amazing imagination and creativity to a larger extent. The space consisted of three sites of different natures and functions (Fig. 5-27): Site A was enclosed by Copenhagen Business University, Wroclaw Commercial Center and the Wroclaw City Library; Site B was surrounded by the Wroclaw City Library, a gym and a high school; and Site C was constituted of a couple of banks, coffeehouses and small buildings. All three sites served traffic functions and conjoined into a T-junction.For the biggest site A, the main square, Andersson arranged two sets of mist fountain matrix (constituted of 140 and 115 mouths respectively), sound wells and 50 round draining plates in the center. In the north of the square, he designed a 0.4m-tall, 11m-wide, 25m-long iron matrix equipped with seats and planted with trees. At the western end, he designed a forest with the size of 20m×68m, in order to block the west wind from undermining the environment of the square. In the south part of the square, he took advantage of the 3m-tall retaining wall in Site B to create a 10m-long lighted water curtain (Fig. 5-28). For Site B, Andersson created a wide stepped platform

in accordance with the ground height difference. Each level of the platform was regularly equipped with a bowl-shaped planting box with a diameter of 1.5m, decorated with lights. In conformity to the commercial functions of Site C, Andersson designed an outdoor activity space for the coffeehouse in the north of the site, and a bicycle lane in the south. As people walk down the square, the fountain creates a misty and dreamy water curtain, and the 50 sound wells simulate the songs of birds, the roars of animals, the tides of the sea and the sounds of wind, so that people could feel the existence of nature even in the city. The round draining plates, which stores the rainfall, can not only maintain the humidity of the environment, but also reflect the shadows of the clouds (Fig. 5-29). It is because of the beautiful design that many visitors have been attracted to the new urban space.

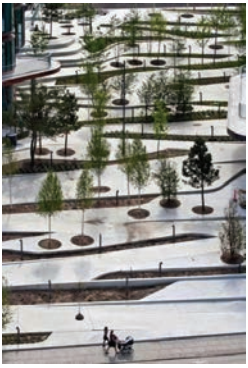


Fig. 5-26A view of City Dune (left) (Source: http://www.sla.dk/byrum/sebgb.htm**)**

Fig. 5-27 The Plan of Solbjerg Square (middle)

Fig. 5-28 A view of waterfall in Solbjerg Square (right)(Source: http://www.sla.dk/byrum/fredegb.htm**)**

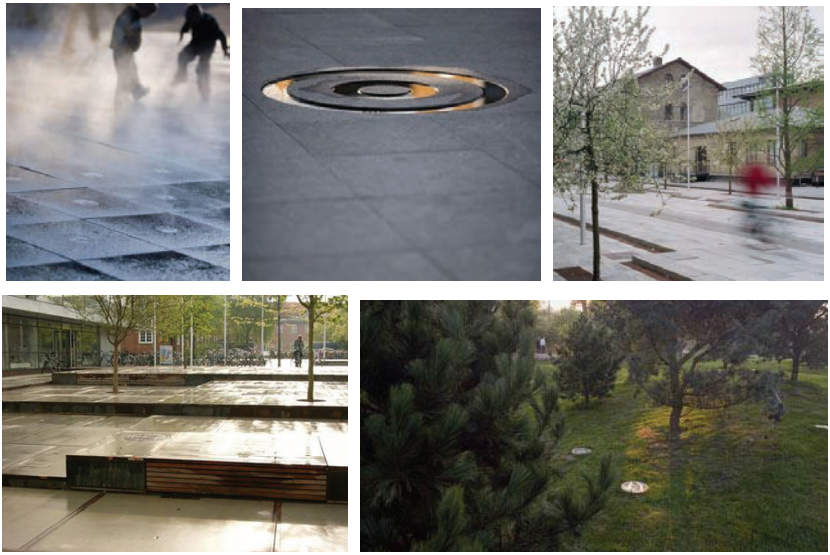


Fig. 5-29 A view of Solbjerg Square, fountain, sound well and bicycle tracks (from left to right, the upper row), the stepped platform and the spine wood (from left to right, lower row)

5.3.2.4 Enhancing the Quality with the Principle of Sustainability

As one of the major principles in the world today, the principle of "sustainable development" has been regarded as an important guideline in the field of landscape architecture. As American scholar Elizabeth K. Meyer once stated, the "sustainability" of landscape design should include four aspects, the ecological health, social justice, economic prosperity and beauty. The pursuit of sustainable development has been reflected in Andersson's works. In terms of ecological health and beauty, he paid great efforts to naturally integrate the design with the environmental factors, and strived to reduce the negative effects on the environment to the lowest level possible. On the other hand, by effectively utilizing various natural elements, he aims to improve the urban ecological environment, provide beautiful living conditions for the citizens, and enhance the urban life quality. While designing the "Anchor Park" in Malmö, Sweden,

Andersson was inspired by the unique diverse characteristics of Sweden's natural environment and decided to build a sustainable city park using local materials. The park covered an area of 2.9ha, with flat terrain and the shape of a regular rectangular (Fig. 5-30). The region was originally an industrial port in west Malmö and was reconstructed into waterfront residential area in the late 1990s due to the depression in transportation industry. Therefore, the park region must open to the public and satisfy the requirements of the local residents. In his design, Andersson first created a lake that covered 1/4 of the total area, with a straight south bank and a meandering north shore which looked natural and inspirational. Next, he placed grass lawns, alder marshes, oak woods as well as salt-water biotopes with crayfish in the park, and decorated the park with granite stones, highlighting the rustic and exotic charm of the landscape (Fig. 5-31). Besides, trestles were built over the wetlands and the rivers, performing both protective and decorative effects. In addition, the cement pavement was equipped with circular draining plates to store the rainfall, and the park also had a rainfall collection system to efficiently utilize the rain water resource. Under Andersson's brilliant arrangement, the park has not only reached the sustainability requirements on beauty and ecological health, but has also upgraded the living conditions of the new residential region. The very same conception of sustainable development is also demonstrated in the "City Dune" project, where the rainwater collection system guides the water into two gigantic tanks under the surface. The 110 mist mouths placed all around the "Dune" can water the plants in average days and perform humidification and cooling effects during the hot seasons.

5.3.3 Artistic approaches of landscape architecture in S. L. Andersson's design works

Andersson's design works are favored for their uniqueness, romance, provincialism, and humanistic feelings. His artistic approaches, therefore, enjoy

much attention. Approaches and designing philosophy cannot be separated from each other. Great artistic approaches can enrich designers' conceptions. Succinct styles, various spaces, affluent experiences, and delicate detail treatments are the main concepts of Andersson's design works.

5.3.3.1 Succinct designing styles

Succinctness, simplicity and frugality of the designs are the traditions of Danish landscape architectures. Andersson inherits such style in his design works. Ladegårdsparken is an green space attached to a public welfare housing area, which is occupied by more than 900 household (2000 people), in Holbæk, Denmark. The area of Ladegårdsparken is 3.8 ha (Fig. 5-32). In the continuous strip-shape spaces of 22 buildings of 3 layers, Andersson did not apply any superfluous elements and decorations in his design. Instead, he utilized linear and arc roads to connect more than 40 little gardens of different sizes and types, including entertaining sites (sandpit sites, skateboarding site, and etc.), rosary gardens, herb gardens, orchards, and other paved and semi-paved open areas. Besides his simple style, Andersson also created some stereoscopic transformations by adding some ups and downs of micro-topography in his design. He shaped open and enclosed areas by using the spacing of plants. He paired black pine and maple tree to create a contrast form. Especially, by arranging 1600 types of cherry trees and rhododendron, Anderssonbrought about a floral world in this garden in both spring and summer (Fig. 5-33). In the "Little Plot" design in Assistens Kirkegard in Copenhagen, Andersson applied his succinct and simple style to make an open space of 400 m^2 distinctive (Fig. 5-34). By paving the whole site by 30 grass and red sandstones of the same sizes in a well-spaced but seemingly irregular order, he managed to make the whole site dignified and solemn. At the same time, this design was dynamic and changing, standing for the strength and eternity of life (Fig. 5-35).

Fig. 5-32 Map of Ladegårdsparken (left),

Fig. 5-33 A view of Ladegårdsparken (right)(Source: http://www.sla.dk/borger/ladegaa.htm)

Fig. 5-34 View of A Small Plot from distance in AssistensKirkegård (left)

Fig. 5-35 A view of A Plot (right)(Source: http://www.sla.dk/byrum/assisgb.htm)

5.3.3.2 Various functional spaces

To create alternative spaces for different requirements under limited circumstances requires the designer to have superb ability of controlling and manipulating the space. Andersson always puts many flexible approaches into his design works which demonstrate his control over spaces, as well as represent his abundant imaginations and creativities. Between 1999 and 2001, Andersson used roads, ponds, hills, and gardens in an area of 2.2 ha in “Trekroner School” design. He built a “garden of wisdom”—a large playground, which was highly favored by

teachers and students. At beginning, he separated the area into a big and a small part by using a fold line. He designed an oval pond on one side of the small part. Children can play with water in summer (Fig. 5-38). However, on the side of the bigger part, he built a little hill, which was a significant contraction to the pond, and showed a “mount-water” formation. At the same time, he laid a triangle herb green island surrounded by sands. Secondly, a quite game center was built on the edge of the area with some tables and chairs for children to play some crafting games. Besides, with grass lawns as the keynote and a few trees as decoration, the campus was full of liveliness. In 2005, Danish Institute of Education and Society conveyed a research on the school and showed that its students enjoyed more outdoor sports than those in other schools, and that their gaming spaces were larger than the others. Students also had more tendency and opportunities to play with the opposite sex. This survey is the greatest reward for Andersson’s design. In Andersson’s park designs and residential green space designs, he has always been adherence to the use of various and flexible spacing techniques, and he never agrees on any rigidity. In this way, he manages to maximize the social benefits of green areas.

Fig. 5-36 Plan of Trekroner School (left)

Fig. 5-37 A view of Trekroner School (right) (Source: http://www.sla.dk/byrum/assisgb.htm)

Fig. 5-38 A pool in Trekroner School (left)

Fig. 5-39 A view of Trekroner School (right) (Source: http://www.sla.dk/byrum/assisgb.htm)

5.3.3.3 Affluent experiences

Landscape architecture is a designing art that combines science and beauty. Whether it can provideto people as much affluent experiences as possible while meeting social requirements and according with ecological principles, is a measurement of the landscape architect's artistic expressive capabilities. Andersson fully utilizes different landscape elements in his design works to build an environment of abundant experiences for people. In 2003, he only utilized the herb as the only element in an area of 1.3 ha in "Charlotte Garden" design. By the use of dozen various herbaceous plants, he created a colorful landscape for people to experience the beauty of different types, the beauty of plant patterns, and the beauty of four seasons (Fig. 5-40, 5-41, 5-42). In his "Fredericksberg New City Space" design, Andersson changed a ground into a great place for natural experiencing by using sounding and atomizing landscape approaches. Besides using the lights to enhance the change of the color in the garden, in "North West Park" design, Andersson also painted different colors in lamp poles to enrich tourists' experiences (Fig. 5-43). The light design was also rewarded as "Danish Light Award" (Lysprisen in Danish).

Fig. 5-40 Plan of Charlotte Garden (left), Fig. 5-41 A view in Charlotte Garden (right)

(Source: http://www.architonic.com/aisht/charlotte-garden-sla/5100080)

Fig. 5-42 A view in Charlotte Garden from spring (upper left), summer (upper right), autumn (lower left) to winter (lower right)

5.3.5.4 Delicate detail treatments

It is a tradition to focus on the detail treatment in Danish landscape architecture. Delicate detail treatments can promote designing whole level of a work and artistic

standard. At the same time it can ease and satisfy people when they are experiencing the work. In Andersson's design work, it is easy to see delicate detail treatments everywhere. In "Birthday Cake Building" design, a garden of 550 m^2, Andersson designed it as a "palette" of a painter (Fig. 5-44). The colors on the "palette" were various plants he picked, mostly were herbs and small trees (Fig. 5-45). On the east-south and west-north corner of the "Palette", he designed a bicycle frame by using the edge of the "Palette". Several small spaces were created by the arc edges. He also built a small playground for kids (Figure 5-46). In "TuborgSundpark" residential area, he used stones to decorate the wall and elevated the whole level of the area (Fig. 5-47). Meanwhile, in "Anchor Garden" design, the unique design of trestle was also a spotlight in the garden (Fig. 5-48).

Fig. 5-44 A bird-eye view of Lagkagehuset garden (left),

Fig. 5-45 A view of Lagkagehuset garden (right) (Source: http://www.sla.dk/byrum/lagkagb.htm)

Fig. 5-46 A view of Lagkagehuset garden (left) (Source: http://www.sla.dk/byrum/lagkagb.htm)

Fig. 5-47 A view of TuborgSundpark (right) (Source: http://www.sla.dk/planlaeg/tuborggb.htm)

Fig. 5-48 A view of the Trestle in Anchor Park

5.3.4 Conclusion

Even though each design project has different requirements and functions, S.L. Andersson's design works are all manifestation of his designing philosophies. They include scientific researches and artistic approaches. The designing approaches of his works inherit the essence of Danish landscape architecture and embed his own unique artistic style. Andersson's landscape architecture design works can enlighten us in the following 3 ways:

Firstly, landscape architecture designers should have social responsibility. When taking the commission of a project, a landscape architect would have his own understanding and conception about the project. No matter the conception comes from ideality or reality, designers should always integrate the design with social responsibility. This connection is definitely not a threat for designers to surrender or quit. Designers should always apply their professional knowledge and skill effectively under the sense of social response. In Andersson's design works, he puts users as the center of the work and sets his goal around the needs, feelings, convenience and wishes of the users. He always keeps social responsibility in his mind by shouldering the responsibilities to protect the environment and maintain

the sustainability of his works. It is all these factors that makes his works widely accepted and favored.

Secondly, landscape architecture designers should have complete knowledge and ability. The reason Andersson can continuously provide great works is related to his educational background and experiences. He is familiar with engineering detail requirements because he is majored in civil engineering. This is absolutely helpful in his design. He also has deep conception of Japanese landscape architecture because he learnt Japanese art history. This is also the reason why his works has a succinct style of Japanese landscape architecture, which can be connected to the introvert and frugal style of Danish landscape architecture. Besides, Andersson's education and professorship atthe Royal Danish Academy of Fine Arts, School of Architecture,has also become a great support for his success.

Thirdly, landscape architecture designers should have acute ability of art comprehension. Comprehension is the base of creativity and is the premise of representation. Elements in Andersson's design works can be summarized as plants, aqua, landscape, light, and small decorations. However, he can group these elements creatively by using his acute ability of art comprehension to optimize the function, potential and value of the combination. This is also regarded as the uniqueness of his artistic charm.

In conclusion, Andersson is at the peak of his landscape architecture design career. It is believable that his works will keep flourish. And his designing philosophy and artistic approaches are expected to be enriched and perfected.

Chapter 6 Inspirations from the development of urban green space in Copenhagen

6.1 Introduction

With experience of urban green space construction, Denmark has provided great inspiration for China on its way to urbanization land urban green spaces. The course of Denmark's urbanization, especially in Copenhagen which is the main research object here, has revealed that the experiences have been acquired by Danish people through their explaration and hard work , in the field of the construction of modern cities. Although their experiences may be stamped with Danish features determined by its own national, cultural and traditional conditions, these experiences contains the universality which can be drawn from it.

As discussed in this paper, every city must face and deal with the issue of how to resolve problems concerning space, pattern, scale and quality of development through scientific method and approach. In the process of seeking such method, the starting and focal point of city planning should manifest itself in the protection and construction of urban green space for the sake of better urban living environment and living quality. The primary issue in city planning is the formulation and utilization of a long-term development strategy in order to ensure various aspects of urban space development can function separately and coordinate together, like housing, transportation, finance, and service industry. The basic approach is to manage the usage of land and the amount of land employed, thus meeting the demand for present and future land use. Such approach is in great accordance with the modern-day guide for a sustainable, eco-friendly, and low-carbon city. However, the real issue here is how to fulfill the daily needs and how to raise the living standards of urban residents.

As the capital and Denmark's political, cultural and economic center, Copenhagen has to take under consideration its role in the long-term development of the whole nation, rather than merely the evolution of its own. Hence, it requires a more complex, diverse, and therefore complicated plan than other cities. Despite all the difficulties, Copenhagen's city planning, from the initial "Finger Plan" in 1947 to the latest one in 2007, has drawn up a successful scientific layout of long-standing for the city in the course of sixty years. With a sense of perspective and strategy, it has combined the city's element features of geography, resource and population. It has provided necessary opportunities for the city's development at the time and in the long run. Meanwhile, under the guidance of city planning, Copenhagen's development and green space construction have been improving the quality of urban space steadily. After constant effort in the past decades, Copenhagen finally achieved the highly admired results today.

The main object of this study is not specific problems like planning techniques and space design, but broader issues such as how to develop the policy and law, how to formulate public policy, how to manage sociaty and how to develop civic culture. Consequently, the inspiration and lessons we draw from the case of Copenhagen are mainly from the point of view of macro policy and management. In general, the two fundamental hypotheses raised at the beginning are proved: ①Urban planning has irreplaceable significance for rational, harmonious and healthy progress of the city. In the past sixty years, with the unremitting application of city planning as a tool, Copenhagen has marched forward into a properly functioning and sensibly distributed city, which has, on one hand, secured its role in Denmark's national progression, and on the other hand reserved its leading position in regional competitions. ②Assisted by support from policy, law and the public, through application of theorys and methods for landscape planning and design, urban green space under the guidance of urban planning is able to take the shape of different types required by the citizens for

various work and living purposes. The specific enlightenment will be depicted in five aspects: the scientific nature and steadiness of urban planning should be valued; the significance of Copenhagen's "Finger Plan" mode should be valued; the construction of urban green space should be valued; the creation with native distinctive style for landscape architecture should be valued, and the constraction of hormativity for landscape architecture should be valued.

6.2 To lay emphasis on scientific nature and steadiness of urban planning

Urban planning plays the role of a guideline and establishes a foundation to city development. As a result, maintaining the plan steady and consistent is the primary issue in pursuit of progress. Despite there is its own deficiency, seen as a whole, the case of the Copenhagen is a sufficient proof that by applying properly designed and well implemented plans, the desired results can be achieved regarding city scale, pattern and distribution regulation. Though China boasts a long-standing history of city planning, it has, in comparison to developed country like Denmark, lagged behind western countries in modern urban planning, for in the nineteenth century when urban evolution took off in western countries, China was still suffering from domestic turmoil and foreign invasions. The coordinated and methodical large-scale urban planning did not start until the founding the New China in the fifties of twentieth century. Similarly, the comprehensive, profound and methodical research also had a comparatively late start, leaving a big gap between China and western countries.

China is currently still in the stage of urbanization. Statistics showed that China's initial urbanization ratio has soared from 17.92% in 1978 when the reform and opening-up policy was first put into practice (and 7.3％ before 1949 [345]) to

[345] Zheng Liu. and Y.F. Chen, The number of cities in China reached 655 [J/OL] http://news.csfqw.com/news-show-236538. html, 2009-9-18

46.59% in 2009 [346]. The growth rate is unprecedented. As documented in the history of urbanization, China's urbanization took only 22 years to increase to 40% from 20%. It took Britain 120 years, France 100 years, Germany 80 years, the US 40 years, the Soviet Union and Japan 30 years, to accomplish this[347]. According to National Bureau of Statistics of China, China had 655 cities in 2007, a huge increase from only 132 cities before 1949. In year 2007, there were 36 cities with a population of more than two million, and 83 cities with a population between one million and two (back in 1949, there were only 10 cities with a population of more than a million[348]).[349] The amount of China's designated towns has also increased from 2173 in 1978 (mainly county towns and industrial and mining towns) to 19249 reported for the year-end 2007 (most of which evolved from the former designated villages)[350] (Fig. 6-1). China currently has a urban population of 620 million, twice the population of US, and even a quarter more than that of twenty-six EU countries combined[351]. All the statistics point to the undeniable progress China has made in the course of urbanization, which has both improved the quality of Chinese citizen's life and sped up the economic growth in China. Meanwhile, such rapid a pace directly causes planning to fall behind construction. Consequently, with the plans revised constantly, many constructions began when plans were still to be shaped. In such a rare period of development opportunities, with China's special national conditions taken into consideration, it is unfavorable for China's urbanization to slow its pace down to embrace a more steady and orderly plan. For this reason, urban planning in China cannot be as scientific and coordinated as in Copenhagen. It may result in the lack of long-standing considerations and prospect concerning population regulation, space distribution,

[346] China's urban observation: No leap forward in urbanization, [J/OL] http://www.cityup.org/news/urbanplan/20110214/ 74661.shtml, 2011-02-14,
[347] D.D Lu, Academician of the Chinese Academy of Sciences: China's urbanizationis still in danger of traps of premature advance, http://www.cityup.org/news/urbanplan/20100708/66254.shtml, 2010-07-08
[348] Zheng Liu. and Y.F. Chen, The number of cities in China reached 655 [J/OL] http://news.csfqw.com/news-show-236538.html, 2009-9-18
[349] China now has 655 cities, 462 more in 30 years , [J/OL] http://www.zhgpl.com/crn-webapp/doc/docDetailCreate.jsp?coluid=7&kindid=0&docid =100790135 , 2008-11-0
[350] Ibid.
[351] "The Urbanization Fever" needs cooling, People's Daily (Oversea Edition), http://www.cityup.org/topic/urbanization /ideas/2011022875135. shtml. 2011-02-28

resource utilization and land conservation. In other words, many cities may suffer from unmethodical planning and construction.

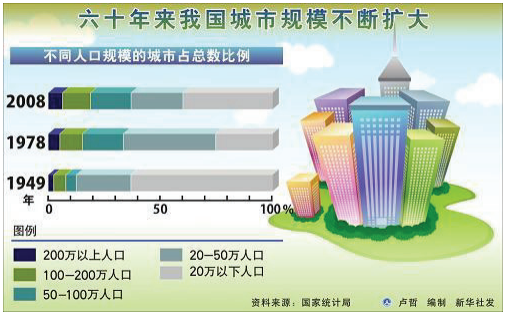


Fig. 6-1 The illustration of urban population growth from 1949 to 2008
(Source: http://www.csfqw.com/html/6/6DB7DDC1-490E-4BB7-866D-1C7A190AE0A2.html)

Admittedly, urban planning in China faces tremendous challenges, in which are unprecedented in human history. However, hardship is no excuse to withdraw from the research and launching of urban planning. On the contrary, for the sake of our future, the people's future and the future of mankind, we must give prominence to urban planning and strengthen the work, achieving sustainable urban development through schemes.

The success of Copenhagen's "Finger Plan" fundamentally lies in its steady and consistent planning and its steadfast and coherent objects. However, it does not mean the process ran smoothly without a hitch. As a matter of fact, barriers were to be broken in different stages, some of which even involved temporary deviations and inversions from the original plan. The sixties and seventies of the twentieth century, for instance, witnessed strayed practice from the plan, which resulted in the crosswise sprawl of the "Pearl" towns on some "Fingers", marring the distribution and structure of the green wedges in between "Fingers". Naturally, all these momentary deviated advances were recognized and rectified in the latter plans. The twists and turns in the proceeding may have in some way confirmed

people's resolution and confidence in the planning and its path. Therefore, to learn from Copenhagen's "Finger Plan", we should start with how to enhance the scientific nature and steadiness of urban planning, and how to detach personal perception and preference of the administrator and regulator from the plan, and thus achieving a complete eradication of the blindness in city planning and construction. To accomplish this, we should attach as great importance to the research and study of urban planning as Copenhagen did. Furthermore, such research requires mobilization and organization of all forces, since studies and proposals from the people laid a solid foundation for Copenhagen's evolution. Had the folk never initiate researches and studies, Copenhagen might have taken a total different form. As reflected in this case, the social and value form of a civil society like Denmark provided favorable premises and conditions for the unfolding of a democratic and scientific urban planning. Involving all forces, on one hand, stimulate initiative and bring forth joint attention and participation at all levels of society, which serves to increase both public support and quality of the research. On the other hand, it may help to reflect and represent the desire of the people to the uttermost extent, ensuring that the plan serves the people to its maximum capacity, and therefore serves its function in urban living quality improvement.

At present, China's urban planning is mainly led by government branches, consisting of four levels — state, province, city and county level in that order. Though China's institutional form bears a similarity to Denmark's three-level one, their operations and procedures are utterly different. In Denmark, urban planning of all three levels proceeds simultaneously with the election of the aforementioned level, but any amendment has to go through strict procedures under clear regulations. While in China, urban plans are normally modified every five or ten years, sometimes additionally by the new administration. Although necessary amendments are needed to cater to the changes of circumstances and tasks, new

administration may revise the plan out of its different focus than the last one, which may weaken the authority of the plan implementation. The success of Copenhagen's "Finger Plan" lies primarily in its undistracted attention to steadiness and consistency. Had Copenhagen adopted a fickle policy, what would have become of it would be hard to predict. Steadiness and consistency should be one indispensable lesson we draw from the Copenhagen case.

6. 3 To lay emphasis on the significance of the Copenhagen's " Finger Plan" mode

The imaginative "Finger Plan" of Copenhagen not only brought practical benefit to Copenhagen itself, but also formed an exemplary mode. In the process of a city's evolution, how to improve its environment and ecological conditions continually is both a fundamental issue in urban living quality enhancement and a challenge every city has to face. Many countries has made active attempt to find solutions, among which introducing green space into established urban districts is a method many chose to employ. Such measures include for instance, satellite pattern which radiates from a central existing urban areas, network pattern, and linear patterns (Fig. 6-2, 6-3). It is fair to say that each pattern has its strength and limitation. However, it is not the case with Copenhagen's "Finger Plan" mode, and for that reason its exemplary significance manifests itself. On one hand, the plan effectively prevents the disorderly rampancy of urban areas through strategic planning, allowing the cities to follow its schemed path—to develop rail lines, centered on "finger" cities, combining urban pattern and structure with the cities' natural and environmental resources, and laying a spatial foundation for sustainable development. On the other hand, green wedges between "fingers" are reserved through planning. In the initial stage when "Finger Plan" was first brought forward, reserving green wedges did not seem to contain too much practical value, if not costing financial lost and additional investment. However, with the ever-growing scale of Copenhagen through orderly extension, theses

green wedges are by far an essential part engraved in Copenhagen's spatial structure. They became an important carrier of urban green space, indispensable ecological corridors for the city, and recreational locations for citizens on weekdays and vacations. There lies its true function, value and importance. For these reasons, the significance of Copenhagen's "Finger Plan" mode manifests itself not only on technical level, but on a visionary strategic one.

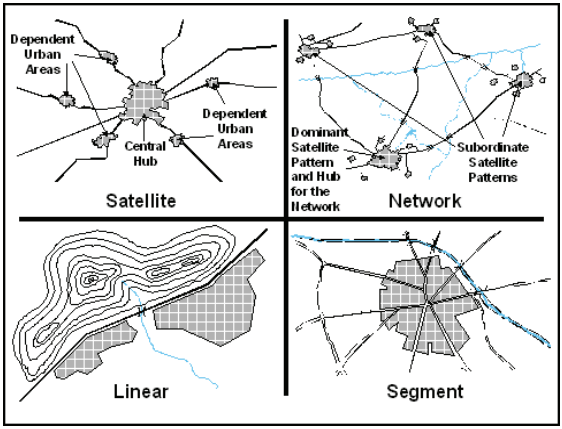


Fig. 6-2 The illustrations of different Urban Patterns under different development strategies (left) (Source: URBAN OPERATIONS, http://www.globalsecurity.org/military/library/policy/army/fm/3-06/chap2.htm),

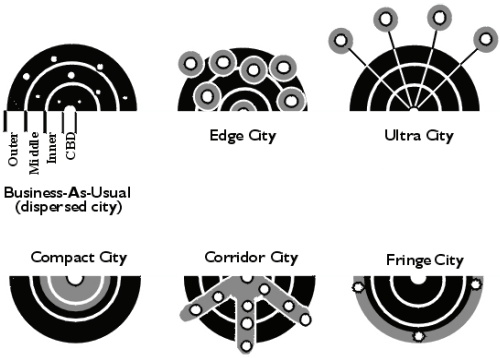


Fig. 6-3 The illustrations of different Urban models (right) (Source: Towards a Functional Classification Replacement - Part Three Laurence Aurbach, http://pedshed.net/blog/wp-content/uploads/2009/02/regional_patterns.gif)

Through the study of Copenhagen case, we can summarize the mode as an urban planning pattern oriented by three dimensions — transportation, green space and spatial dimension, based on which the relations between urban development and population, land resources and environment are handled. Directed by this pattern, the city established a pattern extended along “commuter lines”, filled with “green space”, and centered on “urban fabric of central city”, thus harmonizing the relations between the three(Fig. 6-4). It is also under the guidance of this pattern that Denmark’s new economic form featured by “knowledge-based economy”, “service-based economy” and “information-based economy” can arrange and evolve itself flexibly in the new space pattern, providing fresh opportunities for the city’s economy. The Copenhagen case proved that three-dimension planning pattern can successfully choke the tendency of disorderly rampancy of metropolitan area, resolve the issue of urban green space reservation, and therefore guarantee urban ecological balance and fulfill citizens’ reasonable requirement for green space.

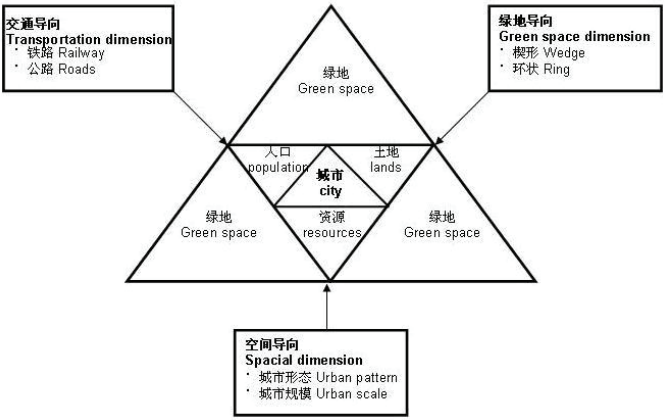


Fig. 6-4 Three dimensions of urban planning pattern

On technical levels, Copenhagen’s “Finger Plan” pattern helps to tackle issues of land and natural resources, and environmental and ecological problems

met in China's urban development process. The presence of Copenhagen green space system predominated by green wedges and green belts, seen from a technical aspect, ensured the improvement of urban environmental quality and ecological balance. The result was elaborated in the submitted material for European Green Capital Award 2010 & 2011. Copenhagen ranked high among the eight finalists of all the thirty-five running cities. Though it did not win the first place in the end, Copenhagen showed excellent performance in many criteria. CO_2 emissions, NO_2 and ozone concentrations and public green areas per capita (Tab. 6-5, 6-6, 6-7), for instance, were an indicator of the great importance Copenhagen's relevant government departments had attached to environmental protection and emission reduction, as well as the proud doings of urban green space. This is yet another reason to value the exemplary effect and significance of the Copenhagen case, and to promote its verified experience.

As a matter of fact, from the planning and research conducted by some Chinese scholars, we can see the influence and inspiration the Copenhagen case has brought on us. Feng Li, Rusong Wang, et al. for instance, proposed in "Beijing 2005 Concept Planning of Urban Greening" to introduce "green wedges" under the guidance of ecological planning principles to reform and improve green space layout and structure of Beijing, in response to green space issues in the current state of general planning and construction. In this proposal they suggested to establish green area and ecological buffer at three scales— the regional scale (the entire area of Beijing Province), the city scale (the urban area of Beijing) and the neighborhood scale[352]. The proposal stated that by building green wedges, which consisted of park, farm land, forest patches, rivers and mountains, and introducing green space into urban area, the issue of unbalanced urban spatial distribution caused by ever-growing population and city scale could be ameliorated. Such

[352] Feng Li, Rusong Wang, Juergen Paulussena, Xusheng Liu. Comprehensive concept planning of urban greening based on ecological principles: a case study in Beijing, China, Landscape and Urban Planning, Volume 72, Issue 4, 15 May 2005, p330.

distribution disorder displayed particular urgency in urban air-pollution, poor environment quality, fragile ecosystem, and shortage of recreational locations for residents, all caused by urban green space limitation (Fig. 6-5, 6-6). This idea was in great accordance with the green wedges scheme of Copenhagen's "Finger Plan" in its form, details, function and effect(Fig.6-7).

Table 6-5 CO2 Emissions in European green capital (candidate)[353]

City	t/inh	% from transport	1990-2005
Amsterdam	6.6	33%	12%
Bristol	5.4	Na	na
Copenhagen	4.9	20%	-26%
Freiburg	9.3	22%	-13%
Hamburg	8.8	41%	-25%
Muenster	6.3	32%	-22%
Oslo	2.4	58%	-8%
Stockholm	4	33%	-26%

Table 6-6 NO_2 Annual concentrations (average values)[354]

City	Annual mean NO_2 (traffic)	Annual mean NO_2 background)	Days ozone > limit value
	$\mu g/m^3$	$\mu g/m^3$	number
Amsterdam	53	31	2
Bristol	47	30	3
Copenhagen	45	19	3
Freiburg	58	20	33
Hamburg	65	25	7
Muenster	48	23	18
Oslo	44	Na	4
Stockholm	44	13	0

(Note: EU limit value is set to 46 $\mu g/m^3$ in the Directive 2008/50/EC)

[353] European Green Capital. Measuring Urban Sustainability - Analysis of the European Green Capital Award 2010 & 2011 application round, May 2010, p7.
[354] Ibid, p27.

Table 6-7 The public green areas (m^2/inhabitant)[355]

City	Public open areas	pop living < 300 m from public open area
Amsterdam	33	71%
Bristol	38	na
Copenhagen	28	79%
Freiburg	32	100%
Hamburg	39	89%
Muenster	32	95%
Oslo	52	94%
Stockholm	86	90%

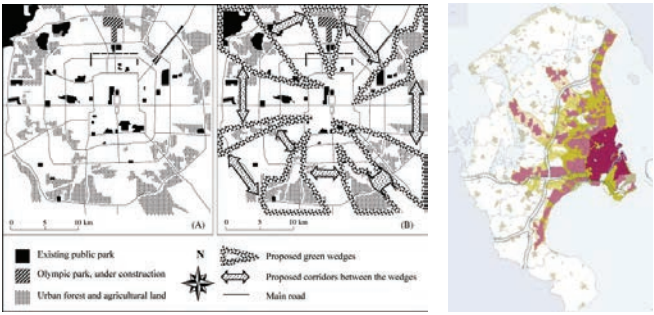


Fig. 6-5 The existing green space and proposed green space planning in Beijing City: (A) the existing green space; (B) proposed green wedges and green corridors[356]; (Source: Comprehensive concept planning of urban greening based on ecological principles: a case study in Beijing, China)(left)

Fig. 6-6 The illustration of Copenhagen Finger Plan(right)

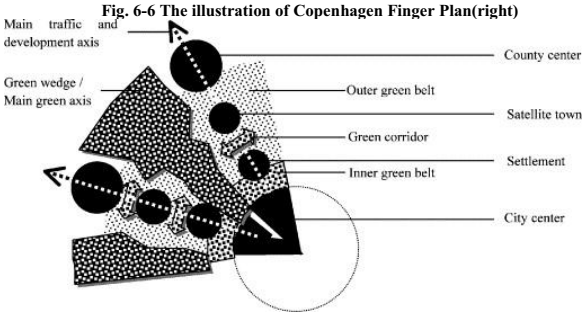
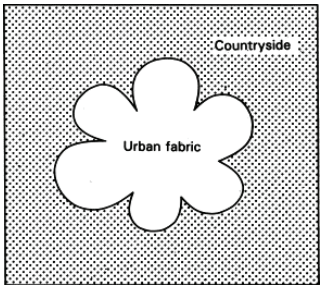


Fig. 6-7 The settlement and green structure proposed at the city scale for the future development of Beijing (Source: same as Fig.6-5)

[355] Ibid, p20.
[356] Feng Li, Rusong Wanga, Juergen Paulussena and Xusheng Liu. Comprehensive concept planning of urban greening based on ecological principles: a case study in Beijing, China, Landscape and Urban Planning, Volume 72, Issue 4, 15 May 2005, p333.

Another example of Copenhagen's "Finger Plan" mode inspiration is the study about Nanjing done by C.Y. Jim and Sophia S. Chen, though they did not mention that they drew inspiration directly from the Copenhagen mode. Instead, "star-shaped configuration" for green space-city interface brought up by Forman and Godron in 1986 was referred to in the study. As shown in its name, this configuration proposes star-shaped curvilinear and convoluted outline for cities, enabling long contact boundary and generous penetration of nature into urban areas (Fig.6-8). The population density of Nanjing is 12,700 inh/km^2 (while that of Copenhagen is only 5708 inh/km^2 [357]) [358], combined with a sharp shortage of urban green space, resulting in comparatively low green space area per capita (Fig.6-9). In the research about urban green space system in Nanjing, China, considering the city is lying on one side of Yangtze River (a much similar geographic condition to that of the coastal city Copenhagen), they put forward in green space planning the "Finger Plan" pattern and its measures about green wedges and corridors, which was directed against the existing finger-shaped structure in the city. They suggested that the city should in the future develop along four planned directions— northeast, east, southeast, and northwest, all of which extended from the city center, and enhance connections between four "fingers" by building two arc-shaped paths (Fig.6-10). They proposed to establish five patches of green wedges and through reservation and construction between fingers (Fig. 6-11), among which the southwest and southeast land would be reserved for agricultural use, and the rest would be kept as the original forestry land or be reconstructed as one.

[357] European Green Capital. Measuring Urban Sustainability - Analysis of the European Green Capital Award 2010 & 2011 application round, May 2010, p18.
[358] C. Y. Jim, Sophia S. Chenb. Comprehensive greenspace planning based on landscape ecology principles in compact Nanjing city, China, Landscape and Urban Planning, Volume 65, Issue 3, 15 October 2003, p 95-116.



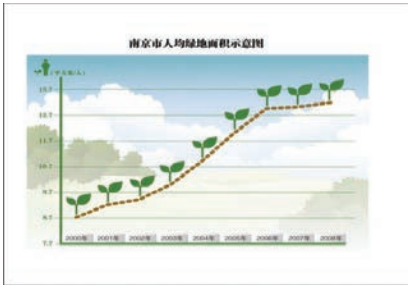


Fig. 6-8 A star-shaped configuration of the city–countryside interface with a curvilinear and convoluted outline (left); (Source: Comprehensive greenspace planning based on landscape ecology principles in compact Nanjing city, China)(left)

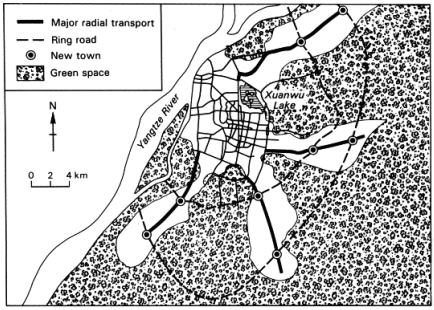
Fig. 6-9 The illustration of per capita green area in Nanjing City (right)(Source: Nanjing Statistics Bureau"Nanjing Statistical Yearbook", http://www.njtj.gov.cn/2004/2009/shouye/lvdi.htm)**(right)**

The aforementioned two examples clearly prove that Copenhagen's "Finger Plan" mode, a.k.a. the "three-dimension urban planning pattern", can be widely adopted in China's city form planning and green space planning. The experience drew form this mode is of great significance to both the construction of urban spatial pattern and the establishment of urban green space system. It could change the all-around indiscriminate spreading path many Chinese cities used to follow, and more importantly avoid the inapposite spatial layout resulting from this kind of spreading, especially the green space shortage situation. If these issues are not elegantly resolved , without doubt, we can never settle the prevailing environmental and ecological problems fundamentally, not to mention achieving sustainable development. For these reasons, the three-dimension pattern concluded from Copenhagen's "Finger Plan" mode can not only help us control the directions that cities are matching towards at strategic and operational level, but also help us at a technical level to choose a priority and set a right path.

6. 4 To lay emphasis on the construction of urban green space

The Danish have casted the sacred vote for their homeland as the world's happiest country. Conceivably, many factors contribute to the feeling of blessed, and urban green space is undoubtedly one of them considering its essential role in

citizen s' life. As for the construction of green space, its success cannot be separated from the active participation of citizens, proper planning of the government, and the studious creation of the designers. Through the analysis in the aforementioned relevant chapters, Copenhagen has received laudable result in both urban green space construction and land reservation. The former reflected in the fine establishment of green space of various scales, types and styles, and the latter reflected in the well-reserved natural and semi-natural green space like farm land, forestry patches, rivers and lakes. It is by applying these two methods that the green of inner and outer Copenhagen city, the green of artificial and natural composition, and the green of land and water body all achieved perfect harmony, and thus playing important parts in recreation, eco protection and environment reformation. Hence, these are the two methods we should draw from Copenhagen's case.



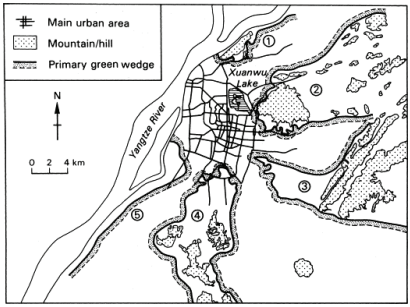


Fig. 6-10 Four urban development fingers at the metropolis scale are proposed for Nanjing (Source: same as Fig.6-8) (left)

Fig. 6-11 Five primary green wedges at the metropolis scale are proposed for Nanjing (Source: same as Fig.6-8)(right)

6.4.1 To make an all-out effort in strengthening the construction of urban green space

Compared with western countries, especially Denmark, China endured a long history of lack of public space, green space in particular. Before modern times, due to long-time feudal rule, Chinese cities underwent a slow period of urban form

evolvement. The common Chinese people were shoved in the overcrowded and shabby alleys, quadrangles, and other neighborhoods of traditional kinds. Only the gentry and a handful of wealthy class can have their own private gardens, a dream so far apart from the reach of the general public. This is the very reason why the construction and design of Chinese private landscape gardens were so blooming in old times that its turned into an elegant and splendid art. Records show that by the founding of the People's Republic of China in 1949, Beijing old town covered a total area of 32 km^2,[359] with only a few patches of green totaling 733 ha including seven converted

from the original imperial gardens, and green area in Guangzhou then was only 32.6 ha [360]. While at the end of 2004, Beijing built-up area enjoyed a landscape green area of 36,754 ha, among which public green space accounted for 8,948 ha, and a total of 169 parks accounted for 5900 ha [361].

As the reform and opening-up deepens, profound changes are taking place in China's social economy, literature and art, life styles and urban and rural landscapes more and more with each passing day. These numerable changes on one hand are concentrated in the process of urbanization, and embodied in the result of urbanization; one the other hand, urbanization are promoting these changes towards a deeper and more extensive direction. Yet with the increasing urban population and city scale, especially the soaring number of motor vehicle in cities, cities' environmental and ecological became more severe by day, which leaves a large gap between the situation and the goal of building a refined, livable, energetic and development sustainable city, and between that situation and the citizens' need for a better surrounding and better living quality. To rise up to these

[359] Proposal about Beijing old town protection plan made by Sicheng Liang and Zhanxiang Chen in 1950[DB/OL], http://www.chinabaike.com/z/jz/516560.html. 01-08-2011.
[360] C. Y. Jim and W. Y. Chen. Ecosystem services monetary value of urban forest in China, University of Hong Kong, (paper for the 3rd Workshop on Landscape Economics, European Consortium on Landscape Economics, May 28-30, Paris, French), www.ceep-europe.org/workshop_files/workshop47_115.pdf. 07-21-2011.
[361] Wei Yang, Beijing will achieve 11.2 m^2green space per capita in five years [DB/OL], http://env.people.com.cn/GB/1072 /3680902.html. 07-21-2011.

challenges, emphasis should be laid on the planning and construction of urban green space featuring city parks, and a large scale “park movement” seems necessary, and even pressing. For the vital and irreplaceable role parks are playing in cities, more and more nations in the world, both developed and developing countries, are treating parks as an essential infrastructure. Parks, as urban green space, are not only an indispensable element of city area, but also a symbol and indicator of urban civilization, as well as central content of building a low-carbon sustainable city.

The Appearance of parks was comparatively new for China, and it did not become an indispensable part in people’s life until after the founding of the New China. The thriving of parks have been mainly among the late 30 years since the reform and opening-up. Due to many historical reasons, the planning and construction of urban parks had not received the appreciation and attention it deserved for a long time. It was then not treated and appreciated as the other infrastructure like transportation, electricity, and communication, leaving the park-featuring urban green space in a state of congenial deficiency and acquired imbalance.

The history of urban green space reformation of western developed countries including Denmark witnessed certain extensive and prolonged urban park movement in each of these countries. In early nineteenth century, western countries were caught in the adversity of environment pollution and ecological damage in urban development as a result of industrial revolution and foreign trade promotion. In order to improve surroundings and physical conditions for citizens, and to ameliorate the state of overcrowded, squalid and crime-ridden cities, European countries represented by Britain and North American countries represented by the U.S. rose to their first ”park movement ” in the thirties and fifties of the nineteenth century respectively. The starting point of the British

movement can be traced back to a report to Parliament from the select committee on public walks in 1833. It stated that the humbler classes living in the severely worn-out and extremely dense gutters in city center were those with the most urgent need for public parks. It was also stated in the report that parks tended to benefit people physically, ethically, mentally and politically, that parks, like the lung of a city, could provide fresh air, citizens' health improvement, physical training field, new forms of recreation, chances to be close to nature, and people's mental status promotion; that all classes of the society could all share and enjoy parks together, reducing antagonism between classes and offering opportunities for mutual learning[362]. Once the report was made public, an upsurge in constructing parks rose from every corner of the U.K. While in the U.S., the park movement started at and was marked by the construction of "Central Park", New York, and has achieved remarkable results since. Britain now boasts 30,000 parks, 5000 of which are ones with historic significance[363], and nearly eight million people go to parks for leisure every day[364]; the U.S. possesses 105,000 parks (private ones excluded)[365], and New York alone has 1700 parks of various types[366]. Urban parks have now became more than recreational locations for residents, but essential infrastructure for enhancement of environment, reservation of ecological balance and protection of biodiversity. Though park movement in Denmark history lacked the vigorous touch compared to Britain and the U.S., it perfectly resolved the issue of urban green space shortage in its own steady and mild way. The twentieth century in particular, witnessed the all-out effort in planning and building of parks in Denmark's city construction. With the combined efforts from

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[362] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. P9-10.

[363] Stewart Harding. A Blind Date between Illness and Cure. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. Foreword IV.

[364] Hazel Conway. Parks and People: the Social Function. Edited by Jan Woudstra and Ken Fieldhouse. The Regeneration of Public Parks. Published by The Garden History Society Landscape Design Trust and E & Fn Spon, London 2000. P11.

[365] National Initiative Launched to Support Public Parks and Recreation in America,[DB/OL] http://www.theoutdoorwire.com/ story/1290593585aswga87 tcpv . 04-17-2011.

[366] Smoke-Free in New in New York – New Law Extends Ban to Park and Beaches. Park & Recreation. April 2011, P 13. http://www.nxtbook.com/nxtbooks /nrpa/201104/index.php#/14. 04-20-2011.

the slum transformation project in the 60s and 70s, and from city transformation project in the 80s and 90s, parks have become more properly and suitably composed, and more convenient for citizens' daily use.

Since the reform and opening-up, especially the last decade, China's urban parks have gone through a sharp growth in both quantity and scale. The total amount increased from near 1000 parks in the eighties to more than 4000 ones in 2002[367], and by the end of 2006, it reached a total of 7913[368]. The ever-growing urban parks have an active role in the enhancement of urban appearance and in the fulfillment of citizens' recreational needs (Fig. 6-12). However, due to severe historical deficiency, parks in China in general still suffer from serious shortage in amount, extreme imbalance in distribution and great limitation in area. Owing to lack of attention from city management and designers in the past, the construction of parks was not supported in its planning and land use arrangement. Such state must be turned around now. otherwise, under the speed and method of our current urbanization course, it will not be long before the old towns are reformed and the new ones are finalized, and by then designing and constructing parks will be a larger difficulty. Back when Britain was launching "park movement", some cities was faced with the same problem of shortage in land, as a solution to which many of them had to set aside a sum of special fund from the public finance to purchase construction land. Such valuable experience merits learning .

Urban parks in modern western countries have attained satisfaction not only in quantity, scale, form, and function, but also in its layout and accessibility. As a cogent example, the "Green Map" drafted by Stockholm, Sweden in **1999** suggested that a "green island" integrating functions of recreation, exercising, walk and sun bath as well as a community park covering at least 1-5ha should be

[367] Ziqian Song, reform and development of Chinese urban parks, 《analysis and prediction of Chinese tourism from 2002 to 2004》, http://www.chinamengzi.net/Tourism/hydt/200801/2707.html. 04-20-2011.
[368] China review, Chinese cities reached 655, an increase of 462 in thirty years, http://www.zhgpl.com/doc/1007/9/0/1/1007 90135.html?coluid =7&kindid =0&docid=100790135. 31-07-2011.

built within a radius of every two hundred meters; at the same time a football field which can be used as picnic location and a district-level park covering 5-50ha should be set up within a radius of every five hundred meters[369]. Stockholm now possesses 1000 parks[370] and public green space with a total area of 68,704 ha, covering 36% of the city, which accounts to 86 m^2 per capita[371]. Likewise, Britain put forward in the "Open Space Strategies " in 2008 that a miniature park of 0.4ha and a small open space of 2 ha should be established within a radius of every 400 meters, where a community park or open space covering more than 2 ha should also be set up[372]. European Environment Agency(EEA) proposed in the nineties that green space should be within fifteen minutes' walk for every resident (so that it would be within five hundred meters for the senior). EEA then again in Environmental issue report No 30. 2002 defined the distance of open space access for citizens as 300 meters[373]. In this regard, 79 percent of Copenhagen residents are within 300 meters to the parks (and 66.9 percent for the whole Denmark) [374].

In comparison with these standards and executions, though China has also laid down the 500 meters urban park service radius, few city can truly meet the requirement. For instance, even in Beijing, some neighborhoods are still at least 3 kilometers away from the nearest green land[375]. Admittedly , we are faced with extremely arduous tasks and immensely long way to go, but we shall seize the golden opportunity of the current urbanization proceeding by adapting to circumstances and springing up a wave of park movement of our own. We are to build parks of various scales, functions and types to lay a solid and favorable

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[369] Alyse Nelson. Stockholm, Sweden. http://depts.washington.edu/open2100/Resources/1 OpenSpaceSystems/Open Space Systems/Stockholm Case_Study.pdf. 04-16-2011.

[370] SOCKHOLM European Green Capital 2010, Publications Office of the European Union, Luxembourg, 2010, p 17.

[371] European Green Capital. Measuring Urban Sustainability Analysis of the European Green Capital Award 2010 & 2011 application round, p19. http://ec.europa.eu/environment/europeangreencapital/docs/cities/egc_analysis2010-2011.pdf. 05-18-2011.

[372] A Joint Consultation Draft by the Mayor of London and CABE Space. Open Space Strategies – Best Practice Guidance. P20. http://legacy.london.gov.uk/mayor/strategies/sds/open_space/oss-draft-sept08.pdf. 04-20-2011.

[373] Annex 3: European common indicators: Towards a local sustainability Profile. Towards an urban atlas - Assessment of spatial data on 25 European cities and urban areas, P118.

[374] European Green Capital. Measuring Urban Sustainability - Analysis of the European Green Capital Award 2010 & 2011 application round, May 2010, p20.

[375] Feng Li, Rusong Wanga, Juergen Paulussena and Xusheng Liu. Comprehensive concept planning of urban greening based on ecological principles: a case study in Beijing, China, Landscape and Urban Planning, Volume 72, Issue 4, 15 May 2005, Pages 325-336.

foundation for the sustainable development of future cities as well as the well-beings of our generations to come.

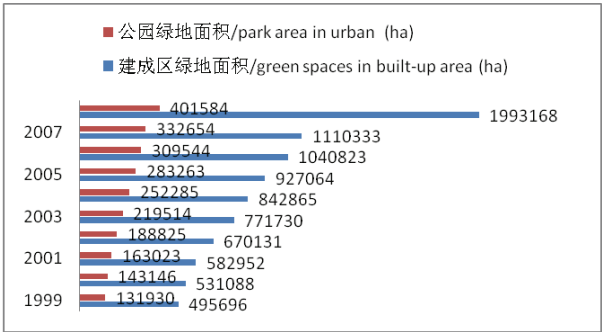


Fig. 6-12 The development of urban parks and green area in China (1999-2009) (Source: report on national urban landscape and green 2009, China landscape and senery, http://www.chla.com.cn/htm/2011/0517/85550.html)

6.4.2 To make an all-out effort in strengthening the protection of urban green space

While striving to establish green space like urban parks, gardens, recreational locations and playground, we should make an all-out effort to strengthen the protection of natural land, semi-natural land, forest, farm land, rivers and lakes of all kinds in the city, and the protection of city outlines and surroundings, so as to build up a better, more efficient and more bountiful green space system.

In the current state of urbanization acceleration, land resource has always been the bottleneck that harries and restricts urban evolution. Therefore, many city management and developers have fixed their eyes on inner city green land and natural field, hoping to occupy the green land and other natural land and water body with the same function to gain commercial profits. Reports showed that in the past few decades, Wuhan has been reclaiming land by filling lakes to deal with land resource shortage, resulting in a decrease of lakes in the city from the original 127 ones to 38 [376]. In the process, city management and real estate developers

[376] Sina News Hubei, Wuhan fills lake to reclaim land, 127 lakes now down to 38, http://hb.sina.com.cn/news/y/2012-04-07 /63734.html, 26-06-2012.

reaped their profits, and so did some citizens. Yet the altered natural formation and environment has changed the appearance of the city substantially, and changed the original urban green space pattern as a whole, thus impairing the ecosystem and micro-climatic environment of the city. Though still no one can be sure of the ultimate consequence from such alternation, yet every one of us can feel and see with our own eyes the spreading of urban heat island, the decrease in species and mortality of lake fish and the deterioration of water quality, whose impairment on long-term sustainable development of the city can thus be predicted. Relevant study observed a tendency of ascent in Wuhan's annual average temperature, highest temperature and lowest temperature: annual temperature has increased 0.917℃/50a, highest temperature 0.388℃/50a, and lowest temperature 1.53℃/50a; the average annual temperature of fourteen years from 1991 to 2004 rises by 1.1℃ compared to that of forty years from 1950 to1990 [377]. Wuhan has gone through eighteen consecutive warm waters since 1998 [378]. In addition to temperature rise, Wuhan also saw a tendency of precipitation enhancement, and moreover the nineties witnessed an increasing amount of flooding[379]. Admittedly, many factors may contribute to this situation, but the alternation of Wuhan's inherent natural and ecological environment is obviously one that cannot be dismissed. Though Wuhan counts as an extreme case of large-scale land reclamation, changing the shape of urban watercourse arbitrarily or occupying internal green space of all kinds is a fairly common conduct. Constructions that are at the expense of outer city ecological barrier and inner city ecological pillars do harm rather than good, and need immediate correction and reversion.

In addition to enhancing the protection of natural and semi-natural green space inside the cities, we should also lay emphasis on the protection force of

[377] Zhicheng Liu, Climate change and sustainable development in Wuhan urban circle, Hubei Weather, 2005(3),3-6.
[378] Ibid.
[379] Ibid

existing green space in cities. We shall provide the already rare green space in urban area, especially in the inner city and old towns the protection and appreciation it deserves, therefore enabling it to benefit the daily life, work and entertainment of citizens, which is a key element in life quality improvement. In regard to this, Copenhagen has offered advantageous inspirations. Copenhagen reserved its original parks, gardens. And green space as sites of historical and cultural heritage. They cannot be occupied or usurped without authorization, and more importantly they receive a large amount of manpower and resources in preservation and management. The measures many of our cities take pale in comparison. Take Harbin as an example. We can see from the evolution plotted in Fig.6-13 and Fig.6-14 and the historical status in Fig.6-15 that Harbin started off as a limited-scale city initially, and after several rounds of planning and constructing it formed a green space structure both in and outside the city. However, since the founding of the New China in the middle of the twentieth century, China's economy has broken away from the decadent path induced by the long war, and marched into the stage of speeding development. By the late sixties, Harbin's urban area has rapidly expanded thanks to industrial evolution. Meanwhile, parks and green area in the old town was encroached and turned into office area, industrial zone, commercial sites and residential land, resulting in a huge loss of various green land and public place, public green space in particular, for residents' activities of all kinds in Harbin. Though Harbin has put more effort into urban green space planning and construction, to which we shall give credit for the total green space area of 8,354 ha with a 25.24 percent green area ratio and the total public green space area of 2,636 ha with a per capita area of 7.01 m^2 [380], the old town however, due to high density of construction and population, and low coverage of green area, was not apt to large-scale transformation for too many a

[380] Harbin yearbook 2007,Landscaping, http://www.harbyb.com/article/chengxiang/2008-4-21/237.html, 20-06-2012

factor such as high land price. As a result, many of China's cities were troubled by the coexistence of a well-proportioned accessible green space layout in new town, and an old town full of historical deficiency.

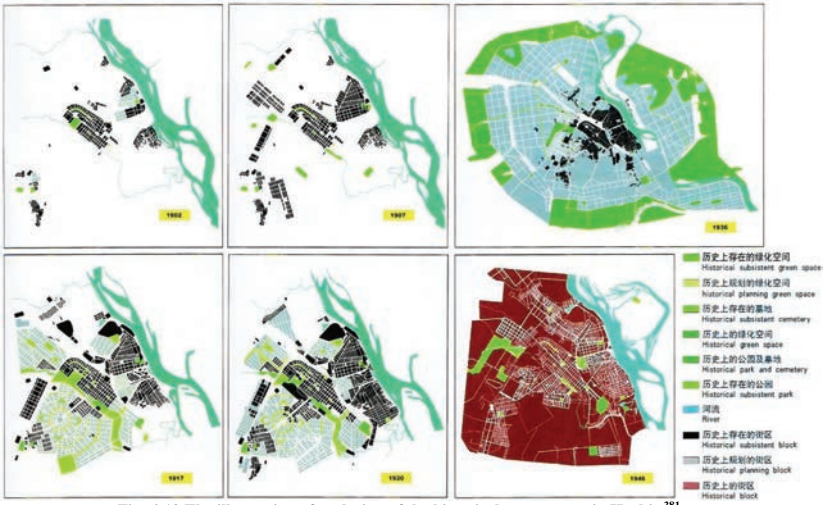


Fig. 6-13 The illustration of evolution of the historical green space in Harbin[381]

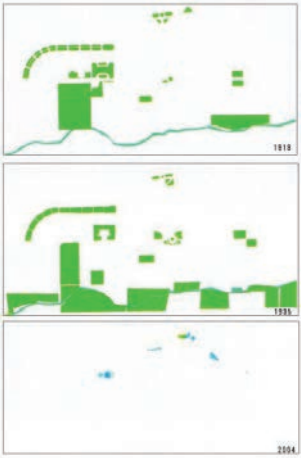


Fig. 6-14 The illustration of formation and disappearance of historical green space in Nangang District, Harbin (Source:same as Fig. 6-13)

[381]Mei liu, Hongjiao Xu, Bingzhang Yang, Analysis of historical green space in Harbin old town based on patch theory, Central China architecture, 2012(4),138-140.

Fig. 6-15 The scale and distribution of historical green space in Harbin(Source:same as Fig. 6-13)

6.4.3 To make an all-out effort in strengthening the design work of urban green space

The study of Copenhagen's green space evolution in the previous chapter reveals that the Danish have gained plenty of successful experience, including the respect for their culture and tradition, respect for the need of the public, and respect for designing and artistic rules. The inspirations drawn from Danish landscape designers on the subject of green design of all kinds are already included in relevant chapters, such as the study of "harbor parks", "cemeteries", "playgrounds", and designers. We focus here on the summarization and generalization of its designing methods and models. The "five dimension" designing mode in particular is concluded: planning and designing dimension, site matrix dimension, society functional dimension, environmental benefit dimension, using and management dimension. More details and contents are further included in each of the dimensions (Fig. 6-16).

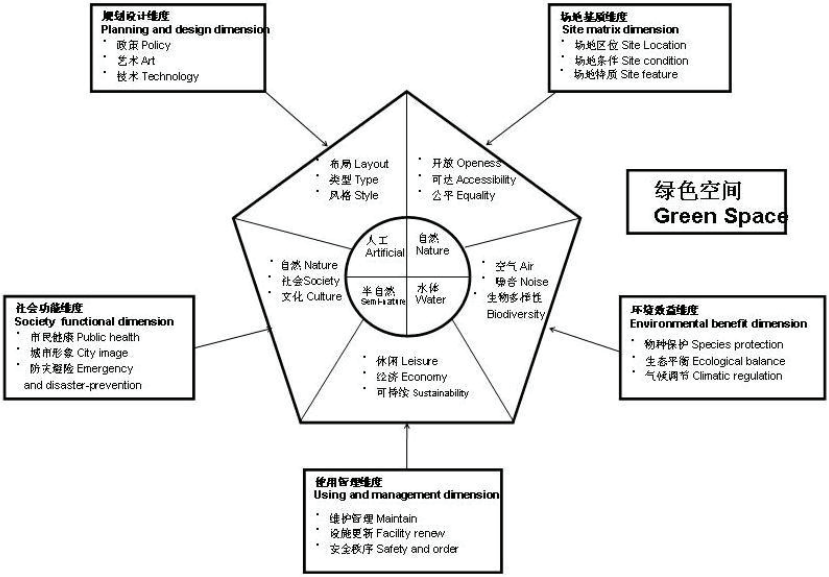


Fig. 6-16 The design model of Five Dimension

Suffice it to say that since the design model of five dimensions are summarized from design philosophy and methodology aspects, it has great significance on specific designs as a guidance. Admittedly, the level of impact each dimension has on the case may alter with different kinds of green space design, and in each case, concrete design should be molded by the nature and function of the project, the demand of citizens and the styles of the designers. Moreover, due to ethnic, cultural and national condition difference, Chinese landscapers should combine their own situations while learning from Danish counterparts. For instance, the Danish prefer natural sights in park design, while the Chinese enjoy artificial features more; the Danish appreciate to creat a atmosphere, while the Chinese value surroundings and fengshui. Hence, only by combining our practical conditions with advanced foreign designing concepts can we blaze a trail of our own.

6.5 To lay emphasis on creating a landscape architecture style with native features

The history of Denmark landscape evolution reveals that only by adhering to the history and culture of one's nation, and adhering to the conventions and arts of one's people can the evolution of landscape obtain exuberant vitality and gain its own position and accolade in the field of world's landscaping. It is obvious the acquisition of such position and accolade does not happen overnight, but through the aggregating effort of generations of designers in Denmark's case. Though compared with Denmark, Chinese traditional garden arts once peaked in history, modern Chinese landscape architecture however, took a detour in the last thirty years. Fortunately, recent years witnessed the quiet blooming of "neo-Chinese" landscape in the realms of Chinese landscape architecture. More than a few designers has made intentional attempts to employ this unconventional designing style or model in residential neighborhood designs as well as urban park designs. Judging from the present circumstances, the neo-Chinese landscape still need time to brew, and the evolving course will not be a smooth one, but its appearance in itself is an breakthrough for the new development Chinese landscape architecture is seeking, and a transcendence of present design styles. It, with no doubt, brought to Chinese landscape architecture field hope and new directions to follow.

6.5.1 Appearance of neo-Chinese style: the contingent in history yet the inevitable in times

Chinese traditional gardening art, a gem in the Chinese culture, enjoys a unique status and significance in the world history. Due to the nationwide decadence since modern era, the progression of gardening arts was bogged down, if not falling back. In the first half of twentieth century, gardening art attract even fewer attentions owing to dire poverty the masses were in and chaos caused by wars in and out of the country. With the founding of the New China in the fifties and sixties, our traditional gardening art was offered a chance of rebirth with new

form and content. In order to fulfill the ever-growing material and cultural requirement of the public, a large number of parks with modern significance were established all around the nation. These parks were constructed under the guides of the Soviet Union's design methods combined with quite a few artistic concepts and techniques from Chinese traditional garden arts, leaving a refreshing collection of new public gardens. This was the time when the early form of Chinese modern landscape was initially shaped, and this should be recognized as the starting point of neo-Chinese garden styles. Owing to the limitation of history and times, the explorations of that period did not converge into a theoretical system or complete style.

Since the reform and opening-up in the late seventies, both the profile of urban and rural area and lives of citizens have gone through tremendous and profound changes. The increment of social wealth, improvement of living quality, advancement of science and technology and evolution of culture and education all indicate that China' s transition from a traditional agricultural society to a modern industrial one is in progress. Such transition is not just helping China move away from poverty and backwardness, but also changing the original world pattern and creating opportunities for development. In the process of this huge transition, the Chinese landscape industry will encounter a greater opportunity than ever. On one hand, large strides are made on resource and technique level, art and education level, and operation and management level. At the same time, the rapid urbanization progression combined with the unprecedentedly active state real estate industry is in brings countless business opportunities for landscape architecture. Both domestic and abroad landscape architecture design institutes have sprang up, taking on an overwhelming amount of design projects one after another. However, new issues like resource consumptions, environment deterioration, and ecological imbalance revealed themselves in rapid development, raising new challenges to Chinese landscape architecture realm. On the other hand,

driven by various interests and pressured by various forces, the evolution of Chinese landscaping took a somewhat distorted course in rising up to the opportunities and challenges of this era. In terms of planning and designing, such detour manifests itself in the ardent enthusiasm about western styles and exotic atmosphere, which has swept across China. Fellow designers overseas are astonished by this phenomenon. Dutch landscape architect Hank van Tilborg, for instance published an article in 'Scape 2006 / 1 named " Higher, bigger, and faster in China, environment and tradition pay the price for change", and in it he wrote "Many European architects and urban designers are working in China. They are asked to base their designs on European architectural and artistic traditions. Whole new districts are being built in German, English and Dutch styles." [382] Another example is the feature story titled "Landscape Design Architecture in China And It's Changing Face" on Landscape Design Architecture Advisor. In it the author wrote, "Landscape design architecture in China has seen many changes in the past decades, shifting from what was once a delicate art form with spiritual foundations to contemporary designs similar to those found in western landscaping." "Environmental struggles have also emerged as a consequence of these new trends, creating deserts and eliminating wetlands. Present landscape design architecture in China is often materialistic, with grandeur walls and extensive hardscaping", and "Vegetation typically includes ornamental, non-native plants that require a great deal of maintenance. Spiritual and cultural elements of traditional oriental gardens have been replaced with designs that lack the artistic flair and careful planning of the past"[383]. In fact, criticism and doubt directed at this phenomenon have never ceased in Chinese landscape design. Unfortunately, whether actively catering to western styles or passively receiving them, more than a few Chinese landscape designs nowadays have lost the regional, national and cultural features they once

[382] Hank van Tilborg, 'SCAPE – Hot spots, 1/2006, Birkhauser Verlag AG, P.O. Box 133, CH 4010 Basel, Schweiz, p34.
[383] Landscape Design Architecture in China And It's Changing Face, http://www.landscape-design-advisor.com/ landscape-design- architecture-in- china. html. 27-07-2011.

had. Many factors may contribute to this situation, including weak foundation, lack of theory, stale concepts, outmoded techniques, and talents shortage on our part, as well as early start, rapid development, and high design level on their part. More blame should be put on the blind pursuit of achievement from some officials, and the violent hijack in the profit war among real estate developers.

After a long time of imitation and assimilation, accompanied by the rising trend of cultural rejuvenation, Chinese landscape finally stepped on the way back home to convention. In this we assert the appearing of neo-Chinese landscape is not a random event, but an inherently logical and inevitable one. The neo-Chinese style, based on western countries' familiarity and comprehension of landscape architecture, based on the heritage and rediscovery of traditional Chinese garden arts, and based on the grasping and lead of the contemporary social development request, is bound to have a promising future.

6.5.2 Connotation of neo-Chinese style: features of a nation and stamp of the age

The neo-Chinese landscape was "neo" compared to traditional Chinese gardens. It should also be differentiated from the "modern landscape architecture" rising in the last few decades. Traditional Chinese garden art, the gem on the crown of world gardening art, once created glorious history, whose fame spread beyond neighbors across to the Europe. Due to historical reasons, traditional Chinese gardens had strived with feudal society and also decayed with it. Yet the "Chinese features" and "Chinese styles" it had once created are undoubtedly a treasure and heritage from our history. Despite its inherent connection with feudal society, it was exuberating with Chinese culture and artistic essence, in perfect harmony with aesthetic value and spiritual desire of the Chinese people. Though time and society have changed tremendously, the sense of cultural belonging and pursuit of a better life stay the same, which is the very reason why traditional

garden arts stand as a nourishment and inspiration for the evolution of neo-Chinese style.

Despite some blemishes like lost of identity, blind imitation, reckless pursuit for larger scale and worship of the west, Chinese landscape and architecture has made considerable headway in the last thirty years. On one hand, it plays an active role in the transition of urban green space layout and distribution, the improvement of urban ecological quality and environment, and the upgrading of life quality. In this process, landscape, as a vehicle of urban green infrastructure construction, was appreciated by more and more people. On the other hand, many contemporary "modern gardens" are marching in the same direction, though not dignified with the name "neo-Chinese" landscape architecture. More than a few designers have been trying out all kinds of design patterns, infusing into modern landscape architecture methods and concepts consciously and unconsciously the national circumstantial features and traditional Chinese gardening arts. Their explorations are of great value. More importantly, these modern gardens built in China offers the opportunities for the China's landscape realm to be exposed to and familiar with progressions overseas, and to experience and understand inherent nature and features of contemporary gardens. Talents are fostered, experience is gathered, and foundations concerning concept, method, technique and talents are laid for the evolution of neo-Chinese gardens. Suffice it to say that it is precisely the experience and lessons in the last thirty years that bestow on people a chance to reflect and examine the goals and directions of contemporary Chinese landscape architecture development, and a chance to rediscover and ruminate the value and meaning traditional garden art bears to the modern times.

Based on such understanding, the connotation of neo-Chinese gardens is to unite rich national identity and distinct time features. National identity is the soul of neo-Chinese landscape. It reflects various Chinese cultures of different regions

and customs of different times, distinguishing itself from any other people or area in the world. This identity is formed with the Chinese civilization as culture element, traditional landscaping as art element and value orientation of cotemporary Chinese society as an aesthetic element. One need to realize that stressing national identity does not necessarily mean to go back in times or to wrap up the modern era with landscape models from the past, not to mention the challenges and issues faced by contemporary landscape architecture far exceeds the content of traditional designs. The national identity is de facto highlighting Chinese features, Chinese standards and Chinese makings. The aforementioned time features, the basic property and form of expression in neo-Chinese gardens, reflect both the spiritual outlook and aesthetic pursuit of Chinese people and their new garden patterns and techniques in the course of rejuvenating China. It reveals, at the same time, how the Chinese deal with the relationship between man and nature as well as that between society and environment. In it we see Chinese landscape architecture learning from and taking in advanced new concepts, new techniques, new materials and new process from landscaping art all over the world, an interaction between an open China and the rest of the world. Hence, these time features indicates Chinese landscape architecture is keeping pace with the times. In short, the essence of neo-Chinese landscape architecture is a fusion of opening-up and embracing as well as a fusion of tradition and innovation.

6.5.3 Approaches for neo-Chinese style: to integrate in forms and to innovate in contents

We should admit that though China's current development has provided neo-Chinese style a unique opportunity to thrive, time is still needed for it to develop and mature. The length of this time depends on both internal and external factors and their interactions. The internal factors include our theoretical and practical understanding of the essence of modern landscape architecture, our

understanding of nature, resource and environment, and our understanding of mankind's future and objective. The perception of ourselves and our culture as well as the way we act are two other essential factors. In details, the approach for advancing landscape architecture can be elaborated in four aspects: to inherit, to learn, to innovate and to cooperate.

6.5.3.1 Approach one: to inherit

To pass on existing civilization achievements is the foundation and vital source of human society development. Neo-Chinese style did not emerge out of thin air, and can only proceed under existing Chinese history and contemporary circumstances. Hence, to inherit from the past is the first and most important approach. Neo-Chinese style shall inherit not only from works beneficial to modern landscape, but from exceptional historical and cultural heritage of all kinds. In both the beginning of the New China and the thirty years of reform and opening-up, Chinese landscape architecture went through a time of rapid growth of different degrees. The recent thirty years in particular saw an unprecedented progress. In this progress, Chinese landscape architecture was able to narrow the gap between the world and itself, and grasp the opportunity to come near and understand the modern landscape architecture. It then learned modern gardening theories and methods, which was applied into practice, helping the transition from traditional gardening to modern landscape architecture. Therefore, the practice and fruit of these two staged merit our attention and candid analysis, which will later provide basis for further development.

In terms of inheriting, by adhering to the guideline of making the past serve the present, and weeding through the old to bring forth the new, we shall inherit and carry forward the precious value of " pursuing the harmony between man and nature, life and art, sight-setting and construction, field and surrounding, conventional and versatile design, external views and internal cultural

connotation" [384] in the traditional garden art. Unfortunately, our inheritance is not satisfactory. It lacked the touch of dexterity possessed by the westerners. It, therefore behoove us to master this job for the sake of neo-Chinese style's evolution.

6.5.3.2 Approach two: to learn

Objectively speaking, it is owning to the reform and opening-up policy that contemporary Chinese landscape architecture has accomplished so much. From interacting with fellow designers overseas, we obtained new concept, new knowledge and new techniques, empowering us to stride forward. History shows French gardens outgrew Italian's, British gardens exceeded French's and American gardens topped European's in different times all because they had learned and grew from their forerunners. In Denmark's case, it also went through the stage of learning and imitating from French and English gardens. China being a new-comer, there is quite a large gap between it and western developed countries. Since the two sides are evidently in different stages of development, it is more than necessary for China to draw advanced concepts and techniques from the other.

The large differences between the east and the west in cultural tradition, value system, and aesthetic orientation are constantly reminding us that much attention should be paid to the extent of such learning. In present practice of borrowing from western landscape exists the fallacy of copying the external format without any considerations to internal value or connotation. Yet format is but means to express value and connotation. There also prevails the mistake of blindly pursuing fashion trend with deliberate ignorance to their history or culture. Yet trend is but a reflection upon history and culture. Adding more fuel to the

[384] Bingzhang Yang, Reflections on cognition and inheritance of Chinese traditional garden art, Chinese landscape architecture, 2009,(11)

flames, our mindset of worshipping foreign things and rushing towards quick results urges us to copy indiscriminately, leading inevitably to lifeless and ludicrous imitations. This serving as a lesson to us, we should from now on draw from the west selectively and critically on a research basis. Only in such way can we catch up by learning from the best and lead neo-Chinese style back to a healthy path of development.

6.5.3.3 Approach three: to innovate

The success of neo-Chinese landscape architecture is destined to rely on innovation, the key of vitality, for the style is in itself a combination of science and art. From a scientific point of view, it is to landscape architects a calling and duty to put landscape construction in harmony with environment, ecology, resources and land in the course of achieving sustainable development and building low-carbon societies for the mankind. Such duty is a challenge to both eastern and western designers. It is fair to say that a solution to issues faced by China is a solution to issues worldwide, and the key to such solution lies in the hand of Chinese landscape architects with their wisdom and creation to offer. Hence, we shall face and tackle these challenges by unremittingly creating new theories, techniques and managerial skills. From a artistic point of view, naturally, people are expecting more in gardening art with the their elevated life quality, spiritual pursuit and aesthetic taste. To cater to people' s material and spiritual desires, landscape professionals lay their faith in the exploration and creation of new artistic forms, cultural essence and functions. In that sense, innovation is both an approach for neo-Chinese style's evolution and a key indicator of developmental level for this style. In this we shall follow the examples of the landscape architects, whose imagination and creation provide the main impetus to the development of this art.

6.5.3.3 Approach four: to cooperate

With the advancement of science and technology, worldwide communication and cooperation have become the major force that promotes development. On one hand, when only the landscaping industry itself is concerned, economical globalization and information network has brought the mankind into a situation never seen before. As the reform and opening-up deepens, China now has a closer than ever bond with the rest of the world. China's urbanization has attracted the attention of many landscape designers and architects from various nations (mainly developed ones), and thereupon they have entered the Chinese designing market as well as other fields like construction, materials and management, as groups (corporations or institutions) or as individuals. Their dominancy in concepts, techniques, talents and funding keeps them in fierce competition with local design institutions and construction units. Currently, many large-scale and high-end projects are obtained by firms with an overseas background, which acts as a somewhat restrain to the development of local institutions and firms as well as an uncertain factor to the maturation of neo-Chinese style. Therefore, enhancing the communication and cooperation both between Chinese landscape profession with that overseas and between local institutions and foreign ones is a vital premise and important way to push neo-Chinese style forward. Competitions foster development. For local firms and institutions who are already in the inferior position, competition may be a blessing in disguise. On the other hand, when it comes to external factors, the evolution of neo-Chinese style involves other fields, industries and branches of study like architecture, city planning, environment study and agriculture and forestry. Efforts should be put into the handling and coordinating of the relationships and interests among all sides to achieve common development through overall planning and mutual support. Therefore, neo-Chinese style cannot march forward without cooperation across nations or cooperation across industries. It can only thrive together with the growth of all

parties as well as mutual benefit and win-win results for all parties under such cooperation.

6.5.4 Conclusion

The emergence of neo-Chinese style is inevitable under the historical background of China's rising in the twenty-first century. It is a beacon for Chinese landscape architecture, a stage for the mass landscape professionals to display their talents, a milestone in the course of contemporary Chinese garden art evolution, and a symbol of China's rising and growing. Just as commented by our fellow designers, "Today's architects working on landscape design architecture in China are seeking new design techniques that fulfill the needs of modern living while also integrating the elements of traditional Chinese gardens. Landscaping styles that protect the area's limited natural resources are equally important." [385] As long as we build on the foundation of Chinese cultural heritage, draw from advanced contemporary designs, strive for the welfare of the masses Chinese people, seek support from those who desire for the promotion of modern Chinese landscape architecture, and remain a solid faith, we shall blaze a glorious trail. Such trail was once marched on by Danish designers, who developed the now influential Danish design pattern and style through none other than exchange of ideas with fellow designers, frequent field trips and inheritance of their own national culture and tradition.

6.6 To lay emphasis on the construction of normativity for landscape architecture education

The construction of urban green spaces in Danish cities has brought us an important inspiration that they emphasize on cultivating professionals and that they also highly values the normalization and standardization of professional

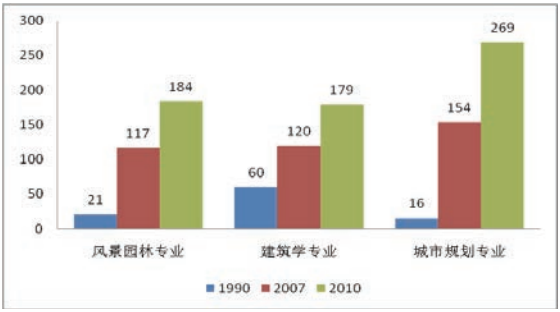
[385] Landscape Design Architecture in China And It's Changing Face, http://www.landscape-design-advisor.com/ landscape-design-architecture -in-china.html. 27-07-2011.

education. This can be shown by the high professional level of Danish architects, as well as the rewards and applauses they gain. Danish landscape architecture professional education started relatively early among European countries. It has gained much attention like urban planning and construction major, thus having been well-developed. Due to the small size of Denmark, the scale of landscape architecture education is relatively small so it is facile to standardize and uniform the professional education so as to ensure the consistency of the standardization and qualifications of cultivating professionals.

Compared to Denmark, China started relatively late in modern landscape architecture industry, which is built after the founding of new China. Although it had once been quite harsh for landscape architecture development because the amount of professional colleges was limited and the historical, social environment and education basis were prohibited, all these hardness laid the foundation of new Chinese landscape architecture to gather experiences and cultivate professionals. Since China's reform and opening up, with the speedy development of economies, society and culture, especially the development of cities and people's living standards, people cared more about the quality of environment and were more aware of protecting ecological balance so it was a great time to promote landscape architecture. During 10 years of development and construction, China had 184 professional colleges that had landscape architecture (aka LA) or other majors that were the same indeed but have different names, like landscape science, landscape planning, landscape building architecture and etc. (according to statistics by 2009) [386]. Over hundreds of thousands of students were studying in those majors. Meanwhile, 62 universities (research institutes) had master degrees in landscape architecture (researched by 2006) [387], and boasted over one million students (Fig.

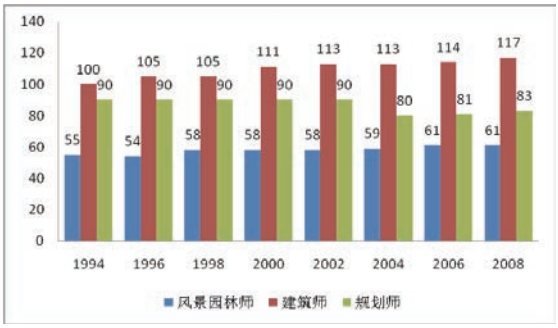
[386] Press Center of Tongji University, First Meeting of National Guidance Committee over Architecture, Planning and Landscaping Majors of Universities, 2010/9/8，http://news.tongji.edu.cn/classid-5-newsid-29064-t-show.html, 15-05-2012.
[387] Lin Guangsi, 1951-1996, Investigation and Research on the Landscape Majors in China[J], China Landscape, 2007（5）,7-13.

17, 18). The success of the development of professional landscape architecture education cannot be merely shown by the number of students. The research results, social benefits, and the higher level of recognizing the social reputation of landscape architecture can also reflect the success. In 2011, landscape architecture was regarded as one of the "first-class major" by China, and achieved the same position as city planning.



(Landscape architecture Architecture City Planning)

Fig. 17 The illustration of development for landscape architecture, architecture and urban plan discipline in China



(Landscape Architect Architect City Planner)

Fig. 18 The illustration of development for landscape architecture, architecture and urban plan discipline in USA

At the same time of achieving the great success of landscape architecture education, people also noticed the difference in the quality and qualifications of training professionals between various institutions because of the nature of schools, teaching staffs, training objectives, curriculum, teaching approaches, and

textbooks selections. To meet new requirements of the development of Chinese construction, harmonious society, and revolution of new education, we should learn from some developed countries, like Denmark, in training professionals for promoting our landscape architecture education. It is essential to emphasize more on the normativity construction of landscape architecture education in order to witness the booming development, cultivate professionals who can be accepted by the whole society that has multi-requirements and multi-levels, and reach a target of high-level and high-quality education.

6.6.1 Premise for the educational normativity: orientation of consensus

With the booming development of landscape architecture industry in the recent 10 years, people started to have deeper understanding of the nature and the range of landscape architecture, and had more senses of the contents and principles of landscape architecture. They also have converted these recognitions and practices into every step of training professionals. Meanwhile, the dispute over the scientific nature of landscape architecture has also emerged, triggering an everlasting debate. Currently, in Chinese academic field, most scholars accept and agree that Chinese landscape architecture has been evolved from traditional landscape architecture, which is consistent with international landscape architecture. However, other scholars state that landscape architecture, originating from western countries, is essentially different from Chinese landscape architecture, so these two majors cannot be equally treated. They proposed that Chinese current landscape architecture education is a continuation of traditional landscape architecture. The educational concepts, teaching objectives, teaching contents, teaching approaches, research ideas, research approaches, research fields and etc. are still connected to traditional landscape architecture. Due to the presence of this view, people are distorted in their recognition, which has affected the normativity construction of landscape architecture education. In fact, although

the current Chinese landscape architecture industry is relatively weaker than those of western countries, this kind of gap is mainly originated from Chinese society, economy, cultural development, and historical phases. In terms of the ranges it refers, our landscape architecture is not widely different from international landscape architecture no matter in planning, design, research, education, science and management. It should be noted that with so much efforts we have put in learning from foreign countries' in science and technology, educational idea, and managerial experiences, we have been narrowing the gap between Chinese and western landscape architecture in both theoretical and practical terms.

In fact, in terms of the relationship of traditional and modern LA, unlike our scholars, western scholars do not separate the connection between those two. They regard the modern one as the inheritance and development of the traditional one in the view of cultural accumulation and lineage. For instance, a well-known American landscape architect, Norman T. Newton, wrote in his preface in "*Design on the Land: the Development of Landscape Architecture*" that "This book originated from an insisted faith that agrees with the development of landscape architecture—regarding it as an art and a career—which can help people to understand the world they live on through valuable new knowledge. Landscape architecture, a career that only has over 100 years of history, an ancient art that exist with human beings… What kind of notation should we crown to landscape architecture? Here we comprehend it as an art—or science, or more willingly—as arranging lands, spaces and objects on them for people to utilize them safely, effectively, healthily, and joyfully. From the results and process, we can tell that no matter when and where, people always apply this art, which we called landscape architecture now." American Society of Landscape Architects, ASLA, hold the same perspective and introduced in the website, Landscape architecture education and career development, that "Landscape architecture merges art and science together. It is a job to plan, design and manage our lands." European

Council of Landscape Architecture School also stated that "This field has a unique modern European content. It can be traced to courtyard in monastery and secular delighted gardens in early medieval period—they are from the traditional Roman, Byzantium, and Moore—from French baroque epic by Italian humanist, Le Notre, in renaissance period to English landscape architecture tradition in18th century. In 20th century, modern European landscape architecture was largely affected by ideas from Scandinavia, German, Holland, and Spain. In the recent several decades, this science has expanded its content and included various environmental problems. By using approaches that mixed scientific technology and planning, we developed the measurement of environmental effect, other problems related." Based on the above, we can tell that western scholars hold the similar ideas as the mainstream of our scholars in landscape architecture fields. In fact, we are not largely different from Americans in terms of landscape architecture planning fields. Therefore, in the perspective of benefiting the development of science and professional education, both emerging scholars and celebrated scholars should orient to a consensus and put away all prejudices in order to support the development of the educational industry. We should use the name "landscape architecture" as a unified name, as recognized by National Science Technology Technical Term Committee and state education authorities, to standardize the development of landscape architecture industry, and to avoid the inclination of separated professional education and ideological misrecognitions due to the different names. Meanwhile, by having this consensus, we could easily handle problems and relationship between landscape architecture and other related and interdisciplinary subjects, such as city planning science, architecture science, environmental protection, ecology, resources protection, art design, agriculture, geography and etc. Instead of controlling and replacing each other, these subjects should complement each other through collaboration and communication, so as to achieve a consistent promotion and development of all majors.

6.6.2 Basis for the educational normativity: demand in the workplace

Ensuring the educational normativity is the foundation of realizing the standardization of landscape architecture education. The basis of the normativity does not exist without any foundation; however, it is established in accordance with the objectives of cultivating professionals and approaches to realize these proposals. These two objectives respectively come from experiences and accumulations of landscape architecture educational principle and from specifications of professionals for social development in landscape architecture. Due to the social nature of education, it should actively adjust itself according to different requirements from the developing society, and meet these requirements through some self-adjustment. Therefore, the basis for the normativity should arise from continuous development of social life styles and the consequent rising demand for professionals. Educational principles are the generalization of approaches of cultivating professionals and recognitions of scientific approaches during the process of adaption and satisfaction. Thus, under the new historical condition that the higher education is continuously and deeply being reformed, we should voluntarily highlight the changes in the requirements of professionals' amounts, levels, and forms from job markets, while summarizing benefits from researches of landscape architecture normativity construction, so as to accordingly adjust our directions and objectives to cultivate professionals.

Based on the summary of recognition and experience of landscape architecture educational principles, after several decades' development, our colleges and universities have established our own systems and specializations in terms of the curriculum, mainly including agriculture and forestry, architecture, city planning, art and comprehensive colleges. These colleges have great curriculum with a strong academic background and personnel training systems. These systems and specializations are related to our college systems in the current

phase, and they are also closely related to the need of professionals for our current social development. Since the industrial development and the job market are not looked upon favorably, many colleges have established their majors according to their own advantages and specializations to gain more educational and market resources in this field. After the leapfrog development, every college now is facing the personnel training approach problem that how to deal with the relationship between “general professionals” (the versatile professionals) and “specialized professionals” (the skillful experts) and relationship between “application” and “academic” professionals. Nowadays, many colleges put great effort into training students’ planning ability, and many students are fond of joining planning and design industries, which has revealed the tendency of regarding planning and designing education as the center of professional training.

In terms of the need of landscape architecture from the society, employers are now in need of professionals from construction, protection and management majors. These employers are mainly from such fields as constructional engineering, landscape engineering, real estate development, tourism development, property management and etc. Other employers, mainly including the planning companies, schools, and research and development institutions, are looking for professionals in planning, design, education, and scientific research. Based on the employment status of undergraduates from the past few years, over 1/5 of these people found jobs in the field of designing and planning; 3/5 of them worked for construction, protection and management industries; 1/5 of them had other jobs. Among all the employers, more private companies become the main places for undergraduates to find jobs. By combining the status of college education and job markets, we can tell that, on one hand, there exists a gap between requirements of knowledge and skills from job markets and courses provided by colleges, as the refinement of the social labor division is inevitably reflected in the requirements of the knowledge and skills of the personnel; on the other hand, the knowledge

and principles students have learnt from textbooks are sometimes out of touch with actual practices because some of the principles are dated, and some of them are too theoretical. Therefore, it is inevitable to adjust the objectives of landscape architecture education. The main purpose is to convert the emphasis to planning, design, construction, and management from planning and design by refining the objectives of training professionals. From the perspectives of educational normativity, this not only represents the requirements of standardization but also creates opportunities for the implement of normalization.

It should be noted that such adjustment is practical and unavoidable, because the fields and ranges of the current landscape architecture have surpassed those of any previous times. For instance, American Landscape Architecture Association explained LA as "Nowadays, landscape architects are facing more complicated relationships between architecture and natural environment. Landscape architects should not only plan and design not only places like parks, residential areas, schools, gardens, graveyards, commercial centers, health resorts, public transportation, enterprises, waterfronts and etc., but also restore natural areas like wet lands, lakes, mine lots, and forests that are damaged by human beings." Due to the universality of the works, employees should not only be equipped with wide knowledge but also specialize in details and professions. Thus, Danish well-know landscape architect, Sven-Ingvar Anderson proposed to split LA range into three domains, which are landscape planning, landscape architecture, and garden design. Each domain can be defined by: landscape planning mainly focuses on planning of cities and areas in a macro-perspective; landscape architecture is responsible for organizing layout of outer spaces, mainly on cities; garden design deals with detail designing problems to built an idyllic feelings to works. Even if his division was not reasonable enough, this suggestion still has some merits to refine professional directions when the LA industry becomes more complicated.

In consideration of the limited amount of colleges, it is hard to choose between “general professionals” and “specialized professionals.” According to social needs and students’ interests and potentials, we could divide training directions into planning, design, construction, management, and herb application. In this way, e could not only satisfy social needs professionals in different levels but also resolve conflicts between “general professionals” and “specialized professionals.” It would benefit colleges in adopting their good points and avoiding their shortcomings, and at the same time, in normalizing the professional education.

6.6.3 Contents for educational normativity: diversity in unity

Contents for normativity are in the following three aspects: one, the basic requirements for the establishment of curriculum; two, the basic requirements of training contents; three, the basic requirements of training results. These three aspects of basic requirements should be regarded as the keystone for the quality of landscape architecture professional education. It is the minimum requirement for both college programs and qualified graduates. We set these basic requirements to balance different areas, properties, and conditions in colleges, and also to build a cooperation platform to promote interactions between all these colleges. Based on the above, we certainly should encourage colleges to reveal their advantages and specialties, to set higher standards, to showcase the diverse values and reputations of different colleges, so that the value of graduates could be accurately recognized.

In terms of the curriculum system, graduates’ jobs are widely diversified due to the large range of landscape architecture. Some colleges now build professional platforms—public courses, professional basic courses, humane and social scientific courses, and other majors’ directions—plants, design, planning, protection, management, environment, ecology, art and etc. These approaches are quite practical on some levels.

In terms of training contents, this is the core issue of professional education normativity, which is directly related to not only the ages of teaching staff, the educational level, educational organizations and etc. in colleges, but also the faculty's knowledge, researching ability, morality, professional ethics and etc. At the same time, all these are closely connected to the overall level of colleges, learning styles, school spirits. In terms of the training result, it is the most difficult issue to measure and assess in the process of professional educational normativity. It does not only directly reflect the overall normative curriculum and training contents, but also concerns training approaches and experiences, as well as school conditions—facilities and budgets, internship experiences and etc. For instance, the internship experience, a crucial part of the training process, involves the site conditions, forms of the programs, project duration and etc. Admittedly, it is also related to students' quality, ability, aspiration, effort level, and etc. Therefore, these two aspects above are the keys to the normativity construction of landscape architecture education.

We should point out that the unity in normativity construction does not force all colleges to conduct a single professional educational mode or compel all graduates to have the same ability. In fact, this is neither possible nor necessary. The main objectives of normativity construction are to uniformly diversify development and to encourage the pursuit of excellence in diverse development. Based on their own advantages and specializations, colleges could establish their new characteristics and styles in a uniformed platform in order to improve the whole quality of landscape architecture education.

6.6.4 Process of educational normativity: progress in exploration

Normativity construction of landscape architecture is a tough work, the promotion of which is a process of exploration and development. We could promote educational normativity in the following two ways: first, to establish a

detailed plan of action; second, to explore and draw inspirations from various beneficial forms and approaches.

The establishment of detailed plan of action calls for the collaboration of education authorities, industry authorities, education association, collages, and employers. The support by education authorities, the coordination and organization by education association, and the cooperation by colleges and employers are the organizational guarantee of promoting the normativity construction of education. It is inevitable to have some resistances due to the different interests of colleges and local departments involved in this work. These resistances could come from the preserved conception, from the inherent patterns, or from the existing benefits. However, for the sake of the whole interest of landscape architecture and the healthy development of professional education, we should work out a feasible plan to ensure the smooth development of normativity construction by rational planning and effective communication based on the premise of expanding consensus as greatly as possible.

From the aspects of exploring and learning from various beneficial forms and approaches, firstly, in term of organizational management, the Professional Education Committee of China Landscape Architecture Association should be responsible for supervising, balancing and promoting the process of normativity construction of landscape architecture education. Secondly, colleges should take initiatives in such process because colleges are not only the main body of promoting normativity construction of professional education, but also the major beneficiary. Regardless of their diverged levels of strengths, all colleges can be more or less improved during the process in terms of organizational forms of professional education and approaches of training professionals. In addition, during the process of promoting normativity construction of professional education, we should advocate the cooperation and communication between

colleges (both domestic and international). Nowadays, all western colleges emphasize on the cooperation and communication between each other. For instance, students majoring in landscape architecture in Danish colleges have the chance to join exchange programs to study in other local or international colleges for a half or a whole year. On one hand, this program is helpful for students to broaden their horizons and gain experiences. On the other hand, it is beneficial for colleges to share experiences and results of their establishment to promote and improve themselves mutually. Currently, the gap and difference between landscape architecture educations of domestic colleges exist independently of man's will. The advantaging colleges should voluntarily help those disadvantaging colleges. At the same time, we should encourage well-known scholars to become part-time lecturers in other colleges. In fact, many Danish landscape architects have experiences of giving lectures in colleges as part-time jobs, which have played a significant role in the improvement of professional education.

6.6.5 Conclusion

Normativity construction of landscape architecture represents the nature, status, and value of professional education. It also mirrors the occupational stigmas and internal requirements. The point of developing normativity construction of professional education is to provide all colleges a clear guiding ideology and a specific developing direction so as to lay a solid foundation for achieving the goal of cultivating professionals of high qualities and levels. Certainly, landscape architecture education is in a sound developing period. We should make most of this opportunity to develop our landscape architecture industry and to train more high quality talents by enhancing the education quality and level under the guidance of normativity construction of professional education.

Danish Version in Brief

Som følge af det øgede fokus på samfundsudvikling og god livskvalitet, er der ligeledes øget fokus på grønne områder i bymiljøet, der efterhånden tillægges ligeså stor værdi som byens infrastruktur, herunder transport og telekommunikation, og opfattes som en uundværlig del af indbyggernes liv, og en nødvendig del af en god livskvalitet.

Denne afhandling omhandler primært grønne områders indflydelse på bylivet, og redegør for, hvordan der kan skabes et balanceret forhold mellem byens udvikling, og bevaring og implementering af grønne områder for byer i vækst og ved byfornyelse. Dette gøres gennem analyser af nuværende og historiske eksempler. Baseret på disse analyser, undersøges forholdet mellem forskellige typer grønne områder i byer og indbyggernes livskvalitet.

Det første spørgsmål, der undersøges, er hvordan der i forskellige perioder i Københavns historie er arbejdet med de adskillige modsigelser, udfordringer og muligheder byen har stået overfor, siden den første fingerplan blev introduceret i 1947. Dette bruges som baggrund for at udarbejde en egnet, realistisk byplan for København, der giver de nødvendige retningslinjer for at opnå balance mellem byens vækst og udvikling og miljøbeskyttelse, med samtidig hensyntagen til de omkringliggende landbrugsarealer, skove, søer og øvrige naturområder, der danner en grøn barriere omkring København.

Det sidstnævnte spørgsmål fokuserer på hvordan der ved hjælp af by- og landskabsplanlægning og design, er blevet skabt varierende typer af grønne områder i København, der giver et behageligt og inspirerende miljø, som samtidig danner rammerne for forskellige rekreative aktiviteter, hvilket alt sammen er med til at forbedre livskvaliteten for indbyggerne i København, og forme byens

omdømme. Målet med det grundige studie af København – byen for mennesker, er at samle erfaringer, der kan bruges som inspiration og reference ved byplanlægning under den tiltagene, hurtige urbanisering, der foregår i Kina.

Rapporten består af seks kapitler. Det første kapitel er en introduktion til emnet og opgaven; det andet kapitel præsenterer grundlæggende koncepter og teorier; det tredje kapitel beskæftiger sig med de grønne områder omkring København; det fjerde kapitel omhandler de grønne områder i selve København; i det femte kapitel analyseres danske arkitekters designfilosofi; i det sjette kapitel, beskrives hvordan der kan hentes inspiration fra den danske udvikling af grønne områder. De første kapitler danner således grundlaget for rapporten, og udstikker rammerne for videre undersøgelser via de angivne metoder og teorier. De tre efterfølgende kapitler udgør kernen af afhandlingen, hvor resultaterne af undersøgelserne præsenteres, det vil sige hhv. udviklingen af Københavns Fingerplan, de forskellige typer grønne områder der kan bruges i byplanlægningen, og de danske landskabsarkitekters designteorier. Det sidste kapitel indeholder diskussion og konklusion af den samlede rapport, hvis hovedformål er at belyse hvordan man i Kina kan drage fordel af byplanlægningen og udformningen af København.

Hvert kapitels og underkapitels hovedpunkter forelægges i de efterfølgende afsnit.

Kapitel 1 - Introduktion

I første kapitel præsenteres baggrunden for den efterfølgende undersøgelse, og signifikansen af undersøgelsen underbygges. Desuden fremsættes formålet med undersøgelsen, og arbejdsspørgsmålene, der ligger til grund for denne, formuleres ligeledes i kapitel et. Afsluttende introduceres de metoder, der bruges i undersøgelsen, hvilket indbefatter: Litteraturstudie, Historisk studie, dybdegående

interview og feltobservationer.

Baggrund

Efter Anden Verdenskrig, sideløbende med den vedvarende udvikling og fremgang af økonomi, samfund og videnskab, begyndte en periode med hidtil uset hastig udvikling, drevet af industrialisering, urbanisering, globalisering og øget tilgang til information. Dette har dog medført seriøse problematikker, blandt andet klimaforandringer, luft- jord- og vandforurening, negative påvirkninger af økosystemer og udtømning af ressourcer, hvilket alt sammen er med til at øge vigtigheden af bæredygtige tiltag og bæredygtig udvikling, ikke mindst i byerne. Eftersom hovedparten af jordens befolkning er bosat i byer, påvirkes den generelle livskvalitet direkte af, om byerne drives og udvikles er bæredygtig eller ej. Derfor er grønne områder i byerne, der er et af de nøgleelementer, som direkte påvirker livskvaliteten, blevet et vigtigt anliggende for byens indbyggere.

Siden den industrielle revolutions begyndelse, det vil sige fra begyndelsen af det 19. århundrede, medførte den tidlige urbanisering i den vestlige verden alvorlige problemer, blandt andet med forurening, dårlig sanitet samt hurtig spredning af sygdomme, der alle bundede i manglende planlægning, med tankeløse bygningskonstruktioner til følge. Disse problemer gjorde befolkningen opmærksomme på vigtigheden af god byplanlægning og implementering af grønne områder i byerne. Dette resulterede i flere bestræbelser på at øge arealandelen af parker og grønne områder i byen, samt et øget fokus på disses udformning for at forbedre bymiljøet og imødekomme befolkningens behov i forbindelse med deres arbejde, fritid, rekreative aktiviteter og liv generelt. Igennem mere end et århundrede har udviklingen og opførelsen af grønne områder i de vestlige lande ikke bare leveret behagelige omgivelser, men også forbedret og promoveret byers omdømme, indflydelse, sammenhæng og tiltrækningskraft, hvilket har været med til at styrke vitaliteten og dynamikken i byernes økonomiske vækst.

Blandt de industrialiserede lande har Danmark, på trods af at det er et lille land med kun 5.4 millioner indbyggere på 42.000 km^2, gradvist gennemgået en transformation fra et fattigt landbrugsland til et industrialiseret land, og undervejs opbygget et socialt system med politisk demokrati, social lighed, blomstrende økonomi, og omfattende velfærdsydelser, efter mere end et halvt århundredes lang og konstant opbygning. Sammenlignet med vestlige lande har Kina mødt flere vanskeligheder og udfordringer i moderniseringsprocessen siden 1840. På baggrund af de reformer og den "opening-up" politik Kina har ført de sidste 30 år, har landets økonomi og samfund oplevet ny fremgang, der har ført Kina ind i en rivende udvikling, og medført en bemærkelsesværdig urbaniseringsrate. På nuværende tidspunkt er Kina således midt i en hurtigt udviklende industrialiserings- og urbaniseringsproces, og det skønnes at urbaniseringsraten vil overstige 50% i 2015, og nå 65% i 2030. Denne hastige udvikling betyder, at det er presserende for Kina, at finde en løsning på hvordan dette udviklingsspring kan opnås, og hvordan dette gøres på en bæredygtig måde, der baner vejen for et mere harmonisk forhold mellem individ og samfund, menneske og miljø og menneske og natur, gennem rationel planlægning og distribution på et videnskabeligt niveau i denne periode med dramatiske forandringer. Som kontrast til det hurtigt udviklende Kina, har Danmark gennem tiden opnået stor erfaring indenfor dette område, især gennem planlægningen og opførelsen af Københavnsområdet, med konstant fokus på at skabe en fornuftig opdeling og planlægning af byens grønne områder, og det system sammensat af grønne beboelsesområder, parker, vandområder og naturområder. Alle disse komponenter er med til at skabe et attraktivt miljø i byrummet, og de gode erfaringer kan desuden bruges i byudviklingen og – planlægningen i Kina. Nærværende afhandling er udledt af denne ide.

Arbejdsspørgsmål

De faktorer der har indflydelse på byers udvikling kan inddeles i to hovedgrupper, hvor den ene udgøres af geografiske begrænsninger og naturlige forudsætninger, og den anden udgøres af de menneskelige faktorer, herunder den sociale, politiske, økonomiske og kulturelle indvirkning, samt teorier, ideer og traditioner omkring byplanlægning. En bys grønne områder er et resultat af byens udvikling med indflydelse fra dens historie, inter-aktion og inter-indflydelse mellem mennesket og naturen, mand og by. Man kan derfor sige, at denne dobbeltrettede påvirkning betyder, at mennesket skaber byens udformning, og byen skaber menneskets livsstil. Med videnskabelig og teknologisk fremgang og forbedringen af menneskets evne til at kontrollere naturen, er den menneskelige faktor i byers udvikling blevet stadig mere betydningsfuld. Det betyder, at i moderne byer har byplanlægning og –design indflydelse på byens fremtid, men også på indbyggernes trivsel og livskvalitet.

På baggrund af dette er der opstillet to hypoteser i denne undersøgelse: (1)Byplanlægning spiller en væsentlig rolle i en bys rationelle, koordinerede og sunde udvikling. De spiller især en vigtig rolle ved at lede udviklingen af byens udformning og layoutet af byens funktioner. I denne undersøgelse antages det, at byplanlægning kan være vigtigt i beskyttelsen og oprettelsen af grønne områder i byer. (2) Det antages at de grønne områder, gennem hensigtsmæssigt planlægning og design på baggrund af byplanlægningsprincipper, kan imødekomme befolkningens behov, og leve op til de krav der stilles i forbindelse med arbejde og rekreative aktiviteter i varierende former for områder.

I afhandlingen forsøges disse hypoteser bekræftet ved at analysere de fire følgende spørgsmål med København som eksempel:

(1) Hvad består Danmarks byplanlægningssystem af? Hvordan kan Fingerplanen i København være med til at beskytte byens grønne områder under

byudviklingen? (2) Hvad består Københavns grønne områder af? Hvilke typer områder og karakteristika er der tale om? Hvilke karakteristika repræsenterer specielle typer grønne områder? (3) Hvilke designfilosofier bruges af de danske landskabsarkitekter? Hvordan er de reflekteret de deres planlægnings- og designarbejde? (4) Hvilke erfaringer er der opnået gennem Københavns udvikling om grønne områder i byen? Hvordan kan Kina med fordel bruge København som inspiration under opførelsen af grønne områder og i landskabsarkitekturen?

Besvarelsen af det første spørgsmål hjælper med at forstå principperne for hvordan systemerne i den danske byplanlægning er tilrettelagt, indholdet i systemerne og driftsmekanismerne, og desuden hvordan systemerne er sikret. Gennem specifikt at undersøge Københavns Fingerplan opnås forståelse for udviklingen af byens form og byrum, med særligt fokus på udviklingen i sidste halvdel af 1900-tallet. Det andet spørgsmål fokuserer på indhold, layout, funktioner og karakteristika samt andre aspekter af Københavns grønne byrum. I disse to spørgsmål betragtes især de grønne og blå områder (vandområder), og designet af specielle typer grønne områder som parker, legepladser, design af kirkegårde og den konkrete rolle de grønne områder spiller i befolkningens dagligdag. Det tredje spørgsmål beskæftiger sig primært med hvordan stedets fysiske forudsætninger kombineres med brugernes behov, lokal identitet og designerens personlige stil, når danske landskabsarkitekter designer et offentligt rum. Det sidste spørgsmål udforsker den inspiration der kan hentes fra den danske model.

Undersøgelsens formål

Formålet med denne undersøgelse og afhandling, er at forstå forløbet og resultaterne i udviklingen af hvordan grønne områder planlægges og udformes i København, på en mere dybdegående, systematisk og objektiv måde. På samme tid forsøger undersøgelsen at afdække den nuværende situation og

udviklingstendensen for fremtidige grønne byrum i København, ved, på forskellige niveauer, at analysere love og politik, system og drift, videnskab og teknologi, sociale og kulturelle aspekter, design og konstruktion, forvaltning og vedligeholdelse, og slutteligt udvikling og innovation. Intentionen er at udforske de universelle og partikulære karakteristika, der demonstrere udviklingen af de grønne byrum i København, og de sociale og kulturelle forhold, der ligger til grund for denne udvikling. Resultaterne af undersøgelsen opnås med en forventning om at de kan bruges til det specifikke formål, at løse de problemer der er opstået i forbindelse med udviklingen og konstruktionen af byer i Kina, og dermed undgå så mange omveje som muligt på vejen mod at omvende den nuværende uens, ufornuftige, uvidenskabelige tendens i layoutet af grønne områder i Kinas voksende byer. Hvis dette lykkedes, vil det føre til udviklingen af bedre byer, med et mere æstetisk udseende og mere sikkert miljø for de mennesker der bor, arbejder og færdes i byen.

Undersøgelsens metoder

Baseret på denne forventning om den efterfølgende anvendelse af undersøgelsen, anvendes Case Study -metoden. Dette Case Study er her defineret som ”en metode der anvendes for at indsamle data og materiale som historiske data og filer, interviews og observationer, og derefter analysere disse data ved pålidelige teknikker og herudfra finde frem til generaliserbare konklusioner på baggrund af de indsamlede data. Helt konkret er data frembragt, og konklusionerne dermed draget, på baggrund af litteraturstudie, historiske studier og feltobservationer og – undersøgelser. På samme tid er der udført kvalitativ og kvantitative undersøgelser af forskellig art.

Litteraturstudie

Litteraturstudiet danner udgangspunktet og grundlaget for enhver undersøgelse. Det kan på den ene side hjælpe studerende med at forstå de

teoretiske resultater indenfor det pågældende felt, hvad de skal fokusere på, hvilke konklusioner og sammendrag der kan laves på baggrund af de fundne data, og hvilke metoder der anvendes. Alt i alt kan det altså give undersøgelsen en teoretisk ballast. På den anden side kan et litteraturstudie bidrage med en bedre forståelse af de resultater der er opnået af danske og udenlandske studerende i relation til Københavns grønne byrum, mere specifikt Fingerplanen, arealanvendelse, udvikling af beboelsesområder, systemet af grønne områder, landskabsarkitektur, planlægning og design indenfor de grønne byrum. Det kan også forventes at nødvendig information og inspiration opnås ved en gennemgang af eksisterende litteratur.

Historisk studie

I det historiske studie fokuseres der primært på indsamling og analyse af relevante historiske dokumenter (artikler, bøger, statistikker, billeder etc.) i overensstemmelse med den kronologiske udvikling, og på baggrund af disse data at finde begrundelser for den historiske udvikling. I denne afhandling analyseres Danmarks og Københavns historie for at finde sammenhængende ledetråde, der gengiver processen for udarbejdelse af projekter og designs og for formuleringen af teoretiske synspunkter, og denne analyse danner dermed grundlaget for undersøgelsen. Eksempelvis er det i undersøgelsen af Københavns Fingerplan nødvendigt at indsamle og sammenholde tekster omkring planlægningen, demografiske data, arealanvendelse osv., fra de forskellige udviklingsperioder, for at opnå en grundig forståelse for Fingerplanens udvikling og historie, og danne et solidt grundlag for videre undersøgelse.

Dybdegående interview

Det videnskabelige, dybdegående interview er en vigtig metode til indhentning af primært kildemateriale. Ved at interviewe studerende, eksperter, myndigheder, planlæggere og landskabsarkitekter opnås der detaljer på et

makroniveau, der vedrører regulativer og systemer, udviklingsstrategier og programmer i Danmark og København. Der opnås desuden detaljer på et mikroniveau som består af information om hvordan de danske planlæggere og landskabsarkitekter arbejder med de konkrete projekter og deres konsekvenser. Gennem kommunikation med embedsmænd i kommunen opnås der viden om strategien for byudvikling i Danmark, den politik der føres for at beskytte miljøet, planerne for infrastrukturen, velfærdssystemet, og strategien for planlægning og forvaltning af grønne arealer mm. Ved at gennemgå data med planlæggere og landskabsarkitekter opnås der indsigt i den danske tradition for landskabsarkitektur, det kunstneriske særpræg og den kulturelle betydning, procedurerne og regulativerne for design af de grønne områder samt Politiken for konstruktion og forvaltning af disse.

Feltobservationer

Feltobservationer er en vigtig metode til at opnå primær viden i denne undersøgelse. Under observationerne er det for det første vigtigt at lægge mærke til stedets beliggenhed og områdets bestanddele som parkareal, legepladser, stisystemer, kirkegårde og områder med vand. Desuden er det vigtigt at undersøge hvordan den pågældende landskabsform er udarbejdet, hvordan layoutet er udført, hvordan planterne er brugt, hvordan de forskellige faciliteter er arrangeret osv. Dette rekognosceringsarbejde kan ikke erstattes med data og materiale fundet i litteraturen. Gennem hele processen med feltobservationerne opleves de grønne områder direkte, og man mærker effekten af områdets fremtoning og de særpræg der anvendes og kendetegner de danske planlæggere og designeres arbejde. Det er dog vigtigt at bibeholde en rationel synsvinkel under observationerne.

Kapitel 2 – Grundlæggende koncepter og teorier

I kapitel 2 opridses først koncepterne for byplanlægning og landskabsarkitektur, derefter for byrummet og grønne områder i byerne, og

slutteligt behandles begreber relateret til udeliv, rekreative aktiviteter og livskvalitet.

2.1 Byplanlægning og landskabsarkitektur

2.1.1 Byplanlægning

I den tidlige bydannelsesproces begyndte folkeslag verden over at udnytte deres viden til at bygge byer med deres egne kulturelle særpræg og traditioner. Disse tidlige bydannelser har resulteret i dannelsen af forskellige typer af byer og deres opbygning, og har ledt til særegne ideer indenfor byplanlægning. Som kontrast til andre lande og regioner er de anvendte byplanlægnings strategier og teorier i den vestlige verden mere talrige, og især siden middelalderen og renæssancen har antallet og størrelsen af byerne nået usete højder. I tidlige moderne tider, siden fremkomsten af den industrielle revolution, er byernes form, omfang og layout blevet ændret i et hidtil uset tempo, hvilket har drevet udviklingen af teorier og teknikker i byplanlægningen. Dette har etableret en grundsten for tilblivelsen af moderne byplanlægning.

Moderne byplanlægning inkluderer per definition både den fysiske planlægning som arealanvendelse, planlægning af infrastruktur, kontrol med byggeriet, ressource forbrug, miljøbeskyttelse, men også den ikke-fysiske planlægning som byens økonomi, samfund, kultur og befolkning. Den moderne byplanlægning beskæftiger sig ikke kun med emner inden for byens grænser som land, rum, layout og funktion, men også industriel opdeling og en koordineret udvikling mellem byens og det omkringliggende landskab. Med stadig større byer og befolkningstal, er byplanlægning blevet en omfattende videnskab. Den amerikanske videnskabsmand Nelson P. Lewis, som i 1916 udgav bogen ”The Planning of the Modern City” skrev en artikel om ”The Engineer in his Relations to the City Plan”, hvor han forklarede byplanlægning som ”Det er simpelthen udøvelsen af en fremsynethed, der promoverer en velordnet og moderat udvikling

af en by og dens omegn i en rationel retning med behørig hensyntagen til beboernes sundhed og bekvemmelighed og til samfundets kommercielle og industrielle fremgang." som er i overensstemmelse med hans definition" planlægningen skal ikke bare dreje sig om byen, men også dens omegn – det vil sige den skal afføde en tilknytning til nabobyerne og de landlige og mindre bymæssige distrikter der ligger inden for rækkevidde." "Hensyntagen til indbyggernes sundhed og bekvemmelighed nødvendiggør tilstedeværelsen af rigeligt med åbne områder til rekreative aktiviteter og fritidsbeskæftigelser. Med andre ord, skal der inden for rækkevidde af ethvert hjem, være en park hvor beboerne kan få frisk luft og udendørs liv".

2.1.2 Landskabsarkitektur

Begrebet landskabsarkitektur så første gang dagens lys i 1828. Det blev introduceret af den skotske kunstner Gilbert Laing Meason i hans bog "On The Landscape Architecture of the Great Painters of Italy". Landskabsarkitektur er både en gammel kunstart og en ny disciplin. En gammel kunstart fordi dens oprindelse kan spores tilbage til tidlige haveanlæg. For eksempel er de tidlige kongers jagtparker, blomsterhaver og frugthaver og middelstandens køkkenhaver tidlige eksempler. Med fremgangen af civilisationen og udviklingen af økonomien, har beskæftigelsen med pryd- og nyttehaver gradvist spredt sig fra de kongelige og adelige til forretningsmænd, tjenestemænd, lærde og professorer til den almene befolkning. Desuden er der gennem tiden opstået en bred vifte af stilarter indenfor haveanlæg med baggrund i geografiske, kulturelle, religiøse og andre forskelle, der tilsammen har skabt en dynamisk havekunst og –kultur. Landskabsarkitekturen er samtidig en ny disciplin fordi det ikke før nyere tid er blevet sidestillet med videnskab. Formålet er ikke længere at dekorere omgivelserne med visuelle effekter og et æstetisk landskab, og der arbejdes ikke længere kun med traditionelle gårdhaver, parker, offentlige grønne områder og

regionale planer og design, men i stadig større grad også med menneskets omgivelser generelt og beskyttelse af miljøet. Gennem anvendelse af resultater opnået i adskillige former for videnskaber, anvender landskabsarkitekturen teknologier der løser forskellige problemer der førhen er opstået, især har landskabsarkitekturen været brugt til at håndtere væsentlig problemstillinger inden for arealanvendelse, ressourceforbrug, miljøbeskyttelse og balancen mellem miljøet og menneskets udviklingsproces.

Ifølge ASLA's (the American Society og Landscape Architects) definition er landskabsarkitektur "en profession der anvender kunstneriske og videnskabelige principper i udforskningen, planlægningen, designet og driften af både naturlige og bebyggede miljøer. Landskabsarkitekter anvender kreative og tekniske evner og videnskabelig, kulturel og politisk viden i den planlagte tilrettelæggelse af naturlige og opførte elementer med tanke for ledelsen og bevaringen af naturlige, opførte og menneskelige ressourcer. De resulterende miljøer skal tjene brugbare, æstetiske, trygge og fornøjelige formål." I Wikipedias definition er landskabsarkitekturen beskrevet langt mere detaljeret og konkret: "Landskabsarkitektur er designet af udendørs og offentlige rum, for at opnå miljømæssige, sociale eller æstetiske resultater. Det involverer systematisk granskning af eksisterende sociale, miljømæssige og geologiske forhold og processer i landskabet samt design af interventioner der vil frembringe det ønskede resultat" det "er et multi-disciplinært område, der indbefatter aspekter som: botanik, havebrug, kunst, arkitektur, industrielt design, geologi, miljømæssig psykologi, geografi og økologi. En Landskabsarkitekts arbejdsområder kan spænde vidt, fra skabelsen af offentlige parker og områder til planlægning af universitetsområder og virksomheders kontorparker, fra designet af beboelsesområder til designet af infrastruktur og forvaltning af store naturområder eller genindvinding af forringede landskab som miner eller lossepladser.

Landskabsarkitekter arbejder med alle typer strukturer og udeområder – store og små, urbane, landlige, og med hårde (konstruerede) og bløde (plantede) materialer, og integrerer samtidig en grad af miljømæssig bæredygtighed."

2.2 Byers rum og grønne områder

2.2.1 Byers rum

Byrum består af det åbne rum der er mellem, og omgrænses af, alle typer arkitektoniske enheder i den indre by. Termen "Det åben rum" blev første gang brugt i en rapport fra 1833 skrevet af the Select Committee on public Walk. I 8177 fremsatte det engelske parlament "the Metropolian Open Spaces Act", og i en senere udgave af dokumentet fra 1906, blev det åbne rum defineret som områder der var "indelukkede eller ikke, så længe der ikke er bygninger eller mere end en tyvendedel er dækket af bygninger, og resten kan anvendes til parker, eller til rekreative formål, eller som ligger uberørte." Ifølge Wikipedias forklaring: "I planlægningen af arealanvendelse, er byrum åbne områder, hvor der kan placeres parker, grønne områder eller andre åbne landskaber. Disse landskaber kan veksle fra legepladser til nøje vedligeholdte områder til relativt naturlige landskaber. Byrum er sædvanligvis åbne for offentligheden, dog kan de være privatejede. Områder udenfor bygrænsen, som stats- og nationalparker, samt åbne landskaber på landet, er ikke at betragte som byrum." I USA har "the National Wildlife Federation" defineret at "Byrum er ubebyggede områder, der ikke imødekommer kriterierne for naturområder på grund af menneskelig aktivitet, men som stadig yder levesteder, scenerier eller andre fordele. Byrum kan inkludere åbne områder som landbrugsjord, rekreative områder og transportveje". Helt konkret udgøres byens åbne rum altså af det ydre af bygninger, gader, torve, parker, grønne områder, legepladser og sportsbaner, samt byområder udgjort af naturområder, landbrugsområder, floder osv. De åbne byrum er hovedsageligt til for indbyggernes aktiviteter som transport, handel, rekreative aktiviteter, udstillinger,

sportsudøvelse, sightseeing, festivaler, fejring af traditioner og kommunikation. Disse aktiviteter udfylder ikke bare menneskets grundlæggende livsbehov, men også behovet for udvikling. Byrummene kan enten opfattes som fysiske former, eller som et element i byens økosystem. Byrummene sikrer altså ikke bare menneskets sikkerhed, men muliggør også andre arters overlevelse i byerne.

2.2.2 Den teoretiske udvikling af byrum

For at kunne håndtere den hurtige stigning i antallet af byer og deres størrelse, begyndte man i starten af det 19 århundrede at udforske strukturen i byernes udvikling, problemerne med byernes udformning samt ufornuftige layout af byer på grund af dårlig planlægning og design. Dette er hovedårsagen til den moderne byplanlægning. På den tid var bygningsdensiteten generelt for høj, gaderne for smalle og luften, sollyset, ventilationen og forureningen var i højeste grad uegnet for mennesker at bo i. Desuden herskede der kaos på grund af mangel på plads til indbyggernes aktiviteter i mange vestlige byer. Sir Ebenezer Howard (1850-1928) repræsenterede en del af befolkningen der forsøgte at ændre disse forhold, og fremlagde et nyt koncept til byers udformning. I oktober 1898 udgav han bogen: ”To-Morrow: A Peaceful Path to Real Reform”, der i 1902 blev genudgivet med titlen “Garden Cities of To-morrow”. I denne bog fremlagde Howard en ny form for social struktur og form, der havde til formål at udligne barrieren mellem urbane og landlige områder, og dermed erstatte den eksisterende form. ”Ægteskabet mellem bymæssige og landlige områder vil springe ud af det nye håb; et nyt liv; en ny civilisation”, for at integrere fordelene ved et dynamisk byliv og det smukke og behagelig landlige miljø som en ”haveby” der ville blive som en ”magnet”.

Howards ide om ”havebyer” fremlagde to aspekter der ville begrænse byens størrelse, arealanvendelse og indbyggertal. Modsat ham fremlagde Clarence Perry (1872-1944) sin egen teori, der fokuserede på at ændre byens indre struktur og

tilpasse det i rummelige inddelinger kaldet ”blokke”. Konceptet ”kvarter” eller ”blok” blev anvendt første gang af Perry i 1923 (en kilde anviste at det blev brugt under Chicago Planlægningen tidligt i 1923). I 1929 blev det brugt i planlægningen af New York, og senere i Perrys bog ”Housing for the Mechanic age”. Startskuddet til denne tankegang var den uhæmmede vækst af byerne og drastiske stigning i antallet af biler, der gjorde det nødvendigt at lede efter en mere effektiv strukturering af byerne, og udvikle modeller og danne samfund med tryggere, og samtidig lettere tilgængelige faciliteter. Perry foreslog derfor at byen skulle konstrueres og formes ud fra ”kvarterer”, der udgjorde en samfundsgruppe af en passende størrelse med mindst fire tilstedeværende delelementer: en skole, en minipark, en legeplads, beboelse og værested. Planen for værestedet skulle inkludere kvaliteten af bygningerne, gadeplanen, baggårde, layout af beboelsen, forretninger og andre servicefaciliteter.

I modsætning til Perry kom den franske arkitekt Le Corbusier (1887-1965) og den amerikanske arkitekt Frank Lloyd Wright (1867-1959) med deres egne teorier og udviklingsplaner fra modsatrettede synsvinkler. Baseret på dilemmaerne i de europæiske byer foreslog Le Corbusier at bruge nye planlægningsidealer til at omforme de gamle byer. Modsat Howards ide om store byer, argumenterede Le Corbusier for at byer, ved hjælp af moderne teknologier, var i stand til at opretholde en høj befolkningstæthed og samtidig være ramme for en komfortabel og hygiejnisk levevis. Derfor mente han, at med planlægning som udgangspunkt, skulle de moderne teknologier bruges til at forbedre byens eksisterende struktur. Mere præcist gik hans ide ud på at øge befolkningstætheden ved at bygge i højden og anlægge moderne transportnetværk og store grønne områder ved at udnytte det frigjorte areal. Dermed kunne byens adgang til solskin, ventilation og andre luftforbedrende aspekter øges, og føre til bedre betingelser for rekreative aktiviteter, sport osv. I 1922 blev Le Corbusiers ideer anvendt første gang i hans

designede projekt ”Contemporary city” (Nutidsby). Denne by var konstrueret som en kæmpe park med højhuse omgivet af åbne grønne arealer til befolkningens aktiviteter. Le Corbusier var uenig i at man skulle begrænse byens udbredelse, i stedet forsøgte han at opnå en forandring af byen gennem den øgede befolkningstæthed, justere byens struktur og forbedre funktioner. Hans tankegang blev derfor sidenhen kaldt ”Urban Centralisation” (bymæssig centralisering).

Wright derimod var modstander af en udvidelse af byerne. Han argumenterede for rømning af byerne for at løse problemerne med den hastige vækst og overekspansion, og dermed blev hans tankegang kendt som ”urban decentralisation” (bymæssig decentralisering). I 1932 introducerede han ”Broadacre City” i bogen ”The disappearing City”. I 1945 korrigerede han denne model til sin nye bog “when democracy builds”. I 1958 korrigerede han den endnu engang til bogen ”the living city”. Hans model antog at hver indbygger, både voksne og børn, optog 1 acre (0,4 hektar) til beboelse og aktiviteter. I byen skulle der være fabrikker, skyskrabere, skoler, landbrugsjord, samt lokaliteter til offentlige aktiviteter og udfoldelser, og vejene mellem forskellige byer var en 6 sporet motorvej. Selvom Wright var klar over hans ideer tangerede Utopia, var det løsninger på den syge by og sociale ildebefindende han mente var i de amerikanske byer. Rent faktisk har udbygning af forstæderne og flytning fra byerne været praktiseret i USA siden 1960’erne, som en refleksion på Wrights tankegang. Grundprincipperne fra ”Broadacre City” har altså i høj grad præget den amerikanske byplanlægningsmodel og byudvikling.

I 1992 holdt FN konferencen ”Conference of Environment and Development” i Brasilien, hvor bekendtgørelsen ”Declaration on Environment and Development and Agenda 21 at Rio de Janeiro, Brazil” blev dannet. Siden er konceptet om bæredygtig udvikling blevet accepteret af flere og flere mennesker og regeringer verden over, hvilket gør det til den gængse form for

udviklingsstrategi for menneskeheden. Ideen om at ”Opfylde nuværende generationers behov, uden at mindske kommende generationers mulighed for at opfylde deres behov”, spiller en vigtig rolle for både byplanlægning og –udvikling, og det har sat større krav til måden byer udvikles på. På en større skala betyder det at byen skal udvikle sig sideløbende med økonomien, ressourcer, miljø, og samtidig bevare balancen med samfundet, demografien og kulturen.

Forskning i byers historie og udvikling i fortiden og fremtiden er blevet et attraktivt emne indenfor mange discipliner. Den amerikanske videnskabsmand Emily Talen har sammenfattet forskellige populære teorier i Amerikansk historie. Hun inddelte dem i fire kategorier for bykultur: (1) Inkrementalisme, der beskæftiger sig med det eksisterende byområde, på basis af at bevare mindre byer, men øge dens værdi, og bevare dens oprindelige fremtoning gennem myndighedsstøttet kunst. (2) byplanlægning der beskæftiger sig med de eksisterende byer, men ikke at begrænse deres vækst, derimod lægges der vægt på udviklingen af byerne via fysisk planlægning, for at opnå omfattende forandringer. (3) Planlagte samfund, der argumenterer for at byen bør bygges et passende sted i regionen, og for vigtigheden af at samfundet fungerer korrekt indenfor byen. (4) Regionalisme, der står for tankegangen om at menneskelig beboelse skal være i en naturlig regional kontekst. Selvom disse fire subkulturer har deres egne styrker, mener Emily Talen at ingen af teorierne beskæftiger sig grundigt nok med forholdende mellem diversitet, samfund, tilgængelighed, forbindelser, social retfærdighed og plads til borgerne. Relevante rapporter fra FN analyserer de problemstillinger moderne byer står overfor gennem miljømæssige, økonomiske, institutionelle og sociale forandringer. På grund af byernes vækst og andre faktorer, er der brug for en ændring af de traditionelle metoder for byplanlægning. Disse forandringer fokuserer på planlægning der tager højde for den hurtige vækst i byer, fattigdom og slumkvarterer, bæredygtig byudvikling og klimaforandringer,

kriminalitet i byerne og konflikt- og krisehåndtering i byerne. Samtidig med at den verdensomspændende urbaniseringsproces fortsætter, er der stadig lang vej til bæredygtige byplanlægningsteorier og –metoder.

2.2.3 Grønne områder i byerne

Mennesket har naturligt en forkærlighed for naturen, især den grønne natur. Selvom en by giver anledning til underholdning, leg og andre bekvemmeligheder i folks liv, er den ofte præget af stål, beton og sten, hvilket i ringe grad imødekommer menneskets følelsesmæssige og psykologiske behov. Desuden kræver byens økosystem og miljømæssige formidling en gennemgående integration af varierende elementer fra naturen.

Desværre er den oprindelige arv (områder, ressourcer etc.), siden den industrielle revolution forsvundet i mange byer på grund af den konstante forandring og vækst af byerne. De oprindelige landbrugsområder, skove og naturområder i og omkring byen er gradvist blevet til ikke-levende bygninger og veje. Med dyrs og planters forsvinden fra byerne er menneskets liv kun blevet yderligere separeret fra naturen. Ifølge britiske ornitologers iagttagelser levede der seks fuglearter i Manchesters bymidte, mens der i området Alderly Edge, 20 km fra byen, fandtes 81 arter. Efter at have lidt konsekvenserne af den tidlige urbanisering, er folk igen blevet klar over naturens vigtighed i bylivet. ”Naturen er en kilde til skønhed, der spiller en rolle i at bringe folk inspiration. Den yder en værdifuld forbindelse med verden udenfor byerne, hvor folk i stigende grad bliver isoleret”. Selvom folk nyder bylivet og dets goder, ønsker de også at opleve varmen og romancen fra naturen, og ønsker at den skal spille en rolle i bymiljøet. I nutidens verden, uanset om det er i industrialiserede eller udviklingslande, opfattes de grønne byrum som en vigtig del af byens infrastruktur i flere og flere byer. Det grønne element i byerne er ikke bare en vigtig del af byrummet, et symbol på byens civilisation og velstand, men også en vigtig faktor i bestræbelserne på at

opnå bæredygtige byer med lavt CO_2 udslip.

Grønne byrum referer til åbne rum hvor der vokser planter i modsætning til åbne rum uden grønne planter. Begrebet dækker over alle former for parker, haver, botaniske haver, zoologiske haver, legepladser, sportsbaner, grønne strækninger langs veje, private beboelsers grønne områder, grønne korridorer osv. Og også skove, frugtplantager, marker, floder, søer, vådområder, og naturområder i byen. Den amerikanske professor Karen Payn har følgende definition: ”Byrum, eller grønne byrum, kan opfattes som et miks af traditionelle parker og opholdssteder, vandre- og cykelstier, udsigtspunkter, og andre områder, der giver anledning til uformelle aktiviteter og beskytter naturressourcerne”. En anden amerikansk professor, Anne Beer, definerer byrummet ud fra deres individuelle og miljømæssige kvaliteter ”grønne byrum er steder – landområder med uforsejlede overflader i og omkring byen – disse steder understøtter menneskelige aktiviteter så vel som planteliv, dyreliv og vand, og deres tilstedeværelse har stor indflydelse på livskvaliteten samt på den lokale luft- og vandkvalitet”. I EU’s definition, inddeles det offentlige rum i tre kategorier: (1) parker, haver, gang- og cykelstier og kirkegårde (2) sportspladser, der er åbne og gratis for offentligheden (3) private områder, herunder landbrugsjord, der er åben og gratis for offentligheden. I ”Planning Policy Guidance 17: Planning for open space, sport and recreation” inddeles de byrummet i 10 typer. Forskellige systemer og grønne netværk bestående af kunstige, semi-naturlige og naturlig vegetation på forskellige niveauer og skalaer, har bidraget med at give livet mening i byrummet. Selvfølgelig er der udover disse store områder og netværk også mange små, spredte områder, der indgår under definitionen grønne byrum, som private områder, åbne passager mellem bygninger, små åbne pladser og gadehjørner. Disse steder er ofte mest tilgængelige i beboernes dagligdag. Professor Swanwick (et al.) har opdelt grønne byrum i fire typer: bekvemmelige byrum, funktionelle

byrum, semi-naturlige habitater og lineære byrum, hvoraf de første tre kategorier inddeles i yderligere ni underklasser.

Ifølge forskellige kriterier for klassifikation, kan byens offentlige grønne rum inddeles efter følgende kriterier: (1) efter type af rum, inklusiv grønne gader, grønne pladser, parker og udsigtspunkter. (2) efter funktion, inklusiv beboelse, arbejdsområder, transportarealer og rekreative områder. (3) efter den rummelige form som små punkter med grønt, lineære områder eller store plane områder. Selvfølgelig indeholder hver type rum helt specielle konkrete former og indhold. Eftersom hvert byrum er placeret forskellige steder, og har deres egen unikke funktion med forskellig størrelse og form, er den rolle de grønne byrum spiller forskellig i hele byen. Men det forhindrer dem ikke i at komplimentere hinandens funktioner, og fælles støtte miljøregulativer og spille en rolle for beskyttelse af landskaber og kulturel identitet og arv.

Der er nogle kendetegn der er fælles for de grønne byrum i en moderne by: (1) gratis: med få undtagelser er langt størstedelen af de grønne byrum gratis og åbne for offentligheden. De er til rådighed i alle indbyggernes hverdag, og er ikke længere forbeholdt kongelige og adelige, som før i tiden. Derfor er de blevet vigtige steder for indbyggernes rekreative aktiviteter, underholdning, kommunikation og sociale liv i det daglige. (2) Let tilgængelig: Det er en nødvendighed at de grønne rum med rationel struktur, jævne layout og passende afstand er let tilgængeligt og let brugbart for alle indbyggere. Det er en konkret demonstration af det sociale demokrati og retfærdighed, at de grønne områder er placeret jævnt, så alle har let adgang. (3) Skønhed: hovedparten af de grønne byrum er nøje designet og opbygget, så sceneriet vækker folks opmærksomhed, interesser og kærlighed. I nogle ikke-designede områder bidrager folks brug og formning af området til denne skønhed, og gør det til et sted hvor de kan få forbindelse til naturen, og nyde naturen gennem årstidernes skiften. (4)

Multi-funktionelt: De grønne områder er en vigtig del af infrastrukturen i byen. Uanset fordelingen mellem beboelseskvarterer, arbejdsarealer eller rekreative områder, er de vigtige for at imødekomme beboernes forskellige behov, som legepladser til børn og sportsområder til unge mennesker. De fungerer også som vigtige forbindelser mellem byens funktionelle dele, som beboelsesområder, uddannelsessteder og industriområder. (5) stabil økologisk funktion: De grønne byrum yder en relativ stabil økologisk funktion. Ud over at give mennesket et passende miljø at leve i og plads til udendørsaktiviteter, er det også hjemsted for en lang række flora og fauna. De spiller derfor en vigtig rolle for bevarelsen af biodiversiteten i byerne, og desuden spiller det en positiv rolle i materiale-, energi-, og vandcyklusser i byen. (6) miljøbeskyttelse: De grønne byrum spiller en uerstattelig rolle for at forbedre byens miljø, i forbindelse med blandt andet rensning af luften, støjreduktion, bevarelse af vand- og jord i byen, reduktion af byers opvarmning sydpå osv. De skaber altså et solidt fundament for at opretholde byens funktion.

2.2.4 Udviklingen af de grønne byrum

Før i tiden var de grønne områder en mosaik af forskellige typer landskab bestående af landbrugsjord, naturområder, floder og søer. Heriblandt var de forskellige haver (fra kongelige og adelige familier) en form for kunstige grønne områder, der i forhold til de øvrige områder er relativt små. Med udviklingen af byernes økonomi, handelsaktiviteter og produktion samt indbyggertallet steget, og samtidig er disse grønne områder erstattet med grå områder – det vil sige bebyggelser. På trods af denne vækst var byernes størrelse naturligt begrænset før den industrielle revolution. Før dette var forskellen på byområdet og landområdet forholdsvis uklar, og der var en naturlig forbindelse mellem de to, hvilket medførte at byens beboere let havde adgang til naturen udenfor byen. Men fra 1650 til 1900, efter den industrielle revolutions tilsynekomst, især på grund af den

konstante udvikling i produktion og udvidelse af produktionsskala, øgedes både byens og populationens størrelse markant. Det medførte at byens oprindelige struktur ændrede sig fuldstændigt, og det har ændret den naturlige forbindelse mellem byen og landet.

Som reaktion på dette, og for at forbedre befolkningens sundhed, forbedre miljøet, forhindre epidemier og udvikle byerne, var der mange byer der fremmede tilblivelsen af grønne byrum. Efter den franske revolution i 1789 blev mange haver og parker, der før var forbeholdt de kongelige, åbnet for offentligheden. Dette var dog ikke nok til at imødekomme befolkningens behov, da antallet af parker og haver var begrænset, og oftest placeret tæt på paladserne. Derfor blev opførelsen af promenader og offentlige parker den vigtigste måde at måle forbedringen i byens og miljøets kvalitet.

I slutningen af det 18. århundrede havde den tyske professor, Christian Cay Lorenz Hirschfeld udviklet konceptet ”folkehave” (eller folkepark), der sigtede mod at bygge parker til brug for folk fra alle samfundslag. Folkeparker var altså steder hvor folk kunne få en forbindelse til naturen. Hirschfeld mente at der i parkerne skulle være statuer af historiske helte og monumenter af vigtige begivenheder, og desuden skulle parkerne have et spektakulært landskab, der ville tiltrække og imponere folk. Ved brug af disse tanker og koncepter designede Sir Benjamin Thompson den første folkepark i München i 1789. Eftersom den britiske landskabstype var fremherskende på den tid, er haven kendt som ”Münchens engelske have”. Sidenhen har den britiske professor John Claudius Loudon (1783-1843) pointeret at parkerne i mindre grad skulle være en udstilling af statuer og smukt, men kunstigt sceneri, og i stedet indeholde mere natur og gangstier igennem denne. Han hævdede desuden af disse folkeparker var med til at øge den kulturelle kvalitet for de laveste i samfundet. Hans ideer har haft indflydelse på senere tiders design og udvikling af parker.

Da disse ideer blev brugt ved designet af Regent's Park i 1811 af John Nash (1752-1835) markerede det en vigtig begyndelse for måden at lave parker på i britiske byer. Han benyttede sig ikke af den ellers fremherskende kunstneriske havestil, men inkorporerede områder med træer og søer i sine designs. Opførelsen af denne park kom til at fungere som rollemodel. Som det første land i verden hvor revolutionen foregik, var England også det første land der opførte kommunale parker og startede "park-bevægelsen" for første gang i den vestlige verdens historie i 1930'erne og 1940'erne. Grundlaget for denne bevægelse var en rapport der blev indleveret til det engelske parlament af "Select Committe on Public Walks" i 1833. Indholdet var en undersøgelse af forholdende for rekreative aktiviteter på offentlige områder i de store og små industribyer. Rapporten fremlagde det synspunkt, at folk der levede meget tæt og i de mest ringe områder i bymidten, som desuden ofte var fattige, var dem der havde mest behov for parkerne. Rapporten argumenterede desuden for at disse mennesker ville opleve forbedringer både fysisk, mentalt, moralsk og politisk på grund af disse parker, og at parkerne var "byens lunger". En park kan forbedre beboernes helbred og mentale velvære, give frisk luft, plads til motion og aktivitet og muligheden for at for kontakt til naturen. På samme tid kan parkerne være med til at mindske de sociale skel, når beboere fra alle sociale klasser bruger samme park, og får mulighed for at lære hinanden bedre at kende. Da rapporten blev udgivet blev den startskuddet til Parkbevægelsen i England. På grund af den lave grundpris var de fleste parker placeret i byens udkant. i 1880'erne var det gradvist gået op for folk at dette var meget upraktisk for daglig brug af parkerne. Derfor blev det populært at opføre mindre parker i den indre by. Fra 1885 til 1914 var antallet af alle typer parker steget markant. Desuden blev folk opmærksomme på parkens positive indvirkning med hensyn til at forbedre helbredet, humøret og livskvaliteten. Efter anden verdenskrig blev ideen om "havebyer" i høj grad anvendt ved forbedring af gamle byer og opførelsen af nye. På den måde blev parker og åbne områder

integreret i de nye bebyggede områder. Udviklingen af de grønne områder havde medført ændringer i både form og indhold. Efter 1960'erne og 1970'erne var den tidligere situation med forurening og nedbrydning i England vendt fuldstændig, hvilket fundamentalt forbedrede indbyggernes livskvalitet.

Under indflydelse af den engelske Parkbevægelse begyndte andre europæiske lande som Tyskland, Frankrig og Holland af danne deres egene Parkbevægelser. For eksempel opførte Prince Hermann von Pückler-Muskau (1785-1871) i 1811 en park af britisk type i byen Muskau i Tyskland. Den forfulgte ikke bare den naturlige stil, men havde også inkorporeret miljømæssige ideer i sit design. Dette gjorde parken til en pioner indenfor "økodesign". På samme måde gav Parkbevægelsen i USA også anledning til forandring i mange byer i slutningen af de 19. århundrede. Ud over at opføre nye parker i USA's byer, var den amerikanske Parkbevægelse også beskæftiget med at ændre de eksisterende grønne områder. På samme tid havde bevægelsen indset parkernes betydning for de sociale idealer omkring demokratisk lighed, social sammenhæng, befolkningssundhed og økonomisk værdi. I 1818 skrev pioneren for den nye amerikanske parkstil, Andrew Jackson Downing (1815-1852) en artikel hvor han pointerede at "parker er bedre til at prædike mådeholdenhed end kirken, bedre til at raffinere nationens manerer end daskeskolen, og giver en mere storslået følelse af lykke end klasseværelset for filosofi om lykke".

Den amerikanske parkbevægelse startede i 1850'erne, før der fandtes nogen store multi-funktionelle parker i de amerikanske byer. I 1853 investerede New Yorks bystyre mere en 5 millioner dollars i at opkøbe 700 acres (280 hektar) jord fra 59th street til 106th street for at opføre Central Park. Frederick Law Olmsted og Calvert Vaux's design "Greensward" vand førstepræmien om at designe parken, og senere fik Olmsted ansvaret for opførelsen. Central Park står altså som et symbol for begyndelsen af den amerikanske Parkbevægelse.

Olmsted, der var frontfigur for den amerikanske Parkbevægelse, brød ikke kun med traditionen for udformningen og indholdet i parker udviklet i Europa, men opfandt også byggemetoder til parker i byen. Han medvirkede i grundlæggelsen af nationalparker for at beskytte landets natur og kultur, og lagde fundamentet for landskabsarkitektur og design ved at højne disse felters anseelse og status til at være en profession. Udvidelsen af forstæderne i USA efter anden verdenskrig medførte store forandringer i byernes former og strukturer. Indtil midten af det 20. århundrede blev systemet af offentlige parker grundlagt i byerne. Med den øgede fokus på miljøet i 1960'erne og den grønne bevægelse blev mere udbredt, blev indbyggelsen af miljøbeskyttelsesideer i parkernes design en ny tendens i den akademiske designkreds.

Som følge af den sociale og økonomiske udvikling, videnskabelige og teknologiske fremgang og ændring af livsstil verden over siden slutningen af 1900-tallet, er formålet med opførelsen af parker ikke længere blot at der skal være en park eller grønt område, men at kombinere traditionelle parker med økologi, miljø, ressourcer, naturbevaring osv., for at danne et system af grønne områder med mere sammenhængende og langtidsholdbare resultater og funktioner. Samtidig begyndte man under opførelsen og forbedringen af grønne områder i mange byer at kombinere de grønne områder i byerne med områder udenfor for at opnå en mere ensartet plan for konstruktionen, og opnå flere fordele. Som eksempel kan nævnes grønne bælter, grønne ringe og grønne kiler, der er blevet opført i byens periferi. Dette kan på den ene side forhindre en bys grænseløse udvidelse, og på den anden side hjælpe med at bevare de grønne områders funktion. Generelt er parker og andre grønne områder som en vigtig del af en by, undergået en stor udvikling både hvad angår antal og type, plandesign, funktion og indhold. Samtidig er antallet af forskellige former og strukturer for offentlige rum i byerne steget voldsomt, blandt andet er der indført gågader, shoppingcentre,

forlystelsesparker og temaparker, og disse nye typer grønne områder har dannet nye alternativer til de traditionelle parker.

2.3 Rekreative aktiviteter og livskvalitet i byerne

Fritid og rekreative aktiviteter er et unikt fænomen for mennesker, og en adspredelse fra arbejde og dagligdag. Man kan sige at formen og indholdet i fritiden er en målestok for den menneskelige civilisation og en vigtig indikator for livskvaliteten o byerne. Diversiteten af fritidsaktiviteter der er tilgængelig i en by, er en af grundende til at mennesker foretrækker at leve i byerne. Generelt er udendørs aktiviteter de mest foretrukne af alle aktiviteter for de fleste mennesker. Især for dem der ønsker at have kontakt til naturen er udendørs aktiviteter i grønne områder højt værdsat. Både i begyndelsen til byernes Parkbevægelse for 150 år siden og opførelsen af offentlige områder i byen, inklusive de grønne områder, har bundet i ønsket om at forbedre byens miljø og skabe et godt og sund miljø at leve i og skabe mulighed for udfoldelse og rekreative aktiviteter. Med andre ord handler det om at forbedre indbyggernes livskvalitet.

2.3.1 Udendørs aktiviteter

Fritidsaktiviteter er en positiv form for genopladning, både fysisk og psykisk, en måde at håndtere stress, bevare sundheden og opleve livet. I det moderne samfund er disse aktiviteter i høj grad blevet en del af en sund livsstil, der giver et positivt syn på livet og kulturel velstand. Fritidsaktiviteter kan hjælpe folk med bedre at håndtere udfordringer i dagligdagen og at udføre deres arbejde og pligter mere effektivt. Alle disse ting er med til at sørge for og øge folks velvære og livskvalitet.

Gennem menneskets transformation af naturen, den konstante forbedring af produktionsmetoder og arbejdsforhold, og bestræbelserne på at opnår effektivitet som et resultatet af den stadig øgede viden og erfaring, har generelt reduceret den tid mennesket skal bruge på overlevelse. Især under industrialiseringen blev

arbejdsintensiteten og –tiden afkortet med indførelsen af nye teknologier. I dag er den ugentlige arbejdstid i Frankrig 35 timer, og gennemsnittet i Europa er 37,5 timer. Dette er uden tvivl resultatet af konstant kamp for rettigheder. Under industrialiseringsperioden i England blev arbejdsintensiteten og –tiden ikke reduceret, men øget. Ifølge den engelske bog ”time and work in England 1750-1830” var en arbejders årlige arbejdstid ca. 2500 timer i 1769, men 3000 timer i 1830. Nogle har endda estimeret at arbejdstiden steg fra 3000 timer i midten af 1700-tallet til 4000 timer i midten af 1800-tallet. Under disse forudsætninger havde arbejderne ingen fritid, og det var endda svært for dem at få fri til religiøse højtider.

Som følge af den økonomiske vækst, er forbedret livskvalitet blevet et vigtigt emne, især i takt med stigningen i indkomst og reduktionen i arbejdstimer, er fritid allerede gået fra at være et gode for de få, til at være en rettighed for størstedelen af verdens befolkning. For indbyggere i nutidens byer er de daglige udendørsaktiviteter blevet essentiel del af deres liv, især rekreative aktiviteter i de byens grønne områder. Derfor er behovet for grønne områder i byerne steget mere end nogensinde før. Dette har givet de relevante instanser større ansvar og mere arbejde, for at kunne tilfredsstille disse behov og tilpasse sig denne tendens i den sociale udvikling. Et rummeligt og imødekommende miljø vil virke opfordrende til tiltrækkende på indbyggerne, og øge deres udendørs aktiviteter. Ifølge en britisk undersøgelse om folks udendørsaktiviteter i 1996, gik 18% udenfor for at møde venner, 18% gik ud for at spise, 15% for at gå tut og 11% for at shoppe. En anden britisk undersøgelse ”On recreation” udført af MORI (Market & Opinion Research International) i 1992 viste at 46 % af de adspurgte havde brugt de faciliteter der blev administreret af den lokale kommune indenfor de sidste 12 måneder. 70% brugte de lokale parker, legepladser osv., og halvdelen af dem havde brugt dem mere end 10 gange. Det er derfor tydeligt at de grønne områder er vigtige for

indbyggernes liv.

For at kunne imødekomme indbyggernes behov, har mange byer sat specifikke mål for planlægning og opførelse af grønne områder. Selvom der på nuværende tidspunkt ikke er nogen fælles standarder for afstanden mellem beboelse og grønne områder, har mange undersøgelser vist at brugen af områderne falder drastisk når afstanden er mere end 300-400 meter fra beboelsen. Derfor har man i nogle lande indført en grænse for hvor lang afstanden må være. I 1990'erne satte EEA (the European Environamental Agency) denne afstand til 15 minutter gang, og i 2002 blev det sat til 300 meter. I England har "Accessive natural Greenspace Standard" indført regulativer for fordelingen og placeringen af hver type grønne områder, der klart skitserer at den maksimale afstand til et minimum 2 hektar grønt område er 300 m.

For at gennemføre denne standard har mange byer fremsat deres mål. For eksempel udgav London, ifølge Natural England fra september 2008, deres egen politik "open Space Strategies – best Practice Guidance", der inddelte de grønne områder i et hierarki med syv trin, og gav konkrete retningslinjer for hvert trin i form af skala og serviceradius. På nuværende tidspunkt er der i alt 4.250 hektar grønne områder i London, der giv indbyggerne mulighed for udendørs aktiviteter i deres dagligdag. Der i alt omkring 30.000 parker i England, hvor af 5.000 er historiske, bevaringsværdige parker. Disse parker har været vigtige opholdssteder i befolkningens dagligdag, og omkring 8 millioner mennesker bruger dagligt disse parker til fritids- og rekreative aktiviteter.

Ifølge data fra American National recreation and Park Association, her der omkring 105.000 parker i USA (eksklusiv private parker), der servicerer over 300 millioner indbyggere. Heriblandt findes 1700 parker af forskellige typer i New York alene samt en 14 mil lang strand tilgængelig for offentligheden. I Stockholm Sverige, er der 21,000 parkareal (40% af byens samlede areal), hvilket betyder at

der er 27 acre park per 1000 indbyggere.

2.4.2 Livskvaliteten i byerne

Kvaliteten af livet i byerne er en meget bred og vag definition. I forskellige sociale, kulturelle, etniske, religiøse og personlige samfundsgrupper er befolkningens opfattelse og fortolkning af livskvaliteten meget forskellige, og i nogle tilfælde endda modsatrettede. De faktorer der påvirker livskvaliteten i byerne er mangefacetterede og involverer politiske, økonomiske, sociale, kulturelle, religiøse, lovmæssige og miljømæssige faktorer. Når der ses bort fra de øvrige faktorer spiller antallet, kvaliteten, layoutet og strukturen af grønne byrum en vigtig rolle for livskvaliteten i en by. På nuværende tidspunkt viser relevante undersøgelser at mange professorer og eksperter på områder opfatter disse parametre som et vigtigt aspekt at måle på. For eksempel den græske ekspert Kostas Karatzas, der mener de faktorer der påvirker livskvaliteten i byen er de miljømæssige forhold (som luftkvalitet, støj og affaldshåndtering), transport (vejnetværket, offentlig transport og forholdet mellem veje og bygninger), tilgængeligheden, gaderummet, grønne byrum og den administrative og kommunale service. Den kinesiske professor Zhu Dajian pointerer at livskvaliteten afhænger af den økonomiske situation, uddannelseskvaliteten, folkesundheden og miljømæssige forhold.

Ifølge en undersøgelse i USA, anser 78% af huskøberne de åbne byrum som et særligt vigtigt aspekt, når de vælger hus. I 1994 viste en amerikansk national undersøgelse, at 39 faktorer spillede ind når potentielle huskøbere ledte efter bolig, herunder var ”masser af naturlige omgivelser” og ”mange gang- og cykelstier” rangerende på henholdsvis 2. og 3. pladsen. En tredje undersøgelse viste at indbyggertallet i byerne i USA steg med kun 17% mellem 1982 og 1997, men at byernes areal steg med 47%. Dette viser den ekspansion der har været i areal per indbygger i byerne, so skyldes tilblivelsen af flere åbne og grønne byrum. Et

lignende studie fra Belgien viste at 50% af familierne flytter fra byerne på grund af ønsket om mere grønne omgivelser i forstæderne. Alt i alt er vigtigheden af byens udformning, især med hensyn til de grønne byrum og den indflydelse de har på livskvaliteten i byerne, tydelig.

Mange andre undersøgelser viser også at de grønne omgivelsers betydning for menneskers liv er enorm, især for deres fysiske og mentale helbred. For eksempel lavede Sundhedsstyrelsen i 2005 i samarbejde med en række andre organisationer en stor undersøgelse af danskernes sundhed. Resultaterne viste at ”nyde vejret og få frisk luft” og ”for at reducere stress og slappe af” var de to hovedårsager til befolkningens rekreative aktiviteter. Med hensyn til afstand viste undersøgelsen at 66.9%af danskerne har grønne områder indenfor en 300 m radius, 26.9% i en radius af 300-1 km, 6% mellem 1 oh 5 km, og kun 0.2% havde over 5 km til grønne områder. Undersøgelsen viste desuden at 43% af danskerne dagligt benyttede de grønne områder, 29.9% flere gange om ugen, 18,6% en gang om uge, 6.6% en gang om måneden, og 2% svarede sjældent eller aldrig. Blandt dem der havde mindre end 300 m til grønne områder, og brugte dem dagligt, besøgte 81% parker og lignende områder, 70.3% tog til skoven, 76.6% tog til andre åbne naturområder, 54.9 tog til stranden eller søer. Hele undersøgelsen underbygger at byens grønne byrum er blevet en vigtig del af folks daglige liv, og at de rekreative aktiviteter der foregår på disse steder er blevet en uundværlig del af folks liv.

Alle kan deltage i fritidsaktiviteter til gavn og glæde for alle, undtagen når der er tale om ulovlig eller ubehagelig adfærd. Folk nyder motion og andre rekreative aktiviteter i alle former for grønne områder i byen, der er uadskillelige fra folks ønske om at slappe og stresse af. Data viser at stressfaktorerne for danskerne sted fra 35% i 1987 til 44% i 2000. Dansker studier viser desuden at grønne byrum kan dæmpe og afhjælpe den opståede stress.

Kapitel 3 – Rygraden for Københavns grønne byrum

Årene mellem 1947 og i dag er en kort tidsperiode for København sammenlignet med byens 900 år lange historie. Udviklingen i København de sidste 60 år har ikke desto mindre i høj grad formet byen som den er i dag med de funktioner den indeholder, størrelsen og strukturen, haft betydning for placering og udvikling af byens industri. Det er også i løbet af denne periode København har fået en plan for ressource forbrug og inkorporeringen og integrationen af landlige elementer for at øge kvaliteten af byen og livet i den. Alt dette har været muligt på grund af den holistiske udvikling i regionen, gennem videnskabelige og rationelle, forenelige og stabile, transparente og kollaborative guidelines der er afstemt efter en lang periodes erfaringer. Når man i dag gennemgår den planlægning, er det tydeligt at Finderplanen har bidraget til København både med bevarelse af historiske traditioner og ved at tilføje moderne popularitet og livskraft. Desuden er der allerede grundlag for en fremtidig bæredygtig udvikling i København.

I det tredje kapitel gennemgås først byplanlægningssystemet i Danmark, inklusiv dets tilblivelsesproces og udvikling samt indholdet og elementerne i systemet. Derefter diskuteres baggrunden og indholdet i Fingerplanen, og slutteligt analyseres og diskuteres den historiske udvikling af Fingerplanen. Konkret behandles anden (1950-60), tredje (1970'erne), Fjerde (1980'erne til 1990'erne) og femte til syvende (2000'erne) udgave af Fingerplanen.

3.1 Det danske rumplansystem

I Danmark forstås byplanlægningskonceptet som "At integrere tekniske og videnskabelige discipliner for at imødese fremtidig behov gennem rationel tankegang, avancerede forudsigelser og fornuftsbetonede beregninger for at undgå at medføre fremtidige gener". Dansk byplanlægning er drevet af naturlig vækst som indre fremdriftsfaktor og planlægningen som ydre faktorer. På nuværende tidspunkt kan det danske bysystem opdeles i flere niveauer. Det første er landets

hovedstad – København. Det andet er de øvrige store by, i alt tre byer med et indbyggertal over 100.000. det tredje er regionale centrum. I dette by-pyramidesystem spiller hvert niveau vigtige roller for landets samlede politiske, økonomiske og sociale scene.

3.1.1 Grundlæggelse af byplanlægningssystemet i Danmark

Så tidlig som i 1925 var der i Danmark fremlagt de første byplanlægningsvedtægter, men de var blevet dårligt implementerede. I 1928 blev der lavet en ny planlægningslov, der forbedrede den hidtidige lov, og anførte at alle byer med et indbyggertal over 100, skulle indbygge byplanlægning i deres lovgivning. For at tilpasse den til den fulde dækning af velfærdsstaten, blev en ny byplanlægningslov vedtaget i 1947. I 1949 indførte den danske regering Byreguleringsloven, og i 1960 Landsbyloven, i 1963 kom Landloven, og vedtægter om de bymæssige og landlige zoner i 1970. I 1973 og 1974 blev der indført love om national- regional- og kommuneplanlægning. Udgivelsen og modificeringen af denne lov har stor indflydelse på den danske udvikling i fremtiden. I 1992, i forbindelse med den nye situation nationen stod overfor, vedtog den danske regering en ny planlægningslov, der integrerede forskellige lover, der ikke tidligere havde indgået, og gjorde hele planlægningslovgivningen mere omfattende end tidligere.

Samtidig med grundlæggelsen og forbedringen af lovgivningen for den nationale planlægning, opstod flere professionelle danske planlægningsorganisationer. Den første ikke-regeringsbaserede byplanlægningsorganisation, Det Danske Byplanlægningsinstitut blev dannet i 1928. Derefter grundlagde amterne og regeringen deres egne planlægningsorganer. I 1961 grundlagdes Den Nationale Planlægningskomite, men først i 1974 blev en ny planlægningslov indeholdende planlægning på nationalt plan vedtaget. Som et symbol på denne lov blev der udgivet en National planlægningsrapport, og siden

blev tre-trins systemet for byplanlægning med nationen, amter, kommuner og byer dannet.

Den nyeste planlægningslov (2002 versionen) er inddelt i 16 kapitler. Når kapitel et, som er formålet, ikke medtages omhandler de øvrige kapitler hhv. National planlægning, Regionalplanlægning, byplanlægning, lokalplaner, planlægning for tilblivelsen og ophævelsen af planer, zoneinddeling af byer og landzone, sommerhusområder, servitutter, zone omlægninger, ekspropriering og overtagelse af ejendom osv., rådgivning, administrative klausuler, appeller og sagsanlæg, legaliseringer og bøder og overgangsfaseevalueringer mellem nye og gammel kommuneplan. Gennem akkumuleringen af viden og erfaringer indenfor området er planlægningsloven blevet den lovmæssige garanti for rationel udvikling på nationalt plan.

3.1.2 Evaluering af byplanlægning i Danmark

”Byplanlægning er et resultat af tiden der er gået”. Dansk byplanlægning (omdøbt til fysisk planlægning i 1980’erne) opstod i 1920’erne. Som tiden gik, ændredes udviklingsmålene og den politiske situation, og planlægningens målsætninger, indhold og krav ændredes tilsvarende. Denne udvikling kan inddeles i tre perioder. Den første var byplanlægningsfasen fra 1920’erne hvor planlægningen af byernes udvikling primært benyttede de traditionelle metoder og systemer for at etablere et nationalt jævnt og fair velfærdssamfund, der promoverede økonomisk og social udvikling. Den anden fase foregik fra 1980’erne. Denne planlægning havde som mål at forbedre Københavns konkurrencedygtighed som reaktion på de nye trends indenfor international udvikling. Den tredje periode var den afbalancerede udviklingsfase siden 2000, hvor Danmark forsat styrkede konkurrencedygtigheden, og samtidig forsøget at opretholde en afbalanceret international udvikling på miljømæssig, social,

kulturelt og andre planer, som til sammen sikrer en langtidsholdbar konkurrencedygtighed.

3.1.3 Indholdet i dansk byplanlægning

Før den nye kommunalreform i 2007, var byplanlægningen, og al offentlig administration i øvrigt, inddelt i tre instanser i Danmark: Folketinget, der var ansvarlige for den nationale planlægning, Amterne, der var ansvarlige for den regionale planlægning, og kommunerne der var ansvarlige for den lokale planlægning. Efter reformen i 2007 blev flere kommuner sammenlagt, så der var 14 mindre, og kun fem regioner i stedet for amterne, som stadig er ansvarlig for den regionale planlægning. Som resultat heraf er landets planlægningssystem stadig inddelt i tre niveauer: national, regional og lokal planlægning.

Principperne for dansk byplanlægning kan sammenfattes til følgende tre principper: det første er enstemmigheds-princippet, der bygger på den demokratiske politiske struktur og måde at fungere på. I Danmark er alle planlægningsforslag fremlagt af myndighederne åbne for kritik og kommentarer. Kun når forslaget bliver accepteret af hovedparten af de berørte indbyggere, og minoritetens synspunkter er blevet taget i betragtning, kan planerne lovligt gennemføres. Det andet princip er den strukturelle regulering. På nationalt niveau danner planerne kun den politiske, strategiske og principielle ramme, og kun meget overordnede konkrete forslag og ideer. Derefter er det de underlæggende myndigheder, der er ansvarlige for den specialiserede og detaljerede planlægning. Det tredje princip er hierarki-princippet. Hvert niveau af planlægningsmyndigheder har specificerede ansvarsområder og pligter. Det øverste planlægningsniveau er en guide til de nedre niveauer, og det nederste planlægningsniveau følger de principper, der er udstukket af de højere niveauer, og opfylder deres restriktioner samtidig med, at de lokale interesser tilgodeses.

3.1.4 Elementerne i Dansk byplanlægning

Følgende karakteristika gør sig gældende for den danske byplanlægning: for det første er planlægningen direkte relateret til de politiske valg på alle planer. Efter hvert valg i folketinget eller kommunen, skal den nye instans komme med et nyt planlægningsforslag. Dette er ens for planlægningsstrategierne på kommunalt, regionalt og nationalt plan, der alle skal fornys efter et valg. For det andet er planlægningen sammenhængende, hvilket vil sige at den skal være forbundet med forrige planer, og samtidig tilpasses og kombineres med andre specifikke planer på samme niveau. For det tredje har de lokale regeringsinstanser, kommunerne, større ansvar end de øvrige. Generelt kan man sige at det danske planlægningssystem lever op til principperne om magtdeling og decentralisering, og er baseret på lokal selvbestemmelse i overensstemmelse med love og regulativer. Udgangspunktet er, at problemstillinger og konflikter så vidt muligt skal løses på de lavere planlægningsniveauer.

3.2 Baggrund og indhold i den første version af Københavns Fingerplan

Da anden Verdenskrig sluttede i 1945, begynde de europæiske lande at genopbygge deres byer i stor skala, og lige præcis byplanlægning blev dermed et vigtigt anliggende. I 1928 blev den uofficielle organisation Det Danske Byplanlægningsinstitut grundlagt, der tilbød at laver en regionalplan, der skulle forene 29 mindre byer i Københavnsregionen til en samlet. Herefter begyndte organisationen at skitsere omfattende planlægningsforslag. Denne opgave med innovativ ånd blev færdiggjort i 1947. konceptet Storkøbenhavn blev brugt første gang i dette forslag. I begyndelsen kaldte planlægningsmedarbejderne planen for ”Storhovedstadsplanen”, uden at give den et specielt navn. Da planlægningen stort set var færdiggjort, lagde en tysk pige, der arbejdede som sekreter, hånden over skitsen af planen og så, at formen svarede til en hånd. Dette er oprindelsen til navnet Fingerplanen, som den er blevet kaldt lige siden.

3.2.1 Den rationelle basis for Fingerplanen.

I virkeligheden var Fingerplanens forslag til fremtidig udvikling i København baseret på planlæggeres forudsigelser om populationsudvikling og socioøkonomisk udvikling i København og omegn, på baggrunden af den historiske udvikling i København og andre europæiske storbyer, og på den centrale del af København og det netværk af jernbane der spredte sig herfra. Fingerplanen svarer til den Konceptplan man arbejder efter i dag. De konkrete grundlag for Fingerplanen kan sammenfattes til analysen af økonomiske og sociale forhold, analyser af befolkningens størrelse og vækst, analyse af fremtidens byplanlægningsmønstre og analysen af geografiske forhold.

3.2.2 Principper og indhold i Fingerplanen

3.2.2.1 Planens principper

Principperne for Fingerplanen kan sammenfattes til det følgende. For det første måtte udvidelsen af den gamle by forhindres ved at opføre nye forstæder. Planen havde tydeligt fremlagt at lag-på-lag-væksten skulle afskaffes, og at byens udvikling skulle ændre retning. Denne plan foreslog beskyttelse og kun begrænset ændring af den gamle by med fokus på forbedring af infrastrukturen, omgivelser og livsvilkårene. Med hensyn til konstruktionen af nye forstæder gik planen ikke ind for ideen om ”satellitbyer”, men valgte en anden realitetsbaseret løsning, hvor nye forstæder blev placeret i eller omkring den oprindelig by, og de nye områder kunne dermed integreres i byen til en enhed gennem planlægning.

For det andet skulle fingeropbygningen af byen baseres på de allerede eksisterende jernbanelinjer samt dem der var planlagt i fremtiden. Planen anbefalede at fremtidens struktur af byen skulle baseres på layoutet af de udadgående jernbaner som akser (fem hovedlinjer), og på stationer fordelt langs disse jernbaner som centrummer med komplette forretningskvarterer, gode kulturelle og uddannelsesmæssige faciliteter og effektive administrationer. Med

hyppig, let anvendelig og glidende togtrafik, ville disse byer være forbundet som perler på en snor, med det gamle bycentrum som håndfladen og jernbanerne som fingre. På samme tid havde planen forsøgt at forudse udviklingen i trafikken, og presserende muligheder for forbedringer af den offentlige transport der svarede til denne udvikling. Planen fremlagde jernbaner og vejnet som et transportnetværk, der dannede tætte forbindelser mellem ”fingrene” og ”håndfladen”, ”fingrende” imellem og ”perlerne” imellem.

For det tredje skulle nye byområder ikke optage god landbrugsjord, men i stedet omdanne vilde naturområder til beboelse. Planen foreslog at de nye byområder i København i fremtiden skulle udvikle sig mere mod vest og syd, der er mere flade landskaber, der har større potentiel kapacitet for nyopførsler end i nordlig retning, hvor mange familier med høj indkomst vælger at bo på grund af de ønskværdige forhold. Det ville gradvist øge presset på det lokale miljø, hvis udviklingen skete mod nord. Selvom landskaberne og naturområder vest og sydvest for København ikke var så attraktive som mod nord, kunne dette ændres ved at plante træer og lave parker og bruge kystlinjerne til at konstruere havnebade og strande for at ændre de oprindelige landskaber og miljø. Alle disse tiltag ville gradvist tiltrække folk til at bo i disse områder, og på den måde opnå en trinvis udvidelse af byen med et rationelt layout.

For det fjerde skulle princippet om bevarelse af grønne områder og beskyttelse og forskønnelse af miljøet samtidig tages i betragtning. Planen foreslog helt præcist at kilerne af grønne åbne områder mellem hver ”finger” skulle bevares og designs, og så vidt muligt strække sig helt ind til byens centrum. Kilerne skulle bestå af forskellige naturtyper som skove, landbrug, floder og vildt naturlandskab, men også menneskeskabte miljøer som parker og andre grønne områder. Meningen med at bevare disse grønne kiler var a gøre plads til udvidelse af alle byerne langs ”fingrene”, og kunne opretholde den fornuftsbetonede

planlægning, samtidig med det beskyttede miljøet og gav rekreative muligheder for beboerne.

3.2.2.2 Planens hovedindhold

For det første fremlagde planen betingelserne for byerne. Den foreslog nøje at nye byer skille placeres tæt på jernbanerne, hvor afstanden ikke skille være mere en 45 minutter fra hjemmet til bymidten med toget. Dette svar vigtigt fordi mere end 40% af kvinderne arbejdede på den tid. Planlæggerne mente ikke at kvinderne skulle bruge deres tid og energi på transport efter en endt arbejdsdag. Desuden ville de nye byer og forstæder miste deres tiltrækningskraft, hvis transporten mellem hjem og arbejde var for lang.

Desuden ses planlæggernes overvejseler omkring størrelsen af de nye byer i planen. Byerne blev opdelt i tre typer: (1) beboelsesområder, med 1000-2000 boliger, (2) kvarterer med mellem 50000 og 50.000 boliger, (3) kommuner med mellem 50.000 og 100.000 boliger. Rationalet bag denne kategorisering var at der var store forskelle på forholdende og omgivelserne i byerne samt på kravene fra de forskellige sociale grupper. Generelt ville unge mennesker gerne bo i store byer, og ældre eller velhavende familier i mindre byer. På same tid skulle industrien fordeles langs jernbanerne, og ikke kun på grund af fordelen for transport af varer, men også for arbejdernes tilgængelighed til fabrikkerne. Dermed kunne indbyggerne frit vælge mellem typer af boliger eller byer ud fra deres egne behov og ønsker.

For det tredje blev trafikken i det gamle byområde taget i betragtning. Planen anbefalede forbedringer på layoutet af trafikken mellem centrum og forstøder, samt forbedringer på trafikbelastningen i byområdet. Den foreslog at offentlig transport som sporvogne og busser skulle forbedres betydeligt og derefter udvikle sig til et netværk. Desuden blev det foreslået at fortove skulle forbedres for at gøre

det lettere at gå rundt i byen.

For det fjerde skulle forholdende i byerne, især indre by forbedres. Med hensyn til det gamle byområde i København, boede 75% af befolkningen på dette tidspunkt i lejligheder, mens 25% boede i enfamiliehuse, der generelt havde haver. Haverne gav beboerne mulighed for fritidsaktiviteter, og var derfor en vigtig indikator for livskvaliteten. For at mindske befolkningstætheden i byområdet og forbedre deres levestandard, men ikke optage mere landbrugsjord, foreslog planene at andelen af enfamiliehuse gradvist skulle stige til 35 %.

3.3 Baggrunden og udviklingsprocessen for Københavns Fingerplan

Siden det første forslag om fingerplanen i 1947, er den blevet ændret mange gange på baggrund af den danske og internationale situation, hvilket har resulteret i i alt fire udgaver af planen.

3.3.1 Anden udgave af Fingerplanen – i 1950'erne og 1960'erne

3.3.1.1 Planlægningens baggrund

Den første udgave af Fingerplanen blev fremlagt i 1947. Dens hovedfokus var på udviklingen af forstædernes beliggenhed og layout. Planen antog at ressourceforbruget, indbyggertallet og arealanvendelse til boliger ville møde begrænset vækst, og satte ændringen af den hidtidige ukontrollable byudvidelse som kerneprincip. Planen fastlagde udviklingsretningen for fremtidige byområder sammen med de eksisterende jernbaner og planlagde fingerstrukturen. Den foreslog at fremtidige bymidter så vidt muligt skulle bygges omkring togstationerne, for at afkorte folks daglige transporttid, og mindske transportomkostningerne.

Som reaktion på de nye forandringer i 1950'erne, var en ny plan nødvendig fir at tilpasse sig følgende faktorer: (1) justeringen af de nationale udviklingsstrategier. På baggrund af behovene fra udviklingen af industrien og

urbaniseringen landet over, justerede staten den originale politik fra at høj-prioritere udviklingen af Københavnsområdet til også at støtte andre områder udenfor København i deres udvikling, for at sikre en afbalanceret vækst i alle regioner. (2) Befolkningstilvæksten. Indbyggertallet i København faldt fra 750.000 i 1950'erne til omkring 600.000 i 1960'erne. Selvom der var mange grunde til dette, var en af hovedårsagerne fald i investeringer og i antallet af jobs. Desuden flyttede mange velhavende familier ud af den trange bymidte til forstæderne, der havde mere moderne forhold og smukkere omgivelser. Disse to faktorer reducerede befolkningstætheden i byområderne, og forbedrede befolkningens levestandard. (3) den drastiske stigning i antallet af private biler. Denne situation ændrede på den ene side borgernes måde at transportere sig på, så de blev uafhængige af jernbaner og busser, og gav øget efterspørgsel på veje; på den anden side blev det muligt at bo længere væk fra togstationerne, hvilket betød at forstæderne udvidedes yderligere. (4) Incitamentet for folk til at flytte fra byerne til forstæderne med mere favorable skatter, hvilket resulterede i beboelses- og villaområder med lavt indbyggertal i flere af byerne langs "fingrene".

3.3.1.2 Planlægningsarbejdet

Den anden udgave af Fingerplanen var hovedsageligt baseret på udsigterne om befolkningstilvækst i Københavnsregionen. Ifølge analyser af de økonomiske og sociale udviklingstrends, ville indbyggertallet i Københavnsområdet stige med en million mellem 1960'erne og 2000. For at tilgodese behovene for arbejde og bolig til alle disse nye indbyggere, forventedes det at 500 km^2 ekstra areal skulle bruges til bebyggelse. Derfor besluttede staten at udvide det totale planlagte område til omkring 3000 km^2, hvilket er langt mere en det faktiske areal for Storkøbenhavn. Under indflydelse af politikken om reduceret investering i København, foreslog planen at opføre fire nye regionale hovedstæder, hver med omkring 250.000 indbyggere. Intentionerne kan sammenfattes til følgende

aspekter: (1) Beskyttelse af områder med historiske og kulturelle værdier og undgå udvidelse mod nord for København. (2) At beskytte den historiske indre by og undgå opførelsen af højhuse. (3) at beskytter byens centrum og de omkringliggende områder og at reducere trafikkens stigende påvirkning af miljøet og luftkvaliteten. (4) at øge arbejdsmulighederne for nye indbyggere i forstæderne og forbedre servicen der. (5) at bevare det eksisterende monster for byen og undgå yderligere udvidelse af forstæderne.

Selvom disse aspekter stemte fuldt overens med dem fra 1947'udgaven af planen, var der væsentlige forskelle i valget af nye bycentre. Efter langs tids diskussion blev det til sidst besluttet at lave to fremtidsplaner: en langsigtet og en kortsigtet. Den langsigtede planlægning var inddelt i to muligheder, A og B. Mulighed A fokuserede på ideen om en fælles udvikling af tre af fingrene (tommelfinger, pegefinger og langfinger); mulighed B fokuserede på Tommelfingeren og pegefingeren og området i mellem dem. Den kortsigtede plan (også kendt som fase 1 planen, for de første 10 år) fokuserede kun på disse to fingre, og foreslog at konstruere dem så der var plafs til 250.000 indbyggere i hver.

3.4.1 Den tredje version af Fingerplanen – i 1970'erne

3.4.1.1 Planlægningens baggrund

1970'erne var en vigtig periode for Danmark, hvor overgangen fra traditionelt landbrugssamfund til et industrialiseret land foregik. Fra et økonomisk synspunkt fortsatte denne industrialiseringsproces i Danmark fra 1960'erne ind i 1970'erne. Med stigningen i antallet af industrielle virksomheder lander over, fulgte en mere afbalanceret udvikling i industri og urbanisering i hele landet. Data viser at 18.000 nye produktionsvirksomheder blev opført mellem 1958 og 1975- iblandt dem var mange virksomheder, der før var placeret i byområder blevet flyttet til nye steder, primært fra store og mellemstore byer til små byer, hvor

grundpriser og arbejdskraft var relativ billig.

Fa et socialt synspunkt, blev det sociale velfærdssystem forbedre i hele landet, inklusive i de små byer 1070'erne, og med accelerationen af forstædernes vækst i København og "fingerbyerne", blev det gamle centrum stadig mindre attraktivt. På same tid, med udviklingen i national økonomi og stigningen i personlig velstand, steg antallet af private biler drastisk- i denne perioder ejede over 50% af familierne private biler, og mere end 10% havde ferieboliger i byernes udkant. Bilen havde ændret folks made at rejse og leve på, der førte til øget afstand mellem hjem og arbejde, og en øgning af folks daglige transportafstand.

Fra et politisk synspunkt, blev der i stor skala indført reformer for det danske folketing i 1970'erne. Hovedmålene var at forbedre samarbejdet mellem forskellige afdelinger, og undgå konflikter mellem ensartede politiker fremlagt af forskellige afdelinger. Reformerne dækkede blandt andet uddannelse, social velfærd og national og fysisk planlægning. Administrationen på national plan gav meget af beslutningskraften videre til lavere planlægningsinstanser, så de lokale amter og kommuner blev mere beslutningsdygtige. Desuden var der i løbet af denne periode langt mere politisk engagement i befolkningen end nogensinde før, og de deltog i politiske diskussioner og dannede forskellige folkelige organisationer. Med hensyn til byplanlægning viste undersøgelser af 3-4% af befolkningen deltog i forskellige former for planlægningsdiskussioner.

Fra planlæggeres synspunkt, tog Miljøministeriet efter reformen i 1973, ansvaret for den fysiske planlægning. Samtidig var dette ministerium også ansvarlig for miljøbeskyttelse go materialeforbrug. Andre ansvarsområder som energi, byggereglementet, landbrugsjord, transport og planlægning andre sektorer blev varetaget af hhv. Energiministeriet, Byggeministeriet og landbrugsministeriet. Desuden blev der grundlagt et planlægningssystem i fire niveauer: national, regional, by og bydel, der opfordrede indbyggerne til at deltage i undersøgelser,

diskussioner og design aktiviteter.

Fra et planlægnings og lovgivningssynspunkt, loven om By- og Landzoner vedtaget i 1969, og loven om Arealanvendelse i 1970. i 1973 og 1977, blev den nationale, regionale og kommunale planlægningslov offentliggjort. Med hensyn til den specielle situation i Københavnsområdet, blev Loven for regional planlægning i Hovedstadsområdet lavet i 1973. Lovende medførte blandt andet at landet blev inddelt i byzoner, landzoner og sommerhusområder. Desuden matte opførelse af bygninger i byzonerne kun ske i bestemte zoner. Uden tilladelse fra myndigheder var det ulovligt at bebygge landzoner på nogen måde. I forbindelse med speciel arealanvendelse som vejanlæg, blev to specifikke love skrevet for at sikre det lovmæssige skæl mellem by- og landzone. Den regionale planlægningslov var ikke bare en lov om arealanvendelse, men også for sektorplanlægning. For eksempel regulerede den også beskyttelsen af naturressourcer, og balancerede interessen mellem byområder og landområder. Den opfordrede desuden politikere, organisationer, kommuner og befolkningen til at deltage i planlægningsaktiviteter, for at sikre en streng, videnskabelig planlægning og balance. Den guidede konkret indholdet af planlægningen herunder planlægning af byerne, beboelse, industriområder, offentlige bygninger og landzoneplanlægning, og fastslog at et forslag kun kunne godkendes efter offentlig høring.

3.4.1.2 Planlægningsarbejdet

Den tredje udgave af fingerplanen brugte den hurtige udvikling som centralt tema. Indbyggertallet var forudset at stige fra 1.8 millioner i 1970 til 1.9-2.1 millioner o 1985. Med hensyn til planlægningslovens krav var den tredje udgave langt mere omfattende. Den inkluderede ikke bare hele regionens transport og beboelses konstruktion, men også miljøbeskyttelse og fordelingen af hospitaler. For det første fortsatte denne plan med Fingerplan layoutet af byen. Den forventede at byen ville forsætte med at udvides i fremtiden, og at byens struktur

ville ændres fundamentalt. Ideen om at fokusere på tommel- og pegefinger fra anden udgave blev erstattet med et forslag om at flytte nyopførelser til de andre ”fingre”. For det andet fremsatte planen to nye politiker for fremtidig planlægning for at større regional udvikling udenfor hovedstaden, og reducere presset på København. Disse politikker gik ud på at konstruere en transportkorridor og trafikknudepunkter. En korridor skulle gå fra øst til vest med udgangspunkt i den originale ”håndflade”, og den anden skulle gå i nord/syd retning og være forbundet med de fem fingre. Sidstnævnte byggede på opførelsen af nye industriparker i korridorens til og frakørsler, hvor de regionale centrummer var placeret, men også på konstriktionen af et antal af butikscentre, offentlige og private servicecentre og nye boligområder.

Efter implementeringen af planen, brød oliekrisen ud i 1970’erne, og resulterede i national recession. Derfor blev mange af planerne sat på standby. Byen Høje Tåstrup, placeret i den vestlige pegefiner, som var en af de fire planlagte centrummer, nåede at blive bygget. For at reagere på den ændrede situation blev der bygget efter devisen ”bedre byer i stedet for flere byer”. Folk begyndte at spekulere på hvordan man bedre kunne udnytte de opnå områder udenfor byerne. På samme tid blev fornyelsen og ombygningen af det gamle byområde i København sat på dagsordnen. Gennem denne ombygning blev ikke kun levestandarden, men også byens fremtoning ændret.

3.5.1 Den fjerde version af Fingerplanen – i 1980’erne og 1990’erne

3.5.1.1 Planlægningens baggrund

Baggrunden for den fjerde Fingerplan i 1989 var meget forskellige for de forrige. På grund af den Europæiske situation og udvidelsen af Europa havde konkurrencen mellem landende gradvist ændret sig til en konkurrence mellem hovedstæder og storbyer landende imellem. Med hensyn til Danmark, konkurrerede Københavnsområdet med andre ”fjerde klasse” byer (ifølge et

Fransk studie for EU i 1989 blev byområderne klassificeret, hvor London og Paris var første klasses byer, var København, Hamborg andre regioner klasse fire byer). For at sikre Københavns fordele i konkurrencen, måtte staten evaluere de politikker og målsætninger der havde forsøgt at hindre Københavns udvikling sien 1960'erne. Fra et indenrigssynpunkt har økonomien i Danmark på den ene side opretholdt en jævn vækst siden 1980'erne. Den økonomiske struktur er gradvist blevet ændret fra primært industriel økonomi til service økonomi, så arbejdsmarkedets og den sociale struktur er blevet ændret markant, og folkets levestandard er forbedret. På den anden side var væksten i København mindre end det nationale gennemsnit på grund af de investeringer staten foretog, hvilket resulterede i at omkring 800 millioner dollars årligt strømmede fra hovedstadsregionen til andre dele af landet, hvilket havde direkte konsekvenser. For det første blev regionens indbyggertal og jobmuligheder ved med at falde. Antallet af Industrielle virksomheder i København faldt fra 15.000 medarbejdere i 1982 til 10.000 i 1988, og København var ikke længere landets mest velhavende område, og levestandarden var også under det nationale gennemsnit. Desuden fandtes mere end 40% af landets truede ældre huse i København. Efter den første udgave af Fingerplanen og den fortsatte udvikling og bygning fra 1950'erne til 1970'erne og op gennem 1980'erne og 1990'erne, hvor planen blev en realitet, blev de udenlandske byer og den internationale region til gengæld tiltagende dynamiske og attraktive.

Som reaktion på de nye trends indenfor international økonomisk udvikling og udviklingen i Europa, fremsatte miljøministeriet i 1989 "Revidering af national planlægning 1989". Rapporten sagde følgende: "Vi skal sørge for at den fremtidige regionale udvikling i Danmark bliver udført i et internationalt perspektiv. Den voksende internationalisering for hver enkelt region, og endda hele landet, er en udfordring og en mulighed … Forskellene på regionerne i

Danmark skal ses i et europæisk eller globalt perspektiv. Derfor skal der tages beslutninger for at styrke regionerne i 1990'erne, for at undgå at Danmark bliver marginaliseret i international sammenhæng". Dette betød at Københavnsområdet igen blev anset som et af hovedområder for national strategisk udvikling. Faktisk begyndte regeringen fra sent i 1980'erne at afhjælpe Københavnsområdets depression, forårsaget af den førte politik i 1960'erne. Efter gentagne undersøgelser og intens debat, nedsatte statsministeren i marts 1989 "Initiativgruppen for hovedstadsområdet". Samme år indgav denne arbejdsgruppe rapporten "Hovedstaden, hvad vil vi med den?", der redefinerede hovedstaden position, og udførte et dybdegående studie af de eksisterende problemer og løsninger på disse.

3.5.1.2 Planlægningsarbejdet

I 1989 indeholdt den fjerde Fingerplan ikke bare traditionelle problem stillinger for byplanlægning som byens og forstædernes arealanvendelse, men også miljøbeskyttelse. Især fokuseredes der på at give befolkningen flere rekreative områder. I modsætning til tidligere planlægning fokuserede denne udgave på byorienteret udvikling, og lagde vægt på central placering og trafikknudepunkt som prioriterer for planlægningen og konceptet for et funktionelt layout. Den konkrete del af planen var inddelt i flere vigtige dele som "placering af forretningsbebyggelser, "bymønster", "trafikstruktur", "indre by" og "amager".

Planen foreslog at nye forretningsområder og myndighedsafdelinger skulle laves i byerne langs fingrene, tættere på vejene og at nye kulturelle, sports og uddannelses stedet skulle placeres i håndfladen, dvs. København. Med hensyn til byens layout skulle København fortsat følge det fastlagte mønster, hvor København var omgivet at mindre byområder. Med hensyn til trafikken forslog planen samtidig at fornedre den overordnede byplan og opføre tre jernbaner: (1) "lufthavnslinjen" – en jernbane mellem Københavns Hovedbanegård og

Lufthavnen; (2) letbanen – en forbindelse mellem indre by og Ørestaden på Amager; (3) forbedring af jernbanenetværket i byen. Med hensyn til boligområder foreslog planen at de skulle kombineres med trafikplanen, og danne ”nærstationsområder”. Ideen var at boligområderne skulle ære indenfor 1 km radius af jernbanestationerne. Dette ville øge densiteten af bebyggelsen og udnytte arealet på en fornuftig måde. Desuden ville man på den måde kunne udnytte fordelene ved den offentlige transport fuldt ud, og spare transporttid for dermed at mindske antallet af private biler. Amager ville i følge planen spille en vigtig rolle i øresundsregionen i fremtiden, især med hensyn til de nybyggede Vestamager. Planen foreslog derfor at Bellacenteret skulle bygges som et verdensklasses kongrescenter i forbindelse med en 30 km^2 stor park.

3.5.1 Den femte til syvende version af Fingerplanen – det 21. århundrede

Fra et internationalt synspunkt er konkurrencen mellem landende intensiveret siden 1990øerne, i sær efter overgangen til det 21. århundrede med accelerationen af globaliseringen og den globale økonomi, den hurtige fremgang for BRIC landende samt den drastiske udvikling i Østeuropa, Afrika og nogle asiatiske lande. Mellem de Europæiske lande er denne konkurrence mere rettet mod storbyområder, der spiller en afgørende rolle for konkurrencedygtigheden. Derfor er temaet i ”Den nationale planlægningsrapport for Danmark” fra 2000 fokuseret på ”lokale elementer og nye udfordringer”. I gennemgangen af de europæiske nationale planlægningsprioriterer, anfører rapporten at alle landende forsøgte at ”forme et mere centralt bysystem gennem samarbejde for at opnå større styrke. Samarbejde mellem bynetværket kan effektivt fordele arbejdet, og sammenkoble byen til mange områder”. Rapporten behandlede desuden retningslinjerne for det fremtidige samarbejde om Øresundsregionen. Med fokus på den rolle store byer spiller i den internationale rolle fremlagde den danske nationale planlægningsrapport (sammenfatning) i 2006 at ”byer har spillet en vigtig rolle for

videnssamfundet. Fro at styrke sin position i Verden, kan Danmark kun nå sine mål ved at skabe innovationsorienterede byer, for at konkurrere på europæisk niveau". Rapporten troede på ideen om at nye byer kan opnås gennem rummelig planlægning. Det skaber ikke kun arbejds- leve og fritidsmiljøet af høj kvalitet for danskerne, men også attraktive omgivelser for internationale investeringer og store internationale virksomheder.

Med justeringerne i den nationale udviklingsstrategi i 1980'erne var det nationale fokus på Københavns regionale planlægning ikke længere begrænset til andre dele af landet, men fokuserede på at gøre København til et regionalt centrum for Nordeuropa. Med den nationale økonomiske udvikling i de Østeuropæiske lande, især de baltiske lande, er København langsomt blevet midtpunktet for øresundsregion, og sigter også efter at spille en ledende rolle i den baltiske region, hvilket ville give byen kapacitet til at konkurrere mod Berlin og Hamborg i Tyskland. For at opnå dette, skal følgende opgaver og udfordringer løses, som er nævnt i den nationale planlægningsrapport fra 2006: (1) Effektiv håndtering af sammenhængen mellem trafik og fremtidig byudvikling, og det pres den øgede trafik udgør. (2) Ændring af de traditionelle forretningsdistrikter for at tilpasse dem til nye forretnings- og service områder. (3) Regulering af det totale antal entrepriser, for at holder priserne jævne. (4) perfektion af de grønne rekreative områder for at bevare et smukt miljø i området. For at etablere en effektivt og enkel regering, påbegyndte man i Danmark en ny runde regeringsreformer i 2005 efter reformen i 1970'erne. Det nye system blev indført i 2007. For at de nye regeringsinstanser kunne overtage opgaven, blev "Planlægningsloven i Danmark" udgivet i juni 2007. Storkøbenhavn ble vi denne lov inddelt i fire områder: centrale København, ydre København, grønne kiler og resten af Storkøbenhavn. For de forskellige områder foreslog loven sammenhængende krav: "(1) byens udvikling og renovering af eksisterende bygninger skal foregå i byernes centrum,

og konstruktion skal forbedre den offentlige transport. (2) Byggeaktiviteter og nye funktionelle områder i byens udkant, skal vælges ud fra eksisterende eller planlagt infrastruktur, og skal fremme den offentlige transport. (3) De grønne kiler placeret mellem fingrene skal ikke omdannes til bymæssig bebyggelse. (4) byudviklingen i Storkøbenhavn skal være sammenhængende med den lokale by, eller være en del heraf".

Når man ser på København, dannede udviklingen i 1980'erne og 1990'erne på den ene side et nyt økonomisk mønster indtil 2000. I den nordlige del fandtes forskningsintensive firmaer og institutioner og rådgivende service virksomheder. I den nordvestlige del var det It, forsikrings og finansielle industrier. I vest og sydvest var det hovedsageligt produktionssektoren. Dette industrielle mønster har yderligere fremmet justeringerne i bylayoutet mod en forbedring af transporten i byen. På nuværende tidspunkt er der 600 km jernbane i københavnsområdet, 200 togstationer, 300.000 daglige afgange og næsten 700.000 buspassagerer. På den anden side betyder Øresundsbroen fra 2000, at København og Malmø er smeltet sammen til ét stort byområde med 3.5 millioner indbyggere, 170-000 virksomheder, 14 universiteter og 12.000 forskere. Dette giver et stærkt grundlag for at forbedre Københavns konkurrencedygtighed på den internationale scene, især indenfor Europa. Derudover er det geografiske område København dækker over udvidet siden reformen i 2007, og indbyggertallet er steget. Alle disse forandringer giver anledning til endnu højere standarder indenfor planlægning.

Efter indgangen id et 21. århundrede har komiteen for planlægning i Storkøbenhavn udgivet tre udgaver af Fingerplanen i hhv. 2001, 2005 og 2007. Disse tre planer fokuserer traditionelt på hovedstadsregionens udvikling i fremtiden. Dog viser det kortere mellemrum mellem udgivelserne, at den økonomiske, sociale og kulturelle udvikling accelererer i denne region. Desuden viser landets forventninger til området globaliseringens fremgang.

Kapitel 4 – De grønne områder i København

Kapitel fire fokuserer for det første på undersøgelsen af de grønne byrums udvikling i Danmark, især et dybdegående studie af de grønne byrum i København. For det andet indeholder det et studie af Havnebadet som en specifik repræsentation for København, undersøger den historiske udvikling af parkplaceringer og hvordan designet og parken er bygget op omkring folks behov, og en diskussion af designet af parken og den inspiration der er brugt. Slutteligt er to specielle typer byrum, kirkegårde og legepladser, valgt til detaljeret gennemgang. Førstnævnte er ikke bare et sted hvor afdøde begraves og de levende kan mindes, men også et sted med aktiviteter for byens beboere og forbedring af det byens miljø. Desuden udforskes kirkegårdenes historie i København, og ruges som eksempel op designprincipper, former, brug af planter osv. Sidstnævnte er et sted hvor børn leger udendørs. Her udforskes oprindelsen, udviklingen, typerne og karakteristikaene for legepladser, samt deres indflydelse på verden.

4.1 Udviklingen af grønne byrum i Danmark

Udviklingen af de grønne byrum i Danmark startede med haver og parker. Baseret på tilgængelig information, ved man at tidlige former for haver fandtes i middelalderens klostre. Disse haver var relativt funktionelle, og indehold blandt andet medicinske og aromatiske planter som vigtige elementer. Derudover var der køkkenurter og frugttræer, som spillede en væsentlig rolle. Generelt var haverne inddelt i fire firkanter, men to krydsende stier i mellem, og hver firkant var yderligere inddelt i fire. I midten af det 16. århundrede introducerede Kong Christian III og Dronning Dorothea italienske renæssance haver i Danmark. På det tidspunkt fulgte designet og stilen stadig de middelalderlige udformninger, og haverne var omgivet af høje mure og trimmede hække indenfor. På befaling af Kong Christian IV (1577-1648) blev de kongelige danske haver ændret i høj grad. I 1606 opkøbte han 46 stykker privat jord udenfor Københavns bymure, hvor

Kongens have og slot blev anlagt. Haven stod færdig i 1624, mens slottet forsatte udvidelsen.

I slutningen af det 17. århundrede, under den berømte André Le Nôtrés (1613-1700) indflydelse, blev franske haver udviklet i en ny barokstil, og slotshaven i Versailles var den bedste repræsentant for dette design. De franske haver fik indflydelse på verden. I en periode anlagde kongefamilier stort antal af slotte og haver i stil med Versailles, i stor og lille skala over hele Europa. I Danmark, under Frederik IV's lederskab i 1671-1730, designede landskabs og have designen Johan Cornelius Krieger (1683-1755) Frederiksborg og Fredensborg slot i Versailles stilen, hvor sidstnævnte også kaldtes det danske Versailles er befolkningen. Disse haver brugte hovedbygningens akse, og dannede stier med samme begyndelsespunkt og symmetriske beplantninger langs denne, for at understrege de kongelige familiers autoritet og adelighed. Disse haver virkede dog enkle og sparsomme i størrelse og dekoration sammenlignet med de franske kongelige haver.

I det 18- århundrede, med Oplysningstiden, sociale forandringer og den spæde begyndelse på den industrielle revolution, ændredes stilen på haverne også drastisk. Overklassens smag ændrede sig fra tilbedelse af de franske barokhaver, til engelske landskabshaver. I 1860'erne og 1870'erne, spredtes konceptet med engelske landskabshaver sig til Danmark. Som resultat heraf blev Søndermarken og Frederiksberg Have omlagt fra Fransk Barok stil til Britisk landskabsstil. I den tidligere have blev lige stier til snoede, geometriske damme blev omlagt til naturlige søer, og der blev bygget en kinesisk pavillon på en lille ø i den ene sø. Det var også på denne tid mange af de adelige og velhavende handelsmænd begyndte at interessere sig for havedesign. I en kort periode blev de engelske landskabshaver moderne. I løbet af denne periode dukkede en gruppe indflydelsesrige havedesignere op i Danmark, heriblandt JL Mansa (1740-1820)

og Rudolph Rothe (1802-1877). Mansa var med til ændringen af Frederiksborg slots og Fredensborgs haver, og Rothe var også senere involveret i denne transformation.

Efter indtrædelsen idet 19.århundrede, med en begyndende bevægelse indenfor bygningen af byparker i England, skete der store forbedringer på anlægget af boulevarder, bymiljøet, dekorationen og fremtoningen af byerne og levestandarden for byens indbyggere i Frankrig og andre lande. Disse ændringer havde også stor indflydelse på Danmark, eftersom mange sociale grupper og organisationer efterspurgte byparker. For at imødekomme disse ønsker og offentligheden behov, blev de kongelige haver åbnet for offentligheden, og flere haver blev bygget i København og omegn. I København blev flere parker anlagt på ruinerne af den gamle by. Heriblandt anlagde landskabsarkitekten Ove Høegh Hansen (1832-1910) Østre Anlæg, og i 1876desigende andre arkitekter Ørstedsparken. Disse parker blev hurtigt et vigtigt sted at mødes og dyrke fritidsinteresser for middelklassen. Den romantiske stil havde indflydelse på designet af disse haver.

Fra det 20. Århundrede, med indflydelse af den britiske kunst og håndværker bevægelse, tog danske landskabsarkitekter neoklassisismen til sig. I løbet af denne periode dukkede en gruppe af velkendte landskabsarkitekter som IP Andersen (1877-1942), V. Fabricus Hansen (1866-1953) og Gudmund Nyeland Brandt (1878-1945) op i Danmark. Blandt dem havde GN Brandt en stor indflydelse på udviklingen af den danske landskabsarkitektur gennem udgivelsen af artikler, bøger og afholdelse af forelæsninger. I hans design brugte han stedsegrønne planter for at skabe forskellige former som runde, firkantede, ovale og spiraler, så haverne berørte folk ved at indføre nye, smukke former. GN Brandt havde også sort indflydelse på senere havearkitekter som Georg Georgsen (1893-1976) og C.T. Sørensen (1893-1979), og lagde grundlaget for den moderne danske landskabsstil.

For Anden Verdenskrigs udbrud var de professionelle opgaver danske landskabsarkitekter blevet meget spredt. Fra at omhandle parker og private haver spredtes deres arbejdsområder til boligområder, byplanlægning, herunder legepladser, sportsfaciliteter, kolonihaver og gårdhaver. I 1929 fremlagde Københavns kommune Byggereglementet, der havde en katalysatorisk rolle for planlægningen og opførelsen af rekreative områder og legepladser omkring bygninger. I 1936 samlede Steen og Eiler Rasmussen flere landskabsarkitekter og designere for at lave en plan for Storkøbenhavns grønne områder, som faktisk var en forløber for fingerplanen i 1947. Her var meningen at åbne dørene til naturen fra byen, for bedre at integrere naturen i byen, og kombinere den med grønne områder inde i indre by. I mellemtiden begyndte V. Fabricius Hansen og Jacob Bergmann (1899-1991) på designet af den ”grønne ring” udenom København. I denne periode fulgte havearkitekturen stadig den vej GN Brandt havde lagt ud, der var karakteriseret ved brugen af planter og forskellige geometriske former til skabelse af havens rum. En af de fremtrædende arkitekter var C T Sørensen, der også anses for at være en af de mest indflydelsesrige landskabsarkitekter i det 20. århundrede.

Med den økonomiske fremgang efter anden verdenskrig, begyndte man i Danmark at konstruere nye boligområder i byen, skoler, universiteter, hospitaler, kulturelle institutioner, stadioner, Kirkegårde, motorvejsnetværk osv., og det professionelle felt og rækkevidden for danske landskabsarkitekter har derfor til stadighed udvidet sig. Uanset om det er små private haver eller store offentlige projekter, er designerne blevet bedre til at skabe en sammenhæng mellem funktionalitet, bæredygtighed, praktisk anvendelighed og skønhed.

Siden 1960’erne har mange byer i Danmark udviklet deres egen ”parkpolitik”, og sat mål for udviklingen af byens grønne områder, og fremsat krav til konstruktionen, servicen, driften og designet af dem. Gennem disse

udviklingspolitikker, har byens administration givet meget opmærksomhed til opførelsen af forskellige former for grønne områder, fra kirkegårde til parker, fra planlægning og konstruktion af nye parker, til vedligeholdelse og renovering af gamle parker. Gennem disse anstrengelser er der opnået enestående resultater i design og opførsel af grønne områder. Med hensyn til designet, fokuserer de danske landskabsarkitekter på innovation af designet, det kunstneriske særpræg og manifestation af identiteten. Alle disse elementer har bidraget til deres omdømme og indflydelse på den internationale scene.

4.2 Systemet af grønne områder i København

Siden tilblivelsen af Fingerplanen i 1947, har der været klare mål for opførelsen af grønne områder i København. Fra et makroskopisk perspektiv er hele systemet opdelt i det indre grønne byrumssytem bader parker som rygrad, og det ydre område med byens udkant, og især kilerne mellem fingrene som grænse. Her refererer "Københavns grønne byrumssystem" til det interne system af grønne områder indenfor byens grænser, og det eksterne system i Storkøbenhavn. Overordnet består Københavns grønne byrumssystem af fem niveauer og aspekter, som er grundstykker, lineære rum, knudepunkter, kiler og ringe.

Med hensyn til det indre system, består systemet af grønne byrum i København af grundstykker, linjer og knuder. Grundstykkerne inkluderer grønne gader, lommeparker, fælleshaver, lokale parker og andre grønne områder ud over private haver, institutioners haver (som firmaers, skolers, kirkers osv.), lejlighedsblokkes gårdhaver og baghaver. ”lineære rum” består af jernbaner, motorveje, cykelstier, veje og lineære parker, samt floder, åer og andre lineære vandføringer. ”knuderne” refererer hovedsageligt til store parker i byen og lejede haver, naturlige og semi-naturlige områder og kunstige og naturlige søer. Opbygningen af det interne grønne byrumssytem har gennemgået en lang historisk udvikling sammen med byen, befolkningen og forstæderne.

Med hensyn til det eksterne system gælder det, at det primært består af ”bånd” og ”ringe”. ”bånd er de kile-formede grønne områder mellem fingrene i København, der består af landbrugsjord, skove, naturområder, floder, damme, søer og andre vandområder. ”ringe” refererer til byens grønne forbindelser mellem fingrene. I modsætning til det indre system, er det ydre grønne system afhængigt af veldefineret planlægning og design. Siden det første forslag om Fingerplanen for 60 år siden, har modellen for udviklingen af København grundlæggende været at bevare ”fingrene”, i sammenhold med ideen om grønne byrum foreslået i Fingerplanen. På nuværende tidspunkt er der formet fingerbyer langs de fem hoved-jernbanelinjer i Storkøbenhavn, hvoraf tommelfingeren leder til Køge, pegefingeren til Roskilde, langfingeren til Frederikssund, ringfingeren til Hillerød og lillefingeren til Helsingør. Planlægning er et effektivt værktøj for at undgå den vandrette spredning af byerne mellem fingrene. Desuden bevares store tragtformede landstykker på denne made som grønne områder til brug for befolkningen og eventuel senere udnyttelse. Selvom ejerskabet af den jord hvor de kileformede grønne områder er placeret er mere kompliceret, har koordineret indsat fra myndigheder og forskellige interesse personer sikret at disse områder er blevet effektivt beskyttet. Slutteligt referer ”ringene” til de lineære grønne områder, der forbinder hver by for enden af fingrene med hinanden helt udenfor København. Disse grønne områder er primært grundlag for motorveje og lokale veje.

Hver type og niveau af grønne områder spiller en unik rolle og funktion i dette store, komplekse system af grønne byrum. Overordnet er de vidt spredte punkt-lignende grønne områder en vigtig grundpille i dette system indenfor København. Uanset om det bruges i befolkningens dagligdag, arbejde, studier, rekreative aktiviteter, til miljøbeskyttelse, regulering af mikro-miljøer (som støjreduktion, nedbørs nedsivning, habitat for fugle, overlevelsessted for små dyr

og insekter) spiller disse små områder en væsentlig rolle.

“knude” byrum er skelettet og grundpillen for system, og spiller en uundværlig rolle i bylivet, blandt andet byens kulturelle liv, festivaler go sportsaktiviteter. Især fungerer byens parker som et bevis på byens historie og arv, og bidrager med bevaringen af byens kultur og rigdommen i byens turisme. Som byens “miljømæssige øer”, “flora og fauna øer” og “grønne lunger” bidrager disse steder med udligning, stabilisering og generering af miljøet i byen.

”Lineære” byrum er vigtige tilføjelser til system. De forener ”knude” og ”punkt” byrummene med den indre by, og firbinder ”bånd” og ”ring” byrummene med den ydre by. Faktisk fungerer de som grønne kanaler og økonomiske korridorer. De grønne ”bånd” og ”ring” byrum er de yderste barrierer for dette system, og spiller en rolle for bevarelsen og beskyttelsen af de grønne byrum, og på både makroskopisk og mikroskopisk fungerer de som vagter for miljøet og økosystemet. Med forbindelsen mellem de grønne og blå områder, den sammenkædede funktion af de grønne byrum og deres forskel i type og størrelse, har København en unik livskraft og charme, og forudsætningerne for en god livskvalitet for borgerne.

4.3 Parkerne i København

Yens parker er de vigtigste elementer af det indre byrumssytem, ikke kun til brug for befolkningen o deres daglige liv, men også som vildtlivsbeskyttelse i byen. Der er mange forskellige typer små og store parker i København. Med hensyn til parkernes stil, er der også her stor variation, som de engelske landskabshaver, de franske, formelle haver, moderne minimalistiske og geometriske haver samt lommehaver fra de senere år. Desuden er parkerne inddelt i enhedsparker, distriktsparker og kommunale parker.

Traditionen for de engelske landskabsparker i København stammer fra

slutningen af 19- århundrede. Under indflydelse af den engelske parkbevægelse, forsøgte byen at forbedre miljøet og skabe rekreative områder for beboerne. På den tid var trenden normalt at forsøge at efterligne det naturlige landskab, for at skabe parker med billedskønne landskaber inde i byen, så folk kunne føle sig i kontakt med naturen, hvilket var hovedformålet med parkerne. Disse parker er generelt relativt åbne, så besøgende kunne deltage i offentlige aktiviteter og nyde naturen. (1) når man dannede landskaberne, var terrænet i disse parker som regel grundigt behandlet, for at forme varierende geografiske konkave og konvekse former. De konkave former kunne omdannes til søer, og de konvekse til små høje. (2) med hensyn til planter var trætyperne som regel domineret af storbladede løvfældende træer som eg, lind, hestekastanje samt stedsegrønne planter som fyr, gran osv. De mindre træer bestod af blomsterne arter, som azalea, kirsebær, æble, pære, syrener, kaprifolium, roser osv. Som bunddække blev ofte brugt græsplæner og forskellige urtelignende blomster. Ved søbredder blev plantede forskellige vandplanter. (3) når man tilføjede bygninger til landskabet, var det ofte pavilloner, søjlegange, broer, monumenter osv. (4) ved placering af parkens veje, var formen på stierne ofte runde og buede, og skiftede med terrænet og sceneriet. (5) ved design af parkfaciliteter var legepladser og grillpladser ofte til stede, og desuden sidepladser, skraldespande, toiletter osv.

Ørstedparken og Østre Anlæg er repræsentative eksempler på denne type parker. Hvor Ørstedsparken ligger, var der oprindeligt ruiner af et gammelt slot. I 1870, da den gamle by blev forladt, accepterede bystyret i 1872 et forslag om at placere tre parker på ruinerne. Ørstedparken er et af resultaterne (de andre to er Østre Anlæg og Københavns botaniske have, der blev opført i 1882). Ørstedsparken dækker et areal på 6.5 hektar (søareal på 1.8 hektar). Parkens designer, Henrik August Flindt benyttede terrænet som det var efter ruinen, og designene en ”nyreformet” sø i parkens centrum, og opførte en jernbro så

fodgængere kunne krydse floden. Desuden gjorde han søens bred varierende i højde, så folk kunne opleve det naturlige landskab i byen. På samme måde udnyttede Østre Anlæg også det naturlige landskab. Parken er rektangulær, og også baseret på grunden for det oprindelige slot. I midten af parken blev der lavet en lineær kunstig sø. Planterne i parken repræsenterede den naturlige beplantningsstil med stærke linjer til den lokale natur og landskab.

De formelle parker i København blev hovedsageligt påvirket af tidlige Italienske haver og senere franske haver. Karakteristikaene for denne type parkdesign er symmetrien geometriske former, der vises tydeligt. Desuden er beplantningen brugt til at understrege disse symmetriske former, fx ved klippede hække. Kongens have blev oprindeligt grundlagt i 1624 undr Kong Christian IV (1588-1648) regime. Efter ændringerne i det 18. og 19. århundrede blev stilen ændret fra italiensk renæssance til fransk barok og derefter til britisk romantik. Efter indgangen til det 20. århundrede, blev havens udseende drastisk ændret, men stierne, den overordnede struktur og rosenhaven forblev i den formelle harvestil. Ændringerne var mere fokuseret på offentligheden brug af haven, mens antallet af steder hvor børn kunne lege også steg. Baseret på køkkenhaven i den oprindelige Kongens have, blev denne beplantede kantning rekonstrueret i 1998-2000 med et design inspireret af den britiske arkitekt og haveekspert Gertrude Jekyll (1843-1932). Området blev udvidet fra de oprindelige 120 m i længden til 240 m, og årligt blomstrer der over 200 blomsterarter på området.

Med hensyn til de moderne parker blev nogle af dem ændret fra gamle parker, der blev redesignet og genopbygget i sammenhæng med byens udvikling. I disse parker reflekterede designet ikke kun de koncepter og kunstformer der bruges i moderne landskabsdesign, og anvendte en lang række moderne landskabselementer og funktioner; men de integrerede også den danske historie, kultur og æstetik med brugernes behov. Samtidig var mange af disse parker

tilpasset et simpelt layout af områder, simplificerede scenarier og faciliteter, brugen af sparsommelige materialer, og den økonomiske måde de blev vedligeholdt, skyldes målet om et multi-funktionelle, multi-formt og multi-indholds grøn område. For eksempel er Nørrebroparken resultatet af regenerering af Nørrebro gennem redesign og omlæggelse af området til en park i 2007. parken dækker et areal på 6 hektar, og er designet af Professor Steen Høyer fra den danske arkitektskole. I sit design brugte han metoder som plantning af træer og mikro-geografiske ændringer for effektivt at opdele og genkende dette lange, smalle område, for at give befolkningen et sted hvor mange forskellige rekreative aktiviteter kan udføres i deres dagligdag, herunder solbadning, picnic, skateboarding, fodbold, volleyball osv. Ændringen af parken gjorde ikke bare stedet attraktivt, men forbedrede også forholdende mellem områdets boligkvarterer.

Byparken er en ny bedrift i Danmarks moderne parkdesign, og er designet af det danske arkitektfirma Mutopia. Parken ligger i Ørestaden, og er på omkring 7 hektar. Hele parken er opdelt og organiseret i rum af forskellige størrelse ved hjælp tre øst-vest og en syd-nord gående lige sti. Med dette som grundlag, har designerne arrangerede tilfældige runde lokaliteter i store, medium og små størrelser som knudepunkter i parken. Hvert af disse områder har fået deres egen funktion. Blandt andet er der opsat legepladser, volleyballbaner og faciliteter hvor folk kan mødes og kommunikere. Forskellige aldersgrupper og folk med forskellige interesser kan nemt finde et sted i parken der passer dem.

Til forskel fra mange grønne parker, er der mange vandområder i København, der udgøres af kunstige og naturlige søer og kanaler. Ligesom de grønne områder er de der ikke kun til rekreative formel, men spiller også en vigtig rolle for beskyttelsen af det naturlige miljø i byen.

Blandt de 35 byer der konkurrerede om ”the European Green Capital Award”

i 2010-201, blev København placeret i top 8. Selvom den ikke vand prisen bør resultaterne indenfor forgrønnelse af byen og opførelsen af de grønne byområder anerkendes. Fænomener som ulige fordeling af grønne arealer per indbygger i forskellige dele af København er til stede af historiske grunde, men generelt har København opnået enestående resultater i opførelsen af grønne byrum.

4.3 Havnebadet i København

Havnebadet er bygget på ændringerne af en gammel remise. Parken blev officielt grundlagt i 1994, og færdiggjort i 2000. den blev ikke kun bygget for at forbedre omgivelserne, men også for at tilføje en helt ny type område med rekreative, underholdnings og kulturelle funktioner til byen. Under ændringen af det gamle havneanlæg forbedrede byen også sin forureningskontrol i vandmiljøet, og den ”gyldne vandvej” blev klar igen. Dette gør parken til en skattet svømme og vandpark for Københavns beboere om sommeren. I de sidste år, med flere forbedringer og udvikling af områdets miljø, er det blevet et af de dyreste steder at købe hus i København, og er blevet kaldt ”Københavns Manhattan”.

4.3.1 Den historiske baggrund

Havneparken ligger på Islandsbrygge på Vestamager og købehavn. Området var oprindeligt en lavvandet strand, tilbage efter en havnemole fra 1880’erne. En del af den blev brugt til militære formel, resten blev industrielt område. I 1903 blev jernbanen, der forbandt byen med resten af sjælland bygget. Samme år blev broen til bymidten, Langebro færdiggjort og taget i brug. Havnen der åbnede i 1901, blev primært brugt til lastning af kul, træ og andre materialer. Med udviklingen af transport og industrisektoren, begyndte konstruktionen af beboelsesområder i 1905 i områder langs havnen, og gradvist blev det en kombineret, fragt, opbevarings og ekspeditionszone. Terminalen blev primært brugt til handels og transport til Island og Færøerne, deraf navnet Islands Brygge. I 1930’erne var der omkring 20.000 indbyggere i området.

På grund af depressionen indenfor industri og transport i 1970'erne og 1980'erne, faldt områdets indbyggertal til under 7.000 (hvilket var tilfældet helt frem til 2003). Siden da blev området gradvist ændret til kontorområde og beboelse. Af historiske grunde er bygningsdensiteten i området for høj, og gaderne smalle, så der er ikke meget plads til at imødekomme befolkningens behov for byrum. Så tidligt som i 197+'erne, da den originale havn stoppede transport af varer, tog alle de civile organisationer i område affære, og foreslog at området blev ændret til en folkepark. I 1980 skete en kemisk eksplosion i en fabrik i nærheden. Ulykken fik relevante afdelinger til at indse vigtigheden af en måde at kunne evakuere i nødstilfælde. I denne periode var København begyndt på et omfattende byfornyelses og renoverings arbejde. For at beskytte deres interesser og forbedre omgivelserne, nedlagde området et nabolagsråd, der havde som mål at få omdannet den gamle havn til en park. I 1983-1984, med tilladelse fra myndighederne, organiserede de lokale beboere sig spontant for at danne en 1 hektar simpel park i nord-enden af havnen.

4.3.2 Stedsanalyse

Islandsbrygger har 1.2 millioner indbyggere (2009), og er 1 km^2 stort. I 1995 godkendte kommunen at udvide parkarealet fra 1 hektar til 2.8 hektar. Havneparken er 5m bred og 925 lang. På østsiden ligger hovedvejen af samme navn, og samme retning som havnen. På den ene side af vejen er en seksetagers boligblok, hvis nordside vender mod den 10 m høje Langebro. I syd-enden af parken er flere boliger, og mod vest ligger vandet med 300 m til den modsatte side, Kalvebod Brygge. Her danner bygninger og en fjern kirke en meget charmerende skyline.

Med hensyn til at få adgang til parken, kan det konkluderes at den nordliges dels tilslutning til broen, er en vigtig måde for cykler og fodgængere at få adgang til parken. Parkens midtersektion er det primære adgangspunkt for dem der

kommer med offentlig transport. Den sydlige ende af parken er primært for dem der kommer i bil grundet den relativt megen plads.

I 1984, da folk spontant dannede parken, bevarede de jernbanesporene og brolægningen på kystsiden, mens flere ting blev fjernet i den nordlige ende, for at gøre plads til store arealer med græs. Alle disse forandringer lagde grundstenen for det efterfølgende design. Fordi stedet i lang tid blev brugt som gods terminal, var jorden i området forurenet. Byens miljøafdeling hævdede at overfladejorden ikke var egnet til menneskelig kontakt, og derfor krævede de at de øverste jordlag blev fjernet og udskiftet i efterfølgende anlægsprocesser.

Da parken ligger ud til vandet, har det marine miljø også indflydelse på parkens design og fremtidige brug. I 1953 kunne vandet i området nå en kvalitet der gjorde det egnet at svømme i. Men på grund af industriel produktion og kloakudledninger, blev vandet i havneområdet forringet, så stedet blev lukket for ophold i vandet. I 1955 var der 93 kloakledninger og regnvandsledninger, der førte ud i Københavns havne. Med den efterfølgende konstruktion af store renseanlæg og regnvandsopsamlingssystemer, blev dette antal mindsket til 38, og mængden af udledt spildevand fald, hvilket ændrede vandkvaliteten, og gjorde det muligt igen at medtage ophold og berøring med vandet i parkens design.

4.3.3 Parkdesign

Arkitekten Annelise Bramsnæs (1941-1999) og landskabsarkitekten Poul Jensen (1929 -) ledte designarbejdet. Under processen havde de begge tæt kontakt til administrationen og lokale beboer, og samlede mange ideer og forslag fra alle sider. Det færdige resultat legemliggør visdom på forskellige niveauer. Designet er inddelt i flere dele: det overordnede layout, stisystemet, områdedesigns, design af området ved vandet og plantedesign.

4.3.3.1 Overordnet layout

Som en park ud til vandet, er naturens funktion tilpasset, for at imødekomme behovene for offentlighedens rekreative aktiviteter. Det overordnede layout benytter sig af en simpel og uhøjtidelig tilgang, brede stier og store plæneområder, som basis og stier på højre og venstre som akser, for at skabe en omfattende og bred opfattelse af et velorganiseret rum. Med hensyn til mere detaljeret design brugte de raffinerede tilgange, for at skabe forskellige typer områder, der kunne imødekomme beboernes forskelligartede behov. Desuden skabte de forskellige strukturer som knudepunkter for ikke bare at gøre parken egnet til afslapning med en flot udsigt, men også for aktiviteter og underholdning.

4.3.3.2 Stisystemet

For en langstrakt park ved vandet, er stisystemet relativt let og monotont, men på baggrund af områdets forhold, er der lavet en 8 m bred sti kantet med *prunus avium* på begge sider, i den østlige side, som er inspireret af boulevarderne i Berlin og Paris. Dette er ikke bare for at muliggøre store mængder trafik, men er også vigtig for støjisolering og –reduktion. Ved kystsiden blev 12 m brede promenader designet, som skulle fungere både som udsigtspunkt og skabe plads til leg med vandet. Den centrale del af parkens nordlige ende er designet med to 30 brede trapez-formede plæner og tre gangstier med hhv. 45, 60 og 30 graders vinkler, der forbinder øst og vest siden, og gør de store plæner, der ellers kunne virke tomme, mere levende.

4.3.3.3 Områdets design

Fra nord til syd kan parken nogenlunde inddeles i tre sektioner: Nord, midt og syd. Begyndelsespunktet for den nordlige sektion er en stor jernskulptur af et skib, og området indeholder barer, plæner, plads til rulleskøjteløb, en terrasseinddelt plæne og en buet væg. (1) skateboardbanen er placeret i den

nordlige ende af terrasseområdet (2) tre gangstier opdeler de to terrasseinddelte plæner i fem irregulære trapezer. (3) den buede væg er lavet af røde mursten, og er vinkelret på den lange akse, og inddelt i tre sektioner.

Midtersektionen er primært til aktiviteter, som er en vigtig del af hele parkdesignet. Den består af en gallerigang af gamle togskinner, kulturelle områder, ”kran korridor”, ”festivalpladsen”, ”væggen i Halfdan’s passage” og en legeplads. Af disse har gallerigangen og ”krankorridoren” horisontale layout. Disse to samt Festivalpladsen er parallelle med parkens akse, og er de mest underholdende, historiske og monumentale områder i hele parken. (1) Gallerigangen er placeret i nord-enden af centrummet for kulturelle aktiviteter, og indeholder forskelligformede øst-vest lineære opstillinger. Galleriet i sig selv har i alt tre rækker a fem grupper, hvor hver gruppe består af to eller tre 3.5 m høje, 0.9 m brede lodrette cement plader samt gamle rester af jernbaneskinner med forskellig længde. (2) Centrummet for kulturelle aktiviteter er hovedbygningen i havneparken. Formen miner om styrehuset på dækket, og formålet er at få folk til at deltage i daglige kulturaktiviteter. (3) Krankorridoren er placeret midt i syd-enden, og matcher Gallerigangen. Det består ni grupper 4 m høje tårn-formede havnekraner, der danner en 5.7 meter bred korridor i forlængelsen af den trestrengede vej mod promenaden. (4) Festivalpladsen ligger tæt på krantårnene. Her er der brugt en gammeldags fiskekutter i træ, som er vendt på hovedet og fungerer som pavillon, og der er sæter og bænke tæt på krantårnene som danner en lille plads. (5) ”væggen ved Halfdans passage” er placeret syd for bådpavillionen, og dannet ud fra en 63 m lang væg, som var en del af den originale moles varehus. Væggen løber parallelt med parkens lange akse, og er placeret langs den centrale akse i det aktive område. På den ene side af væggen er boldbaner og beachvolleyball net, og på den anden side en lille plads dannet af 15 m af det oprindelige varehusgulv. Desuden er der to legepladser nord for bådpavillonen,

hvor der er både klatrevæg og legeplads til mindre børn.

Designet af den sydlige sektion er relativt simpelt; det består af to store terrasseinddelte plæner af varierende længde og med en rund plads imellem. Designstilen er de samme som i den nordlige ende; den åbne plads mellem de to terrasser er omkring 50m i diameter, og buerne omkring 30 m i diameter.

4.3.3.4 Design af området omkring vandet

Eftersom parken ligger ud til vandet, er leg med og i vandet en vigtig del af parken og dens design. Overordnet set er den nordlige del af parken tæt på Langebro, og strømmen herunder er meget omskiftelige og stærke, så i begyndelsen var vandaktiviteter kun placeret i den sydlige sektion af sikkerhedsårsager. Her er vandeoverfladen større, og har mere moderate strømme, som er egnede til svømning og sejlads. Senere, på grund af den forbedrede vandkvalitet og de besøgendes behov, blev der lavet et indhegnet bassin med en platform der kan springes fra, og der blev opsat sikkerhedsforanstaltninger, alt sammen i 2002. bassinets maksimale kapacitet er 600 mennesker. Midtersektionen af vandet er sted for vandsportsgrene som vandpolo, roning og andre aktiviteter.

I sydsektionen er der en træplatform ud for molen og 0.9 m længere nede, der er 5x300 m, og sat op til dem der vil svømme i havet, sejle eller opholde sig der. Det andet havnebassin i den nordlige sektion er 45m bredt og 80 m langt. Herudover danner terrasserne rum til afslapning og solbadning efter svømmeturen, og er et sted hvor man kan nyde udsigten med både og vandaktiviteter.

4.3.3.5 Plantedesign

Sammenlignet med udlægningen og designet af parkens funktioner, er plantedesignet relativt simpelt. Dette skyldes ikke kun parkens overordnede designstil, men er også en uadskillelig del af parkens funktion. Her spiller planter,

bortset fra dem der kanter boulevarden, kun en sekundær rolle. Ud over de europæiske kirsebær der er brugt ved boulevarden, er der brugt planter til dekorative formål som træer, buske, slyngplanter, blomster og græs. Ved børnenes legepladser er der plantet *salix purouea* og *salix alba*. Disse skaber et mere naturligt layout, og funktionen er både skyggeskabende og dekorativ. Liana bruges langs galleriet og væggen for at skabe grønt.

4.3.4 Inspiration fra Havneparken

Parkens design er ikke bare en vandpark, men også en brugervenlig park. Den inspiration og refleksion parken giver inkluderer respekten for befolkningens ønsker, respekt for stedets historie og respekt for de traditionelle værdier.

4.3.4.1 Respekt for befolkningens ønsker

Befolkningen er bestemmer over byen, og parkerne er steder hvor de kan opholde sig og udføre rekreative aktiviteter. Men at bygge disse parker, opfylde befolkningens behov og skabe et godt og elskværdigt sted for dem, er ikke udelukkende en sag for byens myndigheder og byplanlægger, men også for offentligheden. Gennem hele opbygningen af denne park, fra borgernes selvkonstruktion til rekonstruktionen og udvidelsen fra regeringens side, er den brede offentligheds mening blev hørt og respekteret. Undr designprocessen af rekonstruktionen var designet blevet et fælles emne i lokalsamfundet, og mange af forslagene kom herfra. For eksempel er rulleskøjtning en af de unge menneskers favorit beskæftigelser, og derfor er der opsat plads til dette. Hvis man i Kina på samme måde kunne handle som de danske myndigheder og designere, og lytte til borgerne, tænkte fra deres dagligdagsperspektiv, inkorporere færre rent dekorative elementer og flere praktiske funktioner, undgå nogle af magthavernes subjektive mening og beskæftige sig mere med folkets opfattelser, ville parkdesignet i Kina komme tættere på folkets ønsker og konceptet om prisbillighed go naturbeskyttelse.

4.3.4.1 Respekt for stedets historie

Et steds historie er ikke kun dokumenteret i tekst og billeder i bøger, men er også optaget i stenene, planterne og træerne rundt omkring i byen. Inder designet og rekonstruktionen af Havneparken, blev respekten for stedet ikke kun reflekteret i konceptet, men også i alle detaljer. For eksempel er boulevarden en måde at bevare skinner og brolægning, og pæle og øjer efter skibene er typiske tegn på en arbejdende havn. Designet af bådpavillonen viser også en integrationen af funktion, landskab og historie. Selvfølgelig betyder respekt for historien ikke at man skal begrænse fantasien og konstruktionen på stedet. Hvor skinner og brolægning blev bevaret langs vandet, blev stierne andre steder i parken udskiftet, for at gøre det muligt for folk med særlige behov (barnevogne og kørestole) at bruge parken. I modsætning til dette er meget kinesisk design formet på en helt anden måde. Det er kun de såkaldte moderne, trendy og avantgarde designs der foretrækkes. Samtidig bliver den historie stederne har, og deres signifikans for nutiden og fremtiden, totalt ignoreret, og dermed mister man den rige betydning der ellers ville være til steder, og designene bliver tomme og blege.

4.3.4.3 Respekt for nationale værdier

På en måde er tradition lig med rigdom, i hvert fald den åndelige rigdom for et land eller nation. I design bør respekt for traditioner på den ene side blive vist gennem respekt for livsstil og vaner i befolkningen, og på den anden side gennem respekt for designtraditionen. Med hensyn til førstnævnte er danskerne for eksempel meget glade for solbadning og udendørs afslapning, på grund af de geografiske og klimatiske forhold. I Havneparken er der designet et stort område med plæner på grund af denne ”sol-nydelses”-tradition. Med hensyn til sidstnævnte aspekt har det danske landskabsdesign sine egne traditioner, som er simplicitet og sparsommelighed, der reflekteres i parkens stil, sarthed og finesse i designmetoder, og funktionalitet og effektivitet i designeffekterne. Havneparkens

stil og mønster har fuldstændig fanget essensen af denne tradition. Å samme tid udstråler den moderne atmosfære, gør brug af moderne sprog, og undgår å den måde at blivekonservativt. Dette er hvad der mangler i det kinesiske design. Derfor er emner som hvordan man gennem kontinuerlig læring og accept af nye ting, tager traditioner til sig og fører dem videre igennem designet, presserende i Kina.

4.4 Analyse af designet af danske kirkegårde

En kirkegård er et sted hvor døde begraves og et sted hvor efter lade kan komme og sørge og mindes de afdøde. I forskellige historiske sammenhænge, kulturer og religioner har kirkegården forskellige udformninger og funktioner. I det moderne vestlige samfund, er kirkegården ikke bare en speciel type have, men også en del af de grønne byrumssystemer. På samme tid udgør det også en vigtig funktion som social, kulturel og miljømæssig beskyttelse i byen.

4.4.1 Kirkegårdes principper

4.4.1.1 Det menneske-orienterede princip

På grund af de specielle egenskaber for en kirkegård er den primære funktion at være en sted hvor døde kan begrave. Det menneske-orienterede princip på dette sted skal for det første vises gennem den ligeværdige behandling af de afdøde, og for det andet ved at imødekomme folks forskellige behov, og for det tredje ved at være et behageligt sted for brugerne.

I det danske kirkegårdsdesign vises dette menneske-orienterede princip, bed at give befolkningen fair service af høj kvalitet. Især ses det gennem anstrengelserne for at opfylde behovene for forskellige religioner, etniske oprindelser, familier og aldersgrupper i samfundet, samt gennem gravstedernes placering og tilstand og vedligehold af kirkegården osv. For eksempel er Vestre Kirkegård i København designet i forskellige stilarter, som familiegravsteder,

enkelte gravsteder, grave med grænser, fælles grave (med gravsten, men ingen grænser mellem enkelte grave), de ukendtes grav (anonym begravelse uden gravsten eller grænser) og andre typer gravsteder. Hver type har forskellige specifikationer og placeringer, for at kunne vælge en grav der passer til folks individuelle ønsker (eller testamente). Ud over at dække ovenstående behov, skal kirkegården også dække behovet for folks aktiviteter når den designes. Kirkegårde i Danmark er generelt udstyret med bænke, hvor folk kan hvilke og se på omgivelserne smat faciliteter og værktøj så man selv kan vande træer og planter, og passe graven.

4.4.1.2 Højtidelighedsprincippet

Den ærefulde og højtidelige atmosfære på en kirkegård viser respekt til både de døde og de levende. Dette princip dækker ikke kun over respekt for de døde, men også lovprisning og værdsættelse af livet. Måden dette princip er vist i designet af danske kirkegårde er ved at danne en form for ensartet orden og layout, med varierende densitet, samt en følelse af evighed med stedsegrønne planter og en fornemmelse af renhed med pæne omgivelser. Det ensartede layout af kirkegården er primært dannet af stierne og gravstederne, den varierende densitet opnås gennem beplantningen, mens brugen af planter og plæners vedligeholdelse også har en effekt på atmosfæren.

At skabe en højtidelig atmosfære betyder ikke at folk skal føle spænding eller ængstelse, og heller ikke mørke og frygt. Selvom dette princip er til stede, giver de danske kirkegårde ikke folk en ubehagelig følelse, men på den anden side får det dem til at føle varme og nærhed med deres afdøde familiemedlemmer og venner, endda kan de få fornemmelsen af kommunikation med de døde. Desuden får det folk til ikke at frygte døden, at respektere livets værdi og sætte pris på deres daglige liv.

4.4.1.3 Funktionalitets- og effektivitetsprincippet

I Danmark udnyttes funktionalitets- og effektivitetsprincippet i planlægningen og designet for bed at kunne imødegå de forskellige funktioner og dertilhørende fordele ved effektivitet. Ud over at være begravelses sted, fungerer kirkegårde også som beskyttelse af historiske og kulturelle værdier, desuden giver det social interaktion mellem mennesker, og beskytter den biologiske diversitet. Ud over de sociale fordele, ses effektiviteten primært gennem forskønnelsen og miljøbeskyttende fordele.

Med hensyn til historiske og kulturelle værdier, er kirkegården en speciel form for historisk arkiv, arkitektur, design og skulpturel udstilling. Den optager indholdet af den historiske udvikling, og udviklingen af videnskab, teknologi og kunst. Når folk går gennem den, minder det om en gåtur gennem en tidstunnel. Derfor udleverer mange danske kirkegårde gratis materiale om kirkegården til besøgende, for at introducere de enestående personligheder der er begravet der. For eksempel er den berømte digter og forfatter HC Andersens (1805-1875) grav på Assistents Kirkegård blev en vigtig turistattraktion i København. Med hensyn til miljøbeskyttelse er brugen af pesticider som regel forbudt på kirkegårde. Ved systematisk kultivering og indføring af planter, kan der ligeledes findes værdifulde botaniske ressourcer på en kirkegård. Dens artsrigdom af planter og gode miljø, danner et levested for små dyr, fugle og insekter. Samtidig danner der også rammen for udendørsophold og –aktivitet for borgerne, og mange opfatter det som et godt sted at opholde sig og komme i kontakt med naturen.

4.4.2 Typer af kirkegårde

4.4.2.1 Planlægning af det overordnede layout

I den overordnede planlægning benytter danske kirkegårde sig ofte af regulære former, som primært udtrykket det gitter-layout af stier i parken, samt

designet af lunde i et symmetrisk mønster. Dette design er en effektiv måde at udnytte arealet til fulde og skabe organiseret trafik i parken.

Stierne på en kirkegård er som regel inddelt i tre niveauer, for det meste med brolagte overflader. Den generelle bredde er 2.5-4.5 m for hovedvejene. Bortset fra Vestre og Bispebjerg kirkegård, hvor biler kan køre ind, tillader andre kirkegårde ikke indkørsel med køretøjer. De øvrige stier er mellem 2 og 3 meter brede, og brolægningsmaterialet er sand, grus, sten eller perlegrus. For stier der er 0.5-2 m brede er det som regel hvidt grus eller græs. I overensstemmelse med designet, kan kirkegården inddeles i gravpladsområder, gravområder og grave. Som regel er gravpladsområderne inddelt med hovedstien som akse. Gravområderne og gravpladserne er arrangeret med de øvrige stier som akser i symmetriske former. Under normale omstændigheder, er gravpladsområderne og gravområderne designet i regulære former. Især er gravene i gravområderne af sammes størrelse. Desuden er der små rektangulære områder designet til aktiviteter og afslapning på kirkegårdene.

4.4.2.2 Frit sektionsopdelt design

Ud over det regulære design i det overordnede layout, anvendes frit design i layoutet af sektionerne på danske kirkegårde. Dette ses for det første på designet af gravene, der ofte veksler mellem forskellige former for symmetri og asymmetri, og fremviser et tilfældigt layout på kirkegården. Ford et andet ses det på den form får naturlige landskab der er på kirkegården. Desuden anvendes der ofte objekter som monumenter, pavilloner, pergolaer, damme skulpturer osv. for at skabe et forskelligartet sceneri på kirkegårdene. Slutteligt ses det på de forskellige træer og planter der er spredt over kirkegården. Disse træer er forskellige sammenlignet med de ensartede grønne træer på begge sider af hovedstien, for at kirkegården fremviser forskellige former og farver. Dette frie sektionsopdelte design defineres ligeledes af brugerne. Ifølge det danske kirkegårdsregulativ, er det tilladt brugerne

at plante træer og blomster på gravpladsen. Derfor viser det ellers ensartede kirkegårdslayout mange forskelligartede scenarier, og gravene bliver en sted for design, der yderligere raffinere og beriger det overordnede design.

4.4.3 Plantedesignet på kirkegårde

4.4.4.1 Valget af plantearter

På de danske kirkegårde bruges løvfældende træer som basis, og stedsegrønne træer som supplement. De stedsegrønne træer inkluderer nåletræer, især fyr cedertræ, cypresser og andre af denne type. I blandt dem er P. tabulaeformis, sort fyr, hvid fyr, gran, taks, skarntyde, japansk cedertræ, arborvitae, Jinzhong Bo, enebær osv. Ud over alle disse træer er der et antal dværgvariationer der også bruges meget. Stedstegrønne bladbærende træer er rododendron, kristtorn og buksbom. Blandt de løvfældende træer er lærk, eg, lind, birk, pil, poppel, elm, ahorn, valnød, Quercus glauca og bøg af de mest benyttede. Af buske er det ofte magnolia, roser, syrener, blommer, pære, kirsebær, æbler, hyldeblomst, forsythia, kaprifolium, spiraera, sumak oh egetræer. Træer på gravpladserne er både rige i artsvariation og danner scenarier der tilfredsstiller besøgenes behov for at se træer, dufte blomster, nyde frugter, blade og andre aspekter. Ud over dette er der et stort antal græsser, blomster, urter, vandplanter samt efeu, klematis og slyngplanter, så alle planter mellem og over træerne og på jorden smelter sammen til en grøn masse.

4.4.4.2 Beplantningens opbygning

Måden træerne plantes på er en grundlæggende måde at demonstrere plantedesign på. På danske kirkegårde er træer ofte plantet i par, rækker, bælter, grupper og alene. Plantning parvis bruges ofte som punkt i et område, for at skabe opmærksomhed på stedet. Beplantning i rækker bruges mest langs veje, ved kirkegårdens ydergrænse og som dekoration. Beplantning i korte rækker bruges

ofte for at opdele rummet som en væg, et bælte eller en linje, og her plantes ofte samtidig buksbom eller egetræer.

4.5 Den historiske udvikling af danske legeplader og den tilsvarende inspiration

Børns legeplader er en vigtig del af byens offentlige rum, og også en vigtig del af det fysiske miljø for børns sundhed under deres opvækst. Den grundlæggende funktion er at skabe steder hvor børn kan lege samt komme i kontakt med det ydre miljø og forbedre forskellige færdigheder. Efter mere ind 100 års konstant indsats, sammen med økonomisk udvikling og social fremgang, har man i Danmark akkumuleret værdifulde erfaringer i at planlægge, designe og drive legepladser, og en helt unik måde at gøre det på.

4.5.1 De danske legepladsers udviklingshistorie

Udviklingen af de danske legepladser kan groft inddeles i fire stadier. De er opståelsesfasen fra sent i 19. århundrede til slutningen af 1920'erne, udviklingsfasen fra 1930'erne til 1940'erne, forbedringsfasen fra 1950'erne til 1970'erne og innovationsfasen fra 1980'erne til i dag.

4.5.1.1 Opståelsesfasen

I det 19. århundrede var legepladser stadig et fremmed koncept i Danmark. På dette tidspunkt var smalle garder og dårligt oplyste og ventilerede områder omkring husene det primære sted for børns leg. For ældre børn blev pladsen mellem bygninger med deres eget initiativ et sted hvor de legede og socialiserede sig med andre børn. Efter indgangen til det 19- århundrede befolkningen i København samt byens størrelse steget kraftigt på grund af industrialiseringen, (100,000 indbyggere i 1800, 144,000 i 1850, og 358,000 i 1900). I midten af 1800-tallet, da byens oprindelige fæstningsvold blev forladt, begyndte børn i nabolaget at bruge det som legeplads. I november 1867, foreslog professor i økonomi, William Scharling som

repræsentant for børnene, at man byggede en legeplads med sikkerhedsforanstaltning omkring. Hans forslag blev støttet af arkitekten Prof. Ferdinand Meldahl. I 1879 blev Ørstedparken bygget på ruinerne af den gamle fæstningsvold efter nøje design, og København fik dermed sin første offentlige legeplads. I 1870-1885 blev der opført en stor legeplads i Østre Anlæg park, hvor man kunne spille forskellige boldspil på græsset, og børn der ikke tidligere havde mulighed for at lege, havde nu et sted hvor de kunne gøre det. I 1891 grundlagde forfatteren Rigmor Bendix Legeplads Sammenslutningen, der medførte opmærksomhed på legepladser til børn og den tilhørende konstruktion i området. I august kom den første offentlige legeplads med gynger, vippe og balancebom samt andre faciliteter København. I år 1907 var der i alt otte legepladser i København, og i 1913 var dette steget til 22.

4.5.1.2 Udviklingsfasen

1930'erne og 1940'erne udgjorde udviklingsfasen for legepladser i Danmark. Med København som eksempel, steg antallet af børn under 15 år fra 120.000 i 1913 til 130.000 i 1939, mens antallet af legepladser steg fra 50 i 1936 til 109 i 1947, hvilket dannede grundlaget for udlægningen af legepladser i byen.

Udover indsatsen for at opføre offentlige legepladser, tildelte Københavns også specialtrænede vejledere på fuldtid på legepladserne til at passe på børnene, og antallet af ansatte sted med antallet af legepladser. I 1939 var der syv vejledere, der steg til 10 i 1943 og 18 i 1947. Deres primære opgave var at hjælpe børnene i deres aktiviteter, opretholde orden, og sikre børnenes sikkerhed, samt vedligeholde pladsernes faciliteter. Som eksempel guidede hver vejleder omkring 135 børn dagligt i sommerperioden og 65 i vinterperioden.

Da der var fuld gang i opførelsen af legepladser, fremskyndede man også byggeriet af tiltrængte nye boliger, hvor man udviklede legepladserne i

boligområderne. Den 29. marts 1939 blev Københavns Byggereglement vedtaget. Heri stod der at ”når der bygges boliger til mere end 8 familier, skal byggeprojektet indeholde en legeplads, og området skal separeres fra gårdhaven, der også bliver brugt til andre formål”. Dette spillede en vigtig rolle i forbedringen af børnenes forhold og mulighed for lege i boligområdet.

4.5.1.3 Forbedringsfasen

I perioden 1950-1970, efter anden verdenskrig, var en vigtigt historisk periode, hvor den danske økonomi og samfund ændrede sig fra landbrugssamfund til industrisamfund. Med etableringen og forbedringen af det nationale velfærdssystem, forandredes befolkningens livsstil, og levestandarden steg, hvilket medførte at legepladsernes udvikling i Danmark gik ind i en ny fase. I marts 1961 blev ”by og land bebyggelses dekretet” vedtager, som vedtog at der i forslag til planlægning og design af alle bygninger skulle afsættes et vist areal til bøns leg. For at løse problemet med utilstrækkelig ledelse og drift af de offentlige legepladser i 1964, udgav man ”regulering om børn og unges velfærd”. Her blev fremsat et krav om at alle niveauer og afdelinger af sociale organisationer, der arbejdede med børn og deres velfærd, skulle arbejde sammen for at sikre at de forskellige former for legepladser, steder fritidsaktiviteter med social og uddannelsesmæssig funktion (herunder skoler) fungerede godt og blev brugt.

Der blev også lavet et netværkssystem med legepladser i boligkvarterer og offentlige legepladser (herunder dem i parker og nærliggende områder) som rygrad og institutionelle legepladser (børnehavers, skolers, kirkers osv.) som supplement, så børn fra alle aldersgrupper havde mulighed for at benytte den nærmeste legeplads. Fokus skiftede altså fra udvikling af legepladserne til en rationel fordeling af dem og til sikring af børns rettigheder til at lege, for at forbedre forholdende og kvaliteten af legen, med det mål at legepladserne ville blive et andet ”klasseværelse” for børnene.

Desuden blev der nedsat en professionel gruppe der skulle beskæftige sig med planlægning og design af legeplader. I 1959 blev ”den Danske legepladssammenslutning” så grundlagt, og den berømte danske landskabsarkitekt C. Th. Sørensen (1893-1979) blev valgt som formand. Sammenslutningen bragte planlægningen og designet af legepladser på rette vej mod standardisering og dannede også en international platform, hvor designerne kunne udveksle erfaringer og lære af hinanden.

Endnu et tiltag var forskning i børns leg og brug af legepladser. På den ene side hjalp dette professionelle med at forstå præferencerne for børns leg og opnå viden om god planlægning og design for at promovere tiltrækningen til faciliteterne. På den anden side hjalp denne forskning med at fremme holdbarheden og sikkerheden på legepladsen og dens faciliteter, og dermed undgå ulykker.

I denne periode nåede antallet af legepladser i København op på 200, og antallet af vejledere tilknyttet dem op på 80 (i 1978). Dette resulterede i fundamentale forandringer i forudsætningerne og mulighederne for børns udendørsaktiviteter samt i de fysiske faciliteter. Med hensyn til den tidligere mangel på legepladser i gamle boligområder, især de mange bygninger fra 1880’erne og 1890’erne hvor bygningerne stod tæt, og der ikke var plafs til legepladser, blev dette problem afhjulpet ved at rive disse gamle bygninger ned, for at skabe åbne, forbundne uderum, og lave nye legepladser. For at forbedre de gamle legepladser, der for de flestes vedkommende var simple med stålstrukturer, begyndte man i København at forbedre kvaliteten og kvantiteten af ustyr, for at kunne imødekomme behovene fra børn i alle aldersgrupper. Desuden blev klare farver go tegneseriefigurer inkorporeret i designet af faciliteterne, og materialer som træ og bløde materialer (gummi, reb osv.) blev taget i brug.

4.5.1.4 Innovationsfasen

Efter begyndelsen af 1980'erne, især efter indgangen til det 21. århundrede, er udviklingen af legepladserne i Danmark nået et mere modent stadie, til dels på grund af ændringer i økonomien og samfundet. I løbet af denne periode, er formen og indholdet børn og unges underholdning, leg og fritidsaktiviteter ændret i forhold til tidligere på grund af tv og computere. På den anden side har forbedringen af folks levestandard og uddannelse betydet stadig højere krav til kvaliteten af de offentlige rum og grønne områder. Som et resultat heraf er udviklingen og forbedringen af legepladser blevet integreret i konstruktionen og forbedringen af det grønne byrumssystem, med byens renoveringsprojekter og med behovene for voksnes rekreative og kulturelle områder. Denne integration har skiftet fokus for legepladsernes udvikling fra rationelt layout, smukke omgivelser og mange funktioner, til miljørigtige konstruktioner, innovativt design og teknisk drift. Desuden bør udvikling af legepladser koordineres med social udvikling, opfylde befolkningens behov og være i overensstemmelse med bæredygtig udvikling. Selvom antallet af legepladser i 2009 var faldet til 129, og antallet af vejledere til 25, er mængden af menneskelige og materielle ressourcer der bruges i legepladsernes udvikling ikke faldet. Byens ledelse anser redesign og rekonstruktion som en vigtig parameter for genoplivning af legepladserne, og derfor bruges omkring 3 millioner dollars på dette årligt (ca. 19 millioner danske kroner).

I den innovative periode blev legepladserne inddelt i seks stilarter med hver deres karakteristika. Disse stilarter er: traditionel, moderne, adventure, natur, oplevelse og romantisk. Den traditionelle stilart referer til legepladser i typisk 1900-tals stil, hvis design er mere formelt, og som indeholder standardudstyr. Den moderne stilart vil sige at legepladsen er bygget og designet med moderne teknologier og nye materialer, der bedre opfylder børnenes behov for de nye typer

leg og spil. Adventure legepladserne har som regel meget plads, og nødvendigt værktøj og materialer, hvor børnene med hjælp fra instruktører leger individuelt. Naturlegeplader er bygget på af træer, sand, sten og planter og andre naturlige materialer. Ideen er at skabe en landlig atmosfære i simpel stil, for at opfylde behovet for kontakt med naturen. Oplevelseslegepladserne er bygget på en bevægelig og anderledes måde, med specialbehandlet tre, der bruges til faciliteter, som giver en eventyrlig og vildnisagtig atmosfære. Den romantiske stil findes på legeplader der er designet og opbygget med overdrevne effekter, for at danne teater scener til leg.

4.5.2 Indflydelsen og bidraget fra danske legepladser.

Den indflydelse danske legepladser har i verden, kan bedst ses ud fra områdedesigns og udstyr, især opfindelsen af adventure legepladser, som medførte flere forandringer i måden børn leger på, og berigede indholdet i deres lege. Den centrale figur og ophavsmand til denne type legepladser er den danske landskabsarkitekt C. Th. Sørensen.

4.5.2.1 Tilblivelsen af "adventure legepladser"

I starten af det 20. århundrede, da opførelsen af legepladser nåede et stort omfang, var mange skuffede over de identiske design og det standardiserede udstyr, der var populært på den tid. I denne sammenhæng udgav Sørensen i 1931 bogen "Parkpolitik i sognet og byen", hvor han pointerede: " for landskabsarkitekter bør designopgaven inkludere områder for fritid og underholdning, legepladser, skolegårde, sportsbaner for børn…" han introducerede også konceptet "Skrammel legeplads", og skrev: "på en måde burde vi nok opleve det der kan kaldes en "skrammellegeplads", jeg tror legepladsen skille være et større område med frodige planter, isoleret fra det omkringværende miljø, hvor man samlede noget af skraldet fra de børn der boede i nærheden, og de kunne bruge disse materialer i deres leg, ligesom børnene der levede i de landlige

områder. Skraldet kan være klippet op i mindre dele, bestå af indpakning, kasser, træ, gamle bildæk andre ting". Efterfølgende samarbejdede han med Hans Dragehjelm (1875-1948) og "Arbejdernes Sammenslutnings Boligforening", for at skabe den første "skrammellegeplads" i Emdrup nordvest for København. Opførelsen startede i 1938, og blev officielt indviet i august 1943. Den havde et areal på 6000 m2. Inde på legepladsen var der toiletter, værktøjsrum, indendørs arbejdssteder, materialelagre osv. Bygget i forskellige materialer, herunder gamle biler, møbler, træ og mursten. Børnene kunne enten lege i området eller bygge huse o.l. under opsyn af vejlerede. Legepladsen blev hurtigt meget populær blandt børnene, og havde omkring 900 besøgende om dagen.

4.5.2.2 Udbredelsen af "adventure legepladser"

Introduktionen af "skrammellegepladser" var ikke bare en innovation af udformningen af legepladser, men også en berigelse med hensyn til pasning af børn og deres uddannelse. I 1946, efter anden verdenskrig, besøgte formanden for "Børnehavernes sammenslutning" i England, Mrs. Hurtwood Allen (Lady Allen og Hurtwood, 1897-1976, tidligere kendt som Marjiorie Allen, Englands landskabsarkitekter, grundlægger og første direktør for "verdensorganisationen for tidlig uddannelse af børn") de nordiske lande, herunder denne "skrammellegeplads", og roste den meget. Da hun kom tilbage til England oplyste Mrs. Allen offentligheden om denne type legeplads gennem artikler og taler, og designet tiltrak snart herefter stor opmærksomhed, ikke bare i England, men også i Schweiz og Tyskland.

I 1950'erne til 1960'erne skete der et opsving i konstruktionen af denne type legeplads. Her blev konceptet omdømt fra "skrammellegeplads" til "adventure legeplads". Sørensen blev dermed pioneren for denne type legepladser. På nuværende tidspunkt er der omkring 1000 af denne type legepladser i Europa, primært i Danmark, Schweiz, Frankrig, Tyskland, Holland og England. Der er

omkring 400 bare i Tyskland og 80 i London. I Danmark var der mere en 100 indtil 1970'erne, og på nuværende tidspunkt er der 10 tilbage i København. Desuden er der bygget denne type legepladser i Japan, USA og Canada.

4.5.3 Inspiration fra udviklingen af danske legepladser

Udviklingsforløbet for danske legepladsers udvikling kan give mange brugbare lektioner. Generelt, at promoveringen af konstruktionen af legepladser er uadskillelig fra den sociale sammenhæng, fra regeringens retningslinjer og etableringen af relevante regulativer og fra den generelle innovation i design.

4.5.3.1 Den sociale sammenhæng er fundamentet for udvikling

At lege er ikke bare en nødvendighed for børns fysiske vækst og mentale udvikling, men også en vigtig komponent i deres dagligdag. På den måde er det at lave legepladser med gode omgivelse, sikkert udstyr, let adgang og praktiske anvendelsesmuligheder ækvivalent med at danne et meningsfuldt grundlag for nations velstand og sociale udvikling i fremtiden. der er flere faktorer der har betydning for vitaliteten og kreativiteten i det danske samfund, men det bør ikke overses at de gode forhold børns udvikling nok er grundlaget for alt dette. I modsætning til denne situation, er der af historiske grunde, store mangler i designet og konstruktionen af legepladser i Kina, og derfor er det ikke muligt at imødekomme børnenes behov. Derfor er det nødvendigt at øge erkendelsen af legepladsernes vigtighed i samfundet, og at skabe en atmosfære med fokus og omhyggelig planlægning, design og konstruktion af legepladser, for at opnå et godt opvækstmiljø for den næste generation.

4.5.3.2 Regeringens lederskab er nøglen til udvikling

De danske erfaringer viser, at regeringen på alle niveauer, anser legeplaser som en vigtig del af den offentlige velfærd og byens infrastruktur, og gennem omhyggelig planlægning og drift, har den sunde opvækst af efterkrigstidens

generationer i landet givet enorme sociale fordele. Efter 30 års opbygning har Kina skabt og akkumuleret stor social rigdom med hensyn til muligheden for at fremme og opføre offentlige legepladser. For at bygge et harmonisk samfund og en socialistisk markedsøkonomi, bør regeringen på alle planer leve op til deres ansvar og fremme udviklingen af legepladser. Konstruktionen af legepladser bør fremmes på samme måde som andre infrastrukturelle elementer som energi, transport og telekommunikation. Desuden bør der snarest muligt laves en planlægningspolitik for udviklingen af offentlige legepladser i Kina, for at arbejde for organisation, planlægning, opførelse go drift af legepladserne, så børnenes rettigheder til leg kan sikres.

4.5.3.3 Regulativer er kernen i udviklingen

Styring og udvikling af et land gennem lovgivning og regulativer et er princip i det moderne samfund. Med hensyn til legepladser, har de danske erfaringer sat eksempel der er værd at tage ved lære af. På nationalt niveau, burde Kineserne lave love og regulativer relateret til planlægning, design og konstruktion af legelaser inklusive tekniske standarder for faciliteterne og udstyret, så snart som muligt, for at gøre legepladserne til en vigtig del af den sociale, velgørende og grundlæggende infrastrukturudvikling, og sikre tilsvarende lovgivningsmæssig støtte og beskyttelse. Især på dette stadie af udviklingen med den hurtige urbanisering i Kina, er det ekstremt vigtigt og nødvendigt at bruge lovgivningen til at justere og håndtere forholdet mellem kommunale konstruktioner og konstruktionen af legepladser, mellem boligopførelse og opførelsen af legepladser, og mellem opførelsen af skoler og legepladser.

4.5.3.4 Innovativt design er en garanti for udvikling

Innovativt design er en vigtig kilde til bæredygtig udvikling af danske legepladser, og er også den primære grund til at børn og voksne kommer for at

lege og nyde omgivelserne. I kontrast til dette, mangler Kina på nuværende tidspunkt ikke bare specialister i planlægning af legepladser, men også relevante undersøgelser mangler i høj grad. På den ene side bør hovedparten af Kinas landskabsarkitekter derfor opmuntres til at udvide deres horisont, forny deres ideer og deltage mere aktivt i designet af legepladser. På den anden side, bør opdragelsen af disse talenter forstærkes som langsigtede løsninger på udviklingsbegrænsningerne relateret til utilstrækkelige kompetencer. På samme tid bør alle der praktiserer indenfor relevante felter, som lærere, kunstnere, psykologer osv. opfordres til at samarbejde med landskabsarkitekter, for at videregive brugbar viden og forslag til designet. Og landskabsarkitekterne bør kommunikere mere med børn, så designet retter sig mere mod den relevante målgruppe, og lever op til deres behov.

4.6 Analyse af designkunsten på danske legepladser

Med den sociale udvikling og forbedrede levestandard, er planlægning, design, konstruktion og drift af legepladser ikke et simpelt anlæggende relateret til den sunde opvækst af de næste generationer, men også en målestok for civilisationens fremgang og et udtryk for en bys fremtoning og omdømme. Som en typisk repræsentant for et udviklet land, har den danske regering og samfund altid været opmærksomme på design af og konstruktionen af legeplaser; det anses for en vigtigt parameter for social og offentlig velfærd, og støtten opnås gennem lovgivning og myndighedsfinansiering. Dette har resulteret i nogle signifikante resultater indenfor planlægning og design samt vedligeholdelse og drift.

4.6.1 Typer af legepladser

Efter næsten et århundredes konstante anstrengelser, begyndende med den omfattende konstruktion tidligt i det 20. århundrede, har legepladserne i Danmark udviklet sig til et helt netværk af legepladser i byerne, med legepladser i beboelser som basis, offentlige legepladser (nabolagslegepladser, legepladser i parker og

grønne områder) som rygrad, og institutioners (børnehavers, skolers, hospitalers, kirkers) legepladser som supplement. Ifølge en undersøgelse fra april 2007, synes 82,3 % af de 299 adspurgte børn mellem 5 og 15, at det var nemt at finde en udendørs legeplads. Undersøgelsen viste også at dette legepladsnetværk imødekom og passede til deres behov for aktiviteter. Disse steder, især de offentlige legepladser, er ikke bare et sted hvor børn kan lege, men også et sted der tiltrækker andre aldersgrupper, og er altså et sted hvor der kommunikeres kultur, læres kunst og udøves fysisk aktivitet.

4.6.2.1 Legepladser I boligkvarterer

Legepladser I boligkvarterer opføres generelt af bygherren når der investeres i boligudviklingsprojekter. Vedligeholdelsen og udgifterne betales gennem beboernes leje eller ejendomsskat. Legepladserne tæt på beboelsesområder finansieret af myndighederne er ofte også bygget af myndighederne. Eftersom driften af beboelsesejendomme har strikse regler i Danmark, er legepladserne i boligområderne (især dem drevet af det lokale samfund) primært steder hvor børn der bor i ejendommene kommer og leger dagligt. Disser legepladser opføres som regel I gårdhaver omgivet af beboerejendommene eller imellem to sådanne ejendomme. Størrelsen, formen, antallet af faciliteter of layoutet afhænger hovedsageligt af forholdende af denne placering, og legepladser designes som regel separat for børn under og i skolealderen.

4.6.2.1 Legepladser I nabolag og lokalsamfund

Formålet med legepladserne i nabolag og lokalsamfund er hovedsageligt at afhjælpe de pladsproblemer der findes i nogle boligområder (især ældre boligområder), der påvirker layoutet af legeområderne. Desuden afhjælper det problemer med lille kontakt til andre børn på grund af afstanden mellem de enkelte boligområder. Disse områder er hovedsageligt opført I nærområdet

mellem åbne offentlige områder, og er mere integreret med grønne byrum på gaderne. Designet og layoutet fokuserer også primært på førskole-børn og børn i skolealderen. Opførelsen og vedligeholdelsen af disse legepladser, finansieres hovedsageligt af myndighederne, og nogle af dem er opført af sociale grupper og virksomhedssponsorater.

4.6.2.3 Legepladser i parker of grønne områder.

Legepladser I parker og grønne områder skaber hovedsageligt et sted hvor familier kan udføre udendørs aktiviteter på hverdage og feriedage, hvor børn fra nærområdet kan lege, hvor venner og familie kan samles og andre sociale aktiviteter. Eftersom der er tale om offentlige steder, der servicerer den offentlige befolkning, er de bygget af de lokale myndigheder og vedligeholdt af park og vej afdelingen i kommunens teknik- og miljøforvaltning. Eftersom der ikke er nogen begrænsninger med pladsen, er disse områder generelt mere åbne og faciliteter og udstyr tager hensyn alle aldersgruppe af børn. Selvfølgelig er det primære formål at imødekomme behovene fra yngre børn. Eftersom teenageres interesser er mere forskelligartede og deres aktiviteter mere varierende, bliver områder forbeholdt dem planlagt separat.

4.6.2.4 Institutions-tilknyttede legepladser.

I Danmark er vuggestuer, børnehaver, skoler og nogle kirker og hospitaler og andre uddannelses- og serviceinstitutioner udstyret med legepladser. Disse steder, ud over vuggestuer og børnehaver (både private og offentlige) der er lukkede for fritidsbrug af sikkerhedsmæssige årsager, opfyldes ikke kun de krævede funktioner, men er generelt åbne for offentligheden og børn i området. Derfor fungerer disse legepladser som det primære supplement til de offentlige legepladser. Hovedinvestorerne til disse steder er mere forskelligartede, ansvaret for de private legepladser tages af private grundejere, og de offentlige legepladser

vedligeholdes af de respektive administrative afdelinger i kommunen.

4.6.3 Principperne for legepladsdesign.

I Danmark inkluderer designet af legepladser både design af et sted at lege og det omkringliggende miljø og valget af legefaciliteter og udstyr. Især i designet af de offentlige legepladser, er disse aspekter kombineret. På grund af de specielle designegenskaber for legepladser, er det nødvendigt at følge en lang række principper der kan sammenfattes som det er gjort i det følgende.

4.5.3.1 Sikkerhedsprincippet

Sikkerhed anses generelt som det vigtigste aspekt i designet af legepladser. For det første ses det ved beskyttelsen af faciliteter og udsyr. Danske designere skal ikke bare følge deres egne tekniske standarder, men også følge EU standarder (fx standarder fra Den Europæiske Standardkomite, vedtaget i 1998), for eksempel tekniske standarder som DS/EN 1176 og 1177. den førstnævnte er ”legepladsudstyr – sikkerhedsforanstaltninger og testmetoder”, den sidstnævnte er ”faldunderlag på legepladser – sikkerhedskrav og testmetoder”. Børn er individer uden ansvar for deres egen adfærd, og begrænsede forpligtelser, både deres bedømmelse af objektskala og fortolkning af rummelige dimensioner har afvigelser. Derfor bør designere udføre prævise beregninger og målinger af faciliteterne, udstyret og den overordnede struktur, og undgå usynlige farer ved at kontrollere proportioner og skala af hver komponent. Desuden kan der gennem brug af forskellige farver opnås opmærksomhed på alle komponenter; og gennem anvendelse af materialer til brolægning kan faldskader undgås og forbygges. For det andet er det udtrykt gennem forebyggelse. Som regel er legepladser omgivet af hegn for at få en rummelig adskillelse med omgivelserne, og undgå udefrakommende forstyrrelse. Der er også passende afstand mellem de interne legefaciliteter og udstyr, for at undgå forstyrrelse mellem legende børn. For det tredje ses det på holdbarheden. Med hensyn til materialer der bruges til

legefaciliteter og udstyr, uanset om det er træ, stål, plastik eller andre, er der strenge regler for både størrelsen og styrken af materialet, for at sikre at det grundlæggende er sikkert og holdbart for børnene at lege i.

4.6.3.2 Sundhedsprincippet

Beskyttelse af børnenes sundhed er et vigtigt emne for myndigheder og forældre. For det første ses dette princip i praksissen om analyse af områdets forhold. Når designere begynder deres arbejde undersøges først stedet luft, jord, vand og andre kvaliteter, der herefter tages med og tages hensyn til i designet. For det andet ses det gennem valget af udstyr og andre materialer. I legeprocessen, er børnenes krop o kontakt med overfalden af legefaciliteterne. For at beskytte deres sundhed vælges derfor mere naturlige materialer som træ, sten og sand af flere of flere op nuværende tidspunkt. For det tredje ses det gennem valgets af planter, hvor man gennem design forsøger at undgå tornede eller giftige planter, for at undgå at børnene kommer til skade gennem indtagelse eller ved at rive sig.

4.6.3.3 Tiltrækningsprincippet

At tiltrække børns interesse og give dem lyst til at lege, er en vigtig parameter for en succesfuld legeplads. For det første reflekteres dette princip gennem innovation. Danske designere kombinerer som regel en vifte af kunstneriske elementer som konstruktion, tegneserie, møbler, uskæringer og andre former, så faciliteterne opnår nye former og unikke egenskaber, samt dekoration med stærke farver, for at vinde børnenes hjerter. For det andet reflekteres dette princip gennem udfordringer. Sikkerhed og udfordrende leg er ofte modsætninger; nogle gange fokuserer designerne for meget på sikkerheden, hvilket giver legepladsen reduceret evne til at stimulere og glæde børnene. Derfor er det, under sikkerhedskrav og risikostyrings forhold, vigtigt at øge udfordringerne i områderne og udstyret så meget som muligt, for at tiltrække legende børn.

4.6.3.4 Intelligens-udviklings princippet

Gennem design er dette princip for det første reflekteret gennem illustrationen af viden. Legepladsen er et barns varden, hvor forskellige legefaciliteter og udstyr, herunder de opstillede borde og bænke, de omkringstående træer, blomster og insekter bliver læringsobjekter. Alle disse gør børnene nysgerrige. Derfor bliver de anvendte funktioner i faciliteterne, herunder den sæsonprægede ændring af planter, naturlige læringsmaterialer for børnene at observere og lære naturen at kende. For det andet reflekteres princippet gennem kreativ tænkning. Børns hjerne er ofte fyldt med forskellige magiske fantasier og forestillinger, og valget af områdets layout og legefaciliteter bør derfor give dem mulighed for at lege frit, samt give dem mulighed for at vise deres fantasi for at opnå en udvikling i deres intelligens.

4.6.3.5 Deltagelsesprincippet

I Danmark er offentlig deltagelse i sociale aktiviteter og arrangementer et meget udbredt fænomen, hvilket ikke kun manifesterer landets demokratiske systems sociale praksis, men også brugen af borgernes demokratiske rettigheder. I legeplads design og fornyelse, så vel som på mange andre områder, udviser borgerne en høj grad af entusiasme og deltagelse, og samtidig tiltrækker og opfordrer regeringen og designere bevist befolkningen til at give udtryk for deres meninger og forslag. På denne måde opnås ikke kun områder der bedrer, tilpasser sig forskellige behov og præferencer i befolkningen, men også områder der er fordelagtige at bruge og forbedrer miljøet i det lokale område efter færdiggørelsen. Generelt søges der i nydesign og renovationer som skolelegepladser, kommentarer og forslag fra skolelærere og også forældre og elever.

4.6.3.6 Kompromisprincippet

Dette princip er indbefattet af to aspekter. For det første skal designet af

legepladser imødekomme behovene for både børn og andre samfundsmedlemmer. For eksempel i designet af boligområder legepladser, er det nødvendigt at tage højde for de forgængere der går forbi og også andre pladsbehov, som til tørring af tøj og nabosamvær. For det andet, når legepladsen designes er det ikke kun nødvendigt at tage højde for selve legepladsen, men også de forskellige relationer med det omkringliggende miljø, og forsøge at integrere legepladsen i det overordnede område.

4.6.4 Mønstrene for legepladsdesign.

Mønstrene på danske legepladsers design beskæftiger sig hovedsageligt med forholdet mellem faciliteter, udstyr og området, mellem området form og funktion, mellem hovedfaciliteter of hjælpefaciliteter samt mellem området og mikroklimaelementer som sollys og ventilation. Med hensyn til de konkrete mønstre på layoutet, ses disse elementer på følgende måder.

4.6.4.1 Centralisering og decentralisering

Det centraliserede eller decentraliserede mønster for en legeplads afhænger af området og naturlige forhold, og også af orienteringen af bygningen og designerens koncepter og layout teknikker. I et centraliseret layout er store kombinerede legestativer generelt placeret som kernen med gynger, vippe, sandkasse og legehuse arrangeret rundt om, baseret på princippet om separering mellem bevægelige og statiske områder og forskellige aldersgrupper. I det decentraliserede layout er faciliteterne arrangeret baseret på områdets forhold og landskab, hvilket kombinerer bekvemmelighed med lige mulighed for børnene til at lege, samt sikker beskyttelse med lys og ventilation.

4.6.4.2 System og fleksibilitet

Det systematiske mønster refererer til faciliteter og udstyr der er arrangeret på en ordnet maner på jorden, hvor det fleksible mønster angiver en stil, der ikke er

baseret på regler. Førstnævnte er uniform og har en prioriteret tilrettelæggelse. Den sidstnævnte er romantisk, varieret og ukontrolleret. Begge typer er almindelige. I store parker og grønne områder, er legepladser med systemer enten arrangeret med en balanceret venstre og højre side eller med legefaciliteter og udstyr regelmæssigt lagt ud i området. Med hensyn til den fleksible stil, er det nogle gange langt frit ud, men oftere er det baseret på områdets tema, scenarieeffekter af layoutet og landskabets jordforhold i området.

4.6.4.3 Simplicitet og raffinement

Generelt er danske legepladser sparsommelige og ikke ekstravagante. Denne sparsommelighed giver dog ikke et indtryk af primitivitet og enkelthed hos folk. På mange legepladser kan det ofte ses, at designerne placerer bunker af udgravet jord eller sand inden i sandkasserne, som børnene kan kravle op på, grupper af sten som trædesten mellem sandet eller bjælker og træstammer som stole og udkigsposter. Denne simplicitet resulterer i at der ikke er yderligere dekoration af legeområdet eller udstyret, og har et naturligt udseende og praktisk funktionalitet. Raffinement reflekteres gennem sofistikeret detaljeret design af legepladsen, samt detaljegraden og præcisionen i fremtoningen

4.6.4.4 Med og uden tema

Børn kan lide at fantasere og imitere deres egen verden, og legepladsen er derfor et sted hvor de kan vise denne verden af forestillinger og imitationer, især de tematiske, maleriske og teatralske områder, der nemt stimulerer deres forestillingsevne og imitationer. På mange legepladser i Danmark har designerne implementeret et bestemt tema i området, for at gøre det mere interessant og tiltrække børn og deres forældre. Legepladser uden et specifikt tema er generelt designet med konventionelt layout.

4.6.4.5 Naturlighed og formalitet

I de forgangne årtier er designet af den formelle danske stil næsten standardiseret of uniform med hensyn til udstyr og legesager, for eksempel ens kombinationer med rutsjebaner, gynger og legehuse på mange legepladser. I dag, hvor folk søger diversitet og personalisering i deres dagligdag, er monotonien i de den formelle stil også nødt til at ændre sig. Dette medfører trenden i naturlighed som en fremherskende stil. I denne stil med naturligt design, udnytter designeren ændringerne i geografi mere fornuftigt, og bruger i større omfang naturlige materialer og elementer, som træer, vand, sten, sand og tømmer for at opnå afgrænsning af legepladsens område, til stisystemer og til legeudstyret. Den formelle stil benytter sig generelt af den traditionelle måde at planlægge legefaciliteterne. Dog er flere og flere lagepladser en naturlig stil integreret i den formelle.

4.6.4.6 Modernisme og traditionalisme

Med fremgangen af moderne teknologier, er flere og flere moderne elementer blevet integreret i legepladserne. Disse elementer, især videospil og moderigtigt legeudstyr og faciliteter spiller en vigtig rolle. Derudover benyttes former og funktoner forskellig fra det traditionelle udstyr på legepladserne, som kombinationsspilfaciliteter, roterende skåle, kravlebolde (BLOQX), skateboardramper osv. Disse bruges også for at transformere og opdatere mange ældre legepladser, hvilket giver legepladserne en make over. De traditionelle kombinationer med rutsjebaner i tegneserie eller eventyrstil, har også taget nye kulturelle inputs til sig og blevet til den mere naturlige oplevelsesstil.

Kapitel 5 – Danske landskabsarkitekters filosofier

I kapitel fem fokuserer undersøgelsen først på de landskabsarkitekter der har bidraget mest til den historiske udvikling af dansk landskabsarkitektur, herunder

Erik Erstad-Jøgensen, G. N. Brandt og C. T. Sørensen som pionererne indenfor den moderne danske landskabsarkitektur. Derefter fokuserer undersøgelsen på to nutidige danske landskabsarkitekter, J. A. Anderson og Stig. L. Anderson. Alt i alt, ledte de konstante bestræbelser indenfor udvikling og skabelse, fra Erik Erstad-Jørgensen til G N Brandt, go fra C. T. Sørensen til Stig Anderson, til uviklingen af moderne dansk landskabsarkitektur. Som pionerer of succesfulde udøvere indenfor deres felt, insisterede de på at tage udgangspunkt i dansk historie, kultur og tradition og den aktuelle tradition, og formede dermed en designtendens med en unik dansk stil, der gjorde det berømt på verdensplan.

5.1 Oprindelsen af den danske landskabsarkitekters designfilosofi

Udviklingen og resultaterne inden for dansk landskabsarkitektur kan ikke adskilles fra den drivende kraft, som består af den sociale udvikling og jagten på et bedre liv. De kan ikke adskilles fra læren og forskningen af kultur og kunst i andre lande. Selvfølgelig kan det heller ikke adskilles fra hård arbejde og flittig udforskning af danske landskabsarkitekter generation efter generation. Siden den første kendte gartner, Vilhelm (1127-1203), der levede i middelalderen til de moderne planlæggere og designere, har danske landskabsarkitekter ikke kun ændret omgivelserne for folk i Danmark gennem deres eget hårde arbejde og opnået social respekt for deres karriere som landskabsarkitekter, men de var også aktive i det internationale landskabsplanlægnings- og designfællesskab, spredte danske ideer for at opnå et bedre liv gennem deres designarbejde, og vandt respekt og gode ry fra folk i ind- og udlandet.

Modenheden og udviklingen af moderne dansk landskabsarkitektur begyndte i det 18. århundrede. Efter at være indtrådt i det 18. århundrede blev Danmarks haveaktiviteter i stigende grad aktive, og danske landskabsarkitekter modnedes i processen af havedesign og skabte et antal udførelser af høj kunstnerisk værdi. I disse designs brugte for eksempel Krieger, forskellige designteknikker og evner

fra den franske barokstil som akser, symmetri og designelementer som blomster, vandfald og terrasser. Da den engelske havestil blev fremherskende, opstod nye professionelle designere som J. L. Mansa (1740-1820) og Rudolph Rothe (1802-1877) sammen med en lang række haveentusiaster og amatørdesignere.

Efter akkumulering i det 18. og 19. århundrede, begyndte der at opstå en særegen dansk stil i begyndelsen af et 20. århundrede, hvilket i høj grad havde forbindelse til udforskningen og arbejdet fra mange danske landskabsarkitekter. I løbet af læringsprocessen om franske og engelske havestilarter, øgede danske landskabsarkitekter gradvist deres viden om problemstillinger i landskabsdesign, både med hensyn til æstetik og kunst, form og funktion go arkitektonisk og tekniske, naturlige og økologiske aspekter. Frem til det 19. århundrede, begyndte designarbejdet for havearkitekter at skifte mod storskalaprojekter. Up til midten af det 19. århundrede, var hovedinteressen for havearkitekterne stadig på småskala projekter som private haver. I løbet af denne periode virkede haverne som ”komisk landskabsarkitektur”, fordi designerne endnu ikke mestrede de essentielle principper i godt havedesign, og brugte det engelske mønster for storskala landskabshaver i små private haver. På den tid dykkede der også forskellige bøger om ”nordisk hortikulturel brug atlas” op. Glæsel udgav den første udgave af denne ”encyklopædi” i årene 1887-1902. udtrykket ”havekunst” blevet beskrevet som ”dekorativ kunst”. Med hensyn til termen ”have plan”, mente han at haveplanlægning var nødvendigt for designet af alle haver – selv for designet af små haver var det nødvendigt for at bevare helhedsindtrykket. De tidligere havedesign forblev udelukkende en simpel måde at bruge det oprindelige land, menu begyndte designerne med fuldt overlæg at benytte sig af naturen for at skabe smukke haver. Disse tidligere stilarter anvendt i England tidligt i det 19. århundrede, men blev stadig anvendt i Danmark sent i det 19. århundrede, fordi denne stil var forholdsvis åben, og ikke behøvede præcis planlægning og design.

5.2 Pionererne indenfor dansk landskabsarkitektur

5.2.1 Erik Erstad-Jørgensens bidrag til den danske havekunst

Erik Erstad-Jørgensen var en stor fortaler for dansk havedesign i starten af det 20. århundrede, og den første der kaldte sig selv ”havearkitekt”. I 1901 skrev han i sin bog ”Haven”: ”Når du går rundt i sådan en have (en lille villahave omkranset af regelmæssige grænser, indelukket og adskilt fra verden udenfor), føles det som om man i et rum hvor fremmede ikke kan se ind, selvom udeluften flyder frit og solen skinner klart, men man har sit eget sommerrum derhjemme fyldt med blomster og plads til børns leg”. Han behandlede haven som en del af en hjem, og var meget opmærksom på at beskytte en families privatliv. Derfor påpegede han at haven skulle separeres fra verden udenfor, og lukkes inde af hække eller hegn.

Med hensyn til designet, understregede han at bygninger og haver ikke bare skulle være harmoniske i funktion, men også med hensyn til at afværge fare; han pointerede at bygningens og havens design skulle behandles som en sammenhørende enhed, frem for at behandle haven som en sekundær del. I hans design brugte han en nøje observation af brugernes livsstil som basis, så designet bedre levede op til deres behov. Hans design inspiration kom fra Italien, Frankrig og Tyskland, men det praktiske element var fra den engelske stil, i særdeleshed bygningerne og de opblødende effekter som planter på bygningerne. Desuden var han opmærksom på at lade der være nok plads for planterne at gro på. Erstad-Jørgensens største bidrag til de danske haver var introduktionen af den arkitektoniske havestil. I tilgift spillede han også en stor rolle i udviklingen af uddannelsen i landskabsarkitektur i Danmark. Før det 20. århundrede, var træningen af landskabsarkitekter hovedsageligt baseret på selvstudier og mesterlære. På baggrund af hans iver omkring den arkitektoniske havestil, besluttede han, på baggrund af analyser og sammenligninger af den Kongelige

veterinær og landsbrugs universitet og den kongelige arkitektskole, at den kongelige arkitektskole var mere passende til at starte et uddannelsesprogram for landskabsarkitekter, fordi han mente at havearkitekter havde brug for at lære at tegne og fornemme et rum. I 1921 have begge disse skoler en fuldtidsprofessor ansat til at lære de studerende netop dette.

5.2.2 G. N. Brandts bidrag til den danske havekunst

Efter Erik Erstad Jørgensen i den første halvdel af det 20. århundrede var der mange arkitekter der havde vigtig indflydelse på den danske landskabsarkitektur, den første blandt dem var G. N. Brandt. Han blev født ind i en familie af gartnere. Hans far, Peter Christoffer Brandt var gartner, og selvom hans mor ikke var arkitekt, var hendes bror, den berømte Stephen Nyeland (1845-1922) grundlægger af Vilvorde gartneriskole, og meget interesseret i havehistorie. Efter dimission fra gymnasiet i 1897, begyndte G. N. Brandt at modtage undervisning i havearbejde. I 1898 kom han ind på Københavns Universitet for at studere filosofi. For at kunne komme ind på havearkitektuddannelsen, fulgte han i årene 1899-1901 planteskoleleverandøren N. Jensen. I 1901-2902 tog han til England for at studere. Siden da tog Brandt også til Paris, andre steder i Frankrig, Tyskland og Belgien for at studere og arbejde. I 1914 kom han tilbage til Danmark og arbejdede ved Gentofte Kommune, hvor han var leder for parkdriften fra 1920. Han var engageret i udviklingen af byparker og kirkegårde. I 1921 begyndte han at undervise på den Kongelige Arkitektskole, og blev udnævnt til lektor på Det Kongelige Akademi for Kunst og Arkitektur fra 1924 til 1941. I denne periode underviste han et stort antal professionelle gennem sin undervisning og ved at skrive artikler. Mens han underviste designede han også flere projekter, hvor han både brugte konventionelle elementer som gårdhaver og enge samt ukonventionelle elementer. I ”junihaven” i Rungsted for eksempel, brugte han 1926 firkantede blomsterbede med gule og hvide blomster, og designede

rektangulære græsarealer for at dekorere begge sider af fortovet. I hans egen have (der nu er åben for offentligheden) i Ordrup, brugte Brandt systematiske designteknikker sammenlignelige med den i Villa Gamberaia i Italien. I andre design brugte han dog principper fra de britiske designere William Robinson, Edwin Lutyens og Gertrude Jekyll osv.

Brandt var glad for titlen ”havearkitekt”. Det var på grund af hans gode omdømme, at den professionelle titel ”havearkitekt” gradvist blev almindeligt accepteret. I de fleste tilfælde forestillede Brandt sig det overordnede layout og hver en detalje i hovedet, og hans assistenter tegnede det derefter ned. Hans ideer var ekstremt detaljerede, og tog højde for alle aspekter som belysning, vind, skygge og lysets vinkel.

Med hensyn til teoretiske bidrag, udførte Brandt også en stor mængde undersøgelser. I 1915, efter han havde udgivet bogen ”Stauder. En guide til haveelskere”, udgav han flere andre bøger som medforfatter. Derudover skrev han også mange artikler relaterede til forskellige aspekter af haven og miljøet. Den grundlægende ide i hans design modsatte sig den æstetiske doktrin baseret på den læren af en streng stil, han argumenterede for at designet skille baseret på dybdegående studier af historien, og ikke fanges af immobile og fikserede stilarter, og skabes uafhængigt kombineret med karakteristika for tiden. Samtidig undersøgte han aktivt form og funktion i fremtidens haver. Han kom med fem hovedtræk: (1) Layoutet af haven skal være økonomisk; (2) Haven skal være let at vedligeholde; (3) Haven skal være brugbar; (4) Haven skal være til underholdning og morskab; (5) Haven skal forbedre niveauet af blomsterbeplantning. Disse ideer har givet en hvis indflydelse på senere havedesignere.

5.2.3 C. T. Sørensens bidrag til den danske havekunst

C. T. Sørensen blev anset som den mest enestående danske landskabsarkitekt

i den moderne historie af dansk landskabsarkitektur, på samme tid var han en af Verdens mest distingverede landskabsarkitekter i den 20. århundrede. Gennem sit virke færdiggjorde han om mod 2000 designprojekter. Sørensen blev født ind i en familie af jernbanevognsmekanikere. Da han var 15 pr gammel forlod han sit barndomshjem og blev lærling på Nørlund gods. Tre år senere tog han til København. Her blev han lærling for landskabsarkitekten Erik Erstad-Jørgensen. Fra 1916 og fremefter arbejdede han som havearkitekt og deltog i praktisk designarbejde. I 1922 forlod han Erik-Erstad Jørgensen for at starte sit eget designværksted. Selvom han havde udvist stor talent fik han kun begrænsede designopgaver. Efter 1925 arbejdede Sørensen som G. N. Brandts kunstneriske medie, og begyndte sin nye landskabsarkitektkarriere. Mens han arbejdede for Brandt designstudie havde han mulighed for at møde nogle af de berømte danske landskabsarkitekter, og deltog regelmæssigt i uformelle diskussioner, så hans talent blev anerkendt. I begyndelsen af 1940'erne, blev Sørensen ansat af Det Kongelige Akademi for Kunst og Arkitektur. Han arbejdede der som professor fra 1954 til 1963. Sørensen ansættelse som professor symboliserede at landskabsarkitektur formelt blev anerkendt af samfundet i Danmark.

Baseret på hans oplæring, design og undersøgelser fra hans lange karriere, skabte Sørensen gradvist sin egen kunstneriske stil. Hovedtrækkene bestod i hans talentfulde brug af beskårede hække som en form for manifestation. Disse beskårne hække var formet i forskellige geometriske former, nogle kaldte dette for "skulpturstilen". Det primære indhold i stilen var at bruge forskellige geometriske former, især cirkler til rumlig opdeling og aflukker. Der er to repræsentanter af denne designstil, ikke kun de berømte "familiehaver" i Nærum, men også den geometriske have (han kaldte den Musikhaven) designet i 1954 og opført ved Hernings Kunstmuseum i 1983. Haven bestod af en lige linje, en vinkel, en oval og seks forskellige polygoner. Det aflukkede område omgivet af

geometriske hække var forbundet, og en smal sti var lavet som gangareal. Designet af Århus Universitets Campus i 1931 var en centraliseret fremvisning af hans kunstneriske talent. I hans design udnyttede Sørensen fuldt ud og transformerede de originale terræn forhold, og designede en idyllisk og poetisk park på campus. Der var en stor sø, snoede stier, enge i forskellige højder og egetræsbevoksninger med forskellige densitet. Dette gav ikke bare en mulighed for lære og studerende, men også for andre i området for at føle naturen på campus. En af Sørensens store bidrag i landskabsdesignet var ”adventure legepladserne”, der spredte sig over Europa i 1950’erne. Dette design ændrede de monotune, kedelige legepladser , og gav mulighed for millioner af børn verden over for at vokse fornøjede op.

Ud over de store resultater indenfor landskabsdesign, var Sørensen succesfuld i forskningen og sammenfatningen af dansk landskabsteori. Han skrev otte bøger, redigerede to, og udgav hundredvis af artikler. Blandt dem var ”Europas havekunst” fra 1959, ”havekunstens oprindelse” fra 1963, ”39 haveplaner” fra 1966 og i 1975 udkom ”Haver: tanker og værker” der samlede op på hans erfaringer. Som miderne landskabsarkitekt lage Sørensen meget vægt på Forholdet mellem havekunst og visuelkunst, have og nature, havekunst og bygningskunst i hans egen designpraksis, og opfattede disse forhold som kernen i havekunst. Designmotiverne var almindelige elementer fra de danske kultiverede landskab, som skovområder, åbne marker, hække og lunde, der kan ses overalt og kan anses som den nationale og lokale kultur han knytter sig til. I hans design satte han altid mennesker som det mest vigtige, og medtog menneskelig komfort som et vigtigt element, hvilket kan anses som et udtryk for hans menneskeorienterede tankegang.

Med hensyn til havekunst, undersøgte han sit eget design fra et havekunstsynspunkt. Engang skrev han ”her vil jeg underbygge at produkterne af

kunst og fint håndværk ikke er to forskellige ting, men modsatte ender af den samme ting. Havekunsten er tættere på kunstarter som maleri og skulpturer, frem for at de er bygget som mål i sig selv, men dette sjældent forstået". Med hensyn til naturen mente han at landskabsarkitekten skulle omfavne naturen med accept, og naturen selv som materialet for haven. Med hensyn til havekunstens historie, opdelte han den i to kategorier efter at have undersøgt alle historiske havestilarter fra en gartners perspektiv, den anstændige have og det stiliserede landskab, hvilket resulterede i to typer af have; normale have og landskabshaver. Den engelske landskabshave var mere en form for havekunst end egentlig natur, og viste at imitation er begrænsende for alle typer kunst. Han imiterede ikke bare eksisterende stilarter, men brugte i stedet traditionelle elementer på fleksibel måde.

5.3 Filosofien og dens udtryk i landskabsdesign arbejdet af J. A. Anderson

J. A. Anderson er en af Danmarks mest berømte nutidige landskabsarkitekter. Han blev født ind i en kunstnerisk familie, hvor hans far, Guuar Aagaard Andersen var kunstner g universitetsprofessor, og hans mor skulptør. Under familiens indflydelse i det kunstneriske miljø, blev han interesseret i kunst fra barnsben. I 1980, efter dimission fra universitetet, deltog han i designet af den nye triumfbue i Paris, Frankrig, som landskabsarkitekt. Siden hans engagement i denne profession fra 1987, har han ledet over næsten 100 designprojekter, hvoraf størstedelen har været store projekter og de fleste som deltagelse i konkurrencer verden over. Han har ikke kun opnået personligt ry, men også givet Danmark et godt ry.

Indholdet i Andersens design projekter er meget forskelligt, og er både beboelsesområder, byområder, historisk bevarelse og moderne landskaber, herunder private gårdhaver og offentlig parker og grønne områder. Især har han specialiseret sig i miljømæssig planlægning og design på en stor skala, med eksempler på byområder, havne, lufthavne osv. Nogle af hans værker har vundet

designpriser både i Danmark og i udlandet. Andersons design er fyldt med kunstnerisk filosofi med det kunstneriske koncept om simplicitet, raffinement og naturen, der sammen kombinerer tradition, modernisme, regionale karakteristika og internationale standarder. Disse værker reflekterer en fornemmelse af enestående rum, flow af former og interaktion mellem mennesket og naturen.

5.3.1 Designstilen: simple former

Danskerne foretrækker realistiske, praktiske og effektive design, ikke luksus. Derfor legemliggør dansk designkunst denne ånd, uanset om det er i bygninger, industrielle produkter eller haver. Med Andersons egne ord: ”Søgen efter visuel klarhed har længe eksisteret i dansk landskabsdesign, så det er ikke nyt, for det er reflekteret i mange historiske haver, faktisk også i nogle barokhaver er der blevet vist en klar og koncis, og ultimativt simpelt design.” Han menter at ”Ud over i dens funktion skal en have være simpel.” Han var altså tydeligt influeret af denne tradition. Simple former i hans værker kan ses over det hele. Gennem hans arbejde, kan Andersons minimalistiske stil sammenfattes til to aspekter: For det første skal formen være simpel og oplysende; for det andet skal dekorationer være enkle og praktiske.

I hans arbejde udtrykte Anderson simplicitet som kontrast til at være primitivt eller endda lurvet, gennem raffinement og forfinelse. Hans udadtil simple designs indeholder en dyb forståelse for forholdet mellem mennesker og miljøet. Den tilsyneladende simple geometri udtrykker en høj kunstnerisk færdighed. Anderson bruger ofte en vifte af geometri i hans værker, og er kendt som em specialist indenfor brugen af geometri i landskabsarkitekturen i Danmark.

5.3.2 Designidealet: den menneskelige dimension

Landskabs kunst er at skabe et godt leve- og arbejdsmiljø for mennesker. Derfor bør værdierne for designerne fuldt ud at tage højde for behovene og følelserne i befolkningen, bekvemmeligheden og komforten i brugen, samt respekt

for og beskyttelse af historie og kultur, når de udfører deres professionelle arbejde. Idealet er udtrykt og reflekteret i alle aspekter af Andersons designs.

Engang udtalte han til en journalist i et interview, at der er elementer der påvirker landskabsarkitekters design: For det første forholdene og begrænsningerne i området, for det andet ønskerne fra modparten, der igangsatte projektet, og for det tredje introduktionen af designerens designkoncepter. For bedst muligt at kunne imødekomme brugernes behov, deltog Anderson før påbegyndelsen af hvert projekt i den diskussion med lokale repræsentanter fra alle sektorer, og lyttede åbent til forskellige forslag og ideer folk måtte have, hvilket han derefter integrerede i sine designs. På samme tid udvekslede han ofte ideer og synspunkter med alle der var interesserede i projektet under selve designprocessen, for at designet ville leve op til alles forventninger.

5.3.3 Designsproget: harmonisk helligelse

Landskabsplanlægning og –design er en kombination af videnskab, teknologi og kunst. Designeren skal på en smart måde håndtere forholdene mellem disse tre aspekter ved at anvende passende designteknikker og organisere de forskellige designelementer, så de opfylder projektets mål. Andersons mål er at opnå harmonisk elegance, hvilket på én måde kan demonstreres gennem klassisk og moderne harmoni, og på en anden måde gennem funktionel og æstetisk harmoni. Med hensyn til førstnævnte mener han at ”dansk havekunst kan i en vis forstand krydse tid og rum, planterne der bruges er ikke begrænset på nogen måde. Lige præcis derfor, selvom årstiderne skifter, og tiden går, er den danske havekunst blevet ændret meget lidt, derfor bringer den inspiration og indflydelse der når ud over tiden”. Dette aspekt om krydsende tid og rum, kan opnås ved at forstå tiden og bevare traditioner. Med hensyn til sidstnævnte sagde han ”et af de mest fremtrædende elementer i dansk landskabsarkitektur er at det har maksimal designfrihed, der er baseret på både funktion og æstetik.” Derfor foretrækker

Anderson at samle inspiration til hans design fra den klassiske havekunst, for at kombinerer historiske elementer med moderne tendenser for at forny, og at bruge klassiske designfremgangsmåder for at tolke forholdet mellem funktion og udseende i det moderne rum, naturlige miljø og kulturelle område.

Andersons design reflekterer hans pertentlige og ubønhørlige stræben efter kunst. I projektet af ”gammelhavn”, illustrerer gulvet, der ser normalt ud, i virkeligheden hans fintfølende koncept. Asfalt er blevet brugt i gården parkeringsområde, træplanker foran svømmebassinet og end til stranden, hvilket giver associationer til et skibsdæk. Resten af jorden er brolagt med granitsten, hvilket giver en følelse af tryghed ligesom gårdens port.

5.3.4 Designprincippet: integration af naturen

Miljøbeskyttelse har et bredt socialt grundlag i Danmark. I 1917 blev naturbevarelsesloven indført. For landskabsplanlægning og –design, er den mission der ligger i hvervet uadskilleligt fra naturbevarelse. I hans design fokuserer Anderson også på hvordan han håndterer forholdet mellem designprojektet og dets omgivelser, især mellem området og de naturlige forhold. ”lad området udtrykke sig selv” er et vigtigt princip i hans designs. Betydningen er at designet fuldt ud skal udnytte det tilstedeværende potentiale området har, og skabe de bedste landskab ved at lave nødvendige og passende justeringer til de eksisterende forhold. Det betyder konkret, at først skal brugen af de naturlige elementer underbygges, fx topografi, vandområder, vegetation, klima og andre faktorer; derefter er fokus rettet mod integrationen og foreningen af designprojektet og det eksisterende miljø.

Efter Andersons mening, repræsenterer et sted ikke bare naturens karakteristika og symboler, og er ikke bare bæreren af designelementer; det er manifestationen af naturens sjæl. Derfor bør det oprindelige naturforhold udnyttes så godt som muligt i designet, men på samme tid skal designet ikke begrænses af

disse forhold. At kombinerer de naturlige skønhed med kunstig skønhed på en passende måde, er den bedste repræsentation af en designers værdier.

5.3.5 Epilog

Selvom han har opnået stor succes i sin karriere og opnået et godt omdømme i de internationale landskabsdesigner kredse, har J. A. Anderson kontant udforsket i hans arbejde. Selvom moderne landskabsarkitektur udvikler sig hurtigt, og trends mode i konstant skifter, bevarer han altid sin egen designfilosofi. Efter hans mening, lever kun tradition og klassikere evigt, og kun ved at respektere historisk arv, kan landskabsarkitekturens videnskab og kunst opnå en god udvikling. I 1993, da Anderson modtog Nykredits arkitektpris i Danmark, sagde han ”konstruktions udtryksform skifter ofte med tidens gang, men havekunstens afhængighed af tiden befinder sig på en anderledes platform der kan krydse århundrederne. Måske er det lige præcis fordi træer har en længere livscyklus, at havekunsten gør brug af meget simple kunstformer og konstruktionselementer, og dermed ikke bliver påvirket af de sociale ændringer, således tilføjes haven et tidløst element.” Som et resultat heraf er det ikke svært at finde Andersons bestræbelser på et kunstnerisk rige i hans landskabsdesigns.

For at få ny næring og inspiration, og fortsætte med at uddybe forståelsen for udviklingen af forskellige historiske perioder af havekunst, fulgte Anderson det historiske spor, og lavede studier af gamle og berømte haver i Italien, Frankrig, England, Tyskland samt andre europæiske lande. På samme tid fik han muligheden for lære og forstå havekunsten i resten af verden. Under hans feltundersøgelser, fokuserede han ikke bare på haven i sig selv, men også de historiske forhold, miljømæssige faktorer, kulturelle karakteristika, lokale elementer og andre aspekter. Anderson er inviteret til at deltage i omkring 30 internationale designkonkurrencer årligt, og har opretholdt en høj vinderrate. At være innovativ, god til at lære af andre og tænke selvstændigt er måske nøglen til

Andersons succes, hvilket også giver brugbar indsigt for andre.

5.4 Filosofi og dens udtryk i landskabsarkitekturen i S. L. Anderssons designarbejde

Stig Lennart Andersson (1957-) er en af de få verdensberømte landskabsarkitekter i Danmark. Firmaet SLA design, opdøbt efter ham selv, er også berømt i Danmark og Europa. I hans tidlige år, fra 1978 til 1982, studerede Anderson til civilingeniør på Danmarks tekniske Universitet, i årene 1985-1986 studerede han japansk kunsthistorie På Københavns universitets asiatiske institut. I 1986 færdiggjorde han sin kandidatuddannelse i arkitektur på arkitektskolen. I 1987-1989 studerede han i Japan i tre år, og i 1990-1991, arbejdede han for Sven-Ingvar Andersson (1927-2007), der var en berømt dansk landskabsarkitekt. Derefter engagerede han sig undervisning og forskning på universiteter i Danmark, Sverige og Norge. Hans rige professionelle baggrund og arbejdserfaring har uden tvivl været en fordel af udviklingen og succesen i hans karriere. Tidligt i hans karriere, i 1994, opsatte han sit eget designstudie. I 2004 blev det omdøbt til SLA, og har nu udviklet sig til en større virksomhed. Firmaets arbejdsområder har udvidet sig fra landskabsarkitektur til generelt byplanlægning, landskabsplanlægning og design af detaljerede installationer. Efter hans blev landskabsarkitekt, har han arbejdet på mere end 70 projekter. Iblandt dem vandt 34 projekter førstepladsen og et projekt andenpladsen. Disse projekter inkluderer haver, baggårde, parker, skoleområder, beboelsesområder, pladser, torve, gader samt distriktsplanlægning, renovation af gamle bydele, og overordnet byplanlægning. Udover dem i Danmark, er mange af projekterne placeret i Sverige, Norge, Island, Italien, Nigeria og Kina.

I 2011 blev Anderson inviteret som en ud af ni i verden til at deltage i den Internationale Havebrugs Udstilling i Xi'an i Kina, og viste sit design under navnet "Yellow Mud Garden", og har siden da også været kendt i Kina.

5.4.1 Filosofien bag Landskabsarkitekt S. L. Andersons designarbejde

I Danmark er alle designprojekter allerede nået ud over stadiet hvor man forsøger at opnår funktionelle og visuelle effekter, til et stadie hvor flere bibetydninger er involveret. Ved at forstå alle disse bibetydninger, deres udtryk og realiserbarhed, formes en designers forskellige designfilosofier. Anderssons og hans holds designfilosofi er baseret på at forsøge at optimere den multidisciplinære sammenhæng og samarbejdet og overlapningen af alle de forskellige discipliner. Den konkrete metode i det enkelte projekt er at kombinere unik kunstnerisk vision med en demokratisk proces, der involverer brugere og klienter, så designet reflekterer forholdet af den videnskabelige forståelse mellem stedets fysik, geografi, klima, ressourcer og andre elementer, der interagerer med menneskelig erfaring. Andersons designfilosofi kan sammenfattes til brugen af design for at promovere social harmoni, kulturel arv, udvikling af landskabskunst og underbygning af livskvaliteten.

5.4.1.1 Brugen af den menneske-orienterede ide for at promovere social harmoni

Siden begyndelsen af parkbevægelsen i England i 1830'erne, har landskabsplanlægning og –design den vestlige verden spillet en rolle for at mindske klasseskel, skabe social retfærdighed og promovere samfundsharmoni. Anderson holder altid fast ved hans eget sociale ansvar, der er et vigtigt kriterium i hans design, og legemliggør den "menneske-orienterede" ide. Nordvest Park er et godt eksempel på dette. Denne park ligger i det mindre velhavende område af København, hvor andelen af indvandrere er dobbelt så høj som andre steder i byen, og arbejdsløsheden er stor. De fleste beboere i dette område bor i små lejligheder i almene boligbyggerier. Det offentlige liv er ringe, og der er seriøse miljømæssige forureninger og meget kriminalitet. Derfor er designet af denne park ikke bare transformationen af et offentligt rum og opførelsen af et grønt område, men også en transformation af lokalsamfundet og en fornyelse af det offentlige liv i området.

I 2006 blev SLA inviteret til designkonkurrencen, vandt førstepladsen og dermed designrettighederne. Parken dækker et areal på 3.5 hektar, der tidligere var en busterminal og parkeringsplads. Da han stod overfor dette utilfredsstillende og irregulære område, besøgte Anderson med sit hold området, og startede en dialog med beboerne, for at forstå deres ønsker og krav, og integrere dem i projektdesignet. For det første besluttede de, på grund af de omkringliggende grå bygninger, at plante 1001 træer som grundlag, hvilket skulle ændre det lokale udseende. På grund af det store antal indvandrere, besluttede de at bruge farverig belysning som en indikation for kulturelle forskelle, og opmuntre til kulturel udveksling mellem beboerne. For det tredje, på grund af kravene fra forskellige brugere, besluttede de at anvende et delvist åbent, delvist lukket design layout med rum af forskellig størrelse, så forskellige aktiviteter kunne udføres i parken. Hele parken er fuld af liv og vitalitet gennem brugen af træerne i forskellige former og farver, lige og snoede stier, belysning i forskellige farver og højder, siddepladser i forskellige former samt brugen og forandringen i forskellige kombinationer af græsplæne og hård brolægning. Efter indvielsen har parken ikke bare forbedret kvaliteten af det offentlige rum i området, men har også ændret det offentlige liv drastisk, højnet vitaliteten i lokalsamfundet, forbedret forholdet mellem beboere, og skabt tryghed og stabilitet i området.

5.4.1.2 Brugen af lokale elementer for at promovere kulturel arv

De lokale elementer er både en kilde til inspiration for landskabsdesignet og designmaterialet i sig selv. Med nutidens såkaldte ”internationale stil” som dominerende stilart, er opmærksomheden på at bruge lokale elementer ikke bare en nødvendighed for at beskytte det regionale landskab, men er også blevet en form for kulturel arv. De lokale elementer indeholder både den historiske kontekst af området og naturens karakteristika i regionerne. I hans værker, var Anderson meget opmærksom på at lede efter og bruge regionale kulturelle kendetegn. Efter

hans mening, kunne materialerne brugt i selve designet gøre det ”muligt at vække folks følelser og fantasi”. ”City og Dune” viser meget fint denne stræben i hans design. Det er et projekt hvor Anderson designede en baggård i hovedkvarteret for den svenske bank SEB i København i 2005, men det er overhovedet ikke en baggård i almindelig forstand. Området ligger tæt på Københavns havnefront, og bankens bygninger, to irregulært formede kontorbygninger, er placeret på hjørnet af to gader, med et designareal på 7300 m^2. Designudfordringen var at integrere området med de to bygninger, at forbinde området med det offentlige område, ikke kun at imødekomme kravene fra bankens ansatte, men også skabe et højkvalitetsområde for byens beboere. Anderson opnåede inspiration til ”the Dune” fra danske geografiske elementer. For det første er ”the Dune” et symbol på sandbankerne i Nordjylland. Det er et unikt naturligt landskab for de lokale, men kan også sammenlignes med sneen i den nordiske vinter. For det andet anvendte designet irregulære banker for at hænge sammen med de to irregulære bygninger, og anvendte hvide farver, som modsvar til bygningernes blå farve, så de kunne komplementere hinanden. For det tredje giver området folk håb om liv på grund af de mange træer, og samtidig svækkes følelsen af stivhed skabt af bygningerne. Lokale elementer er blevet brugt vidt og bredt af Anderson i hans mange designprojekter.

5.4.1.3 Brugen af kunstnerisk innovation for at promovere landskabsudvikling

Innovationen i kunst er drivkraften og kilden til udvikling indenfor landskabsdesign. I design er det at kunne bryde med rutinen en demonstration af kunstnerisk innovation. Det er et vigtigt mål, der konstant bliver eksperimenteret med i Andersons designs med nye former og udtryk af indhold. De fleste af hans designprojekter blev vundet gennem konkurrencer, hvilket ikke kan adskilles fra hans kunstneriske udforskning og innovation. Hvad enten der er tale om mange hektar byparker eller haver på få hundrede kvadratmeter, er Anderson i stand til

opfindsomt at udtrykke en unik indsigt i området, udtrykke reelle overvejelser omkring brugerens behov og udtrykke hans vedvarende udforskning af landskabskunsten.

Igen med ”City of Dune” som eksempel, var selve klitten opdelt af irregulære hvide betonblokke lagt oveni hinanden fra jordniveau til 2. etage med en højde på 7 m. mellem de forskellige lag af klitten, er der designet irregulære grønne områder hvor der kan plantes træer. Desuden er der nogle runde bede hvor der kan plantes træer på overfladen af betonklitten. Stedsegrønne og løvfældende træer er blandet for at skabe en kontrast med betondækket. Derudover skaber ”the Dune” en romantisk atmosfære med lyset over byen. I 2011 blev dette design tildelt Arne prisen, opkaldt efter den danske arkitekt Arne Jakobsen og uddelt af den danske arkitekt sammenslutning.

I designet af Solbjerg plads, der ligger på Frederiksberg, viste Anderson sin stærke kunstneriske fantasi og kreativitet på en stor skala. Denne plads består af tre områder med forskellige tilhørsforhold og funktioner. Område A er omgivet af CBS (Copenhagen Business School), Frederiksberg Centret og Frederiksberg bibliotek. Område B består af biblioteket, et fitnesscenter og Frederiksberg gymnasium. Område C er omkranset af gymnasiet og en gruppe af små bygninger med forretninger og cafeer. Disse tre områder udgør alle en transportfunktion, og danner tilsammen et T-formet området. På område A anbragte Anderson to set vandforstøvere (med hhv. 140 og 115 dysser), lydbrønde, 40 runde reservoirer i midten af området og en 0,4 m høj, 11 m bred og 25 m lang rektangulær stålkasse med træer, buske og siddepladser i den nordlige ende. Desuden designede han et 200 m x 68 m stykke træbevoksning i den vestlige ende, der skulle blokere for vinden fra vest og undgå forstyrrelser med området omkring pladsen. Slutteligt brugte han en 3 m høj væg på grænsen til område B i område A’s sydlige ende for at skabe et 10 m langt vandgardin med belysning. Mellem biblioteket og

gymnasiet på område B, brugte han højdeforskellene i jorden til at designe en stor stige platform. På hver platform er et skålformet bed med lys og en diameter på 1,5 m. Med øje for butikkernes brug af plads C, har han designet et lille område for cafeen på dens nordside mens der på den anden side er cykelsti. Når folk går på pladsen, skabes et drømmende eventyrland med vandforstøverne lydbrøndene i jorden i forskellige retninger, der spreder alle mulige fuglelyse, dyrelyde samt lyde af havet og vinden, der giver folk mulighed for at opleve naturen inde i byen. I de runde reservoirer opsamles regnvand. De er med til at holde området fugtigt og også reflekterer skyerne på himlen. På grund af de ovennævnte elementer har dette nye område tiltrukket mange mennesker.

5.4.1.4 Brugen af bæredygtighedsprincippet for at promovere kvalitetsforbedring

Princippet om ”bæredygtig udvikling” er blevet et vigtigt princip i nutidens verden. Det anses også for vigtige retningslinjer for planlægning og design i landskabsarkitekturen. Den Amerikanske professor Elizabeth K. Meyer mener at ”bæredygtigt” landskabsdesign skal inkludere fire aspekter, miljømæssig sundhed, social retfærdighed, økonomisk velstand og skønhed. Jagten på dette princip reflekteres ligeledes i Andersons designs. Med hensyn til miljø og æstetik er han opmærksom på naturlig integration af faktorerne og designet fra det naturlige miljø. På den ene sider prøver han at mindske negative indvirkninger på miljøet så meget som muligt. På den anden side, håber han at forbedre miljøet i byen for befolkningen, for at skabe smukke omgivelser at leve i, og forbedre livskvaliteten i byen gennem effektivt at bruge forskellige naturlige elementer.

I designet af ”Ankarparken” i Malmø, Sverige, blev Anderson inspireret af de forskelligartede karakteristika for Sveriges natur, og designede en bæredygtig bypark med lokale materialer. Parken dækker et areal på 2,9 hektar, og området er fladt og rektangulært. Området var oprindeligt en industrihavn i det vestlige Malmø, der i slutningen af 1920’erne, på grund af depressionen i

transportindustrien, blev omdannet til et boligområde ud til vandet, så det skulle ikke kun opfylde beboernes behov, men også den øvrige offentligheds.

I hans design brugte Anderson omkring ¼ af området som vandområde, sydsiden er en lige strandbred, men nordsiden er mere snoet, og dermed naturlig og inspirerende. Desuden anvendte han græsområder, sumpe, egetræer, træbevoksninger samt saltvandsbiotober med krebs og lokalt producerede granitsten i parken, for at forstærke den naturlige og vilde charme ved landskabet. Derudover er der arrangeret bukke i vådområderne og fliden, der spiller en beskyttende rolle og har den dekorativ effekt i landskabet. Designet af regnvandsopsamlingssystemet blev skabt ved at sætte runde vandreservoirer op på jorden, så vandet kan bruges effektivt. Ved hjælp af Andersons design blev parken ikke bare et smukt og miljøvenligt sundt sted for bæredygtig udvikling, men forbedrede også miljøkvaliteten i det nye beboelsesområde.

Det samme princip er blevet fuldt reflekteret i ”the City of Dune”. Klittens overflade blev designet med drænfunktion efter opsamling af regnvand, der bliver ledt ned i to store underjordiske tanke. I normalt vejer, kan vandet bruges til at vande planter gennem de 110 forstøvere placeret i forskellige hjørne af klitten; de kan også være fugtgivere til nedkøling i den varme sæson.

5.4.2 Kunstneriske tilgange til landskabsarkitektur i S. L. Andersons designarbejde

Andersons designarbejde er elsket af folket, fordi detaljerne er nye, unikke, romantiske, nostalgiske go fyldt med følelser. Derfor tiltrækker hans værker folks opmærksomhed. Hans teknikker og designfilosofi er komplementære, og et godt kunstnerisk udtryk kan bedre demonstrere designerens koncepter. Andersons udtryksformer kan sammenfattes som en simpel form, en mangfoldighed af rum, rige oplevelser og stor detaljetæthed.

5.4.2.1 Den simple designform

Det er en tradition i dansk landskabsdesign at holde det simpelt, enkelt og nøjsomt, og Andersons designs har reflekteret arven fra denne tilgang. ”Ladegårdsparken” er et grønt område der tilhører et alment boligbyggeri i Holbæk med mere en 900 husholdninger og mere end 2000 beboere, og er i alt 3.8 hektar. På dette sammenhængende stykke land mellem 22 treetagers bygninger, brugte Anderson ikke nogen luksuriøse elementer eller dekorative design, men en fordeling af lineære og kurvede veje, forbundet med mere end 40 store og små haverum til aktiviteter, herunder mange legepladser til forskellige aldersgrupper (sandkasse, skateboard områder), rosenhave, urtehave og andre ånderum, der tilsammen danner hovedandelen af det grønne område. Derudover brugte han desuden konvekse og konkave jordområder, hvilket skabte mikro-topografiske variationer i terrænet, og plantede træer med forskellige densitet for at danne både åbne og private rum. Nåletræer (sort fyr) og løvfældende træer (ahorn) blev brugt for at skabe kontrast, især de 1600 kirsebærtræer af forskellige sorter og klumper af rododendroner blev brugt fora at gøre dette grønne område til en verden af blomster i forår og sommer månederne. I designet af ”A Plot” på Assistents Kirkegård i København, brugte Andersson sparsommelige materialer og simple former for at gøre dette område på kun 400 m^2 anderledes. Han opdelte området i 30 mindre stykker græsplæne og røde sandsten med de samme specifikationer, så brolægningen ser ujævn ud (i virkeligheden nøje designet), hvilket får hele området til at virke stateligt og højtideligt, på samme tid dynamisk og foranderligt, så det symboliserer livets vedholdenhed og evighed.

5.4.2.2 De forskellige funktionelle områder

I områder af begrænset størrelse skal designeren have fortræffelige evner til at kontrollere rummet for at skabe forskelligartede rim, der imødekommer behovene fra forskellige brugere. Andersons design kan ofte bruge rummet

fleksibelt, hvilket ikke kun demonstrerer hans evne til at håndtere funktionelle rum, men også viser hans store fantasi og kreativitet. I 1999-2001 i designet af ”trekroner skolens” Campus, brugte Anderson på det 2.2 hektar store areal stier, vandlegemer, små bakker, grønne områder og andre former, for at skabe en ”have af viden” – en kæmpe legeplafs der blev vel modtaget af lærere og elever. Først brugte han en foldet lineær sti til at opdele området i to dele, en stor og en lille. På den lille del, designede han en stor oval pool hvor børnene kan lege med vand om sommeren; og på den store del designede han en brødformet bakke overfor poolen, for at skabe ”et bjerg og vand” layout på campus. Samtidig placerede han også et trekantet ø med træer og omgivet af sandhøje. I hele områdets udkant planlagde han et stille legeområde med borde og stole så børnene kan spille spil. Desuden besluttede han at bruge græsplæne som fundament for hele området med kun få træer, så hele legepladsen er fuld af liv. Ifølge en undersøgelse udført i 2005 af professorer ved afdelingen for Uddannelsessociologi på Københavns Universitet, brugte elever fra denne skole mere tid på udendørsaktiviteter end på andre skoler, legepladsen på denne skole er større, og proportionen af elevernes aktiviteter på tværs af kønnene var højere end på andre skoler. Resultatet af denne undersøgelse, er det bedste kompliment til Andersons design.

5.4.2.3 Den rige følelsesmæssige oplevelse

Landskabsarkitektur er en form for designkunst, der integrerer videnskab og skønhed. For at opfylde de sociale funktioner og miljøprincipper, skal det skabe så mange gode følelsesmæssige oplevelser for folk som muligt, og er en målestok for landskabsarkitektens kunstneriske udtryk. Anderson har fuldt ud og effektivt brugt de forskellige landskabselementer for at skabe et miljø med mange følelser og markante oplevelser for folk i hans designarbejde. I 2003 designede han Charlotte haven med et areal på 1.3 hektar, hvor han simpelthen brugte forskellige plantematerialer, især et antal forskellige urter, for at skabe en varierende skønhed,

en skønhed i beplantningsmønstre, en skønhed af årstidernes forandring og en skønhed i det farverige sceneri. I det moderne byrum omkring Solbjerg Plads på Frederiksberg, skabte Anderson et godt sted at opleve naturen ved at bruge et lydlandskab og et landskab med belyste tåger af forstøvet vand. I designet af nordvest parken, bortset fra de forskelligfarvede lys, øgede Anderson parklampernes antal, og malede dem i forskellige farver, for at forstærke besøgerens følelser. Parkens belysning har også vundet den danske lys pris.

5.4.2.4 Den store detaljetæthed

At være opmærksom på de mange detaljer er en tradition for dansk landskabsarkitektur. Det kan hjælpe med at forstærke det overordnede design af projektet, og projektets kunstneriske niveau. Samtidig kan det give folk følelsen af bekvemmelighed og komfort i designet ved brugen af det. Den præcise og passende detaljetæthed i Andersons designs kan ses over det hele. ”Lagkagehusets have” er en baggård på kun 550 m^2; det blev lavet om til en malers palet af Anderson. Farverne på paletten er en mangfoldighed af planter han nøje har udvalgt, for det meste urteplanterne samt små træer. Cykelparkering er designet ved kanten af paletten i det sydøstlige og nordvestlige hjørne, mens mange små områder er dannet af masser kurvede kanter, og skaber en minilegeplads for børn. Da han designede de bærende vægge i boligområdet Tuborg sundpark, brugte han skiffer som råmateriale, så dette eksklusive boligområde blev anderledes. Bukken i Ankarparken er også blevet designet unikt, og blev det bedste kendetegn for parken.

5.4.3 Epilog

Selvom formålet og funktionen for hvert designprojekt varierer, er alle Andersons designs faktisk den bedste manifestation af hans designfilosofi, og den bedste inkorporering af hans videnskabelige undersøgelser og kunstneriske teknikker. Hans design filosofi og teknikker bunder ikke bare i traditionerne for

dansk landskabsdesign, men indeholder også hans egene unikke kunstneriske charme og designstil. Den inspiration der kan hentes fra designfilosofien og det kunstneriske udtryk i Andersons landskabsarkitektur kan udtrykkes ved de følgende tre aspekter.

For det første skal landskabsarkitekter tage et socialt ansvar. Når landskabsarkitekter accepterer designprojekter, har de deres egen forståelse og holdning til projekterne. Uanset om denne forståelse og holdning bunder i idealer eller en forestilling om virkeligheden, skal designerne integrere deres personlige tanker sammen med et socialt ansvar. Selvfølgelig er denne forening ikke et resultat af tvunget kompromis eller villig høflighed, men nødvendigheden af at tage socialt ansvar for effektivt at bruge deres professionelle viden og evner for at skabe projektdesignet. I designprocessen, har Anderson altid brugerne i baghovedet. Han tænker over deres behov, følelser, bekvemmelighed samt fremtidige forventninger som sit mål og retningslinjer, men interesser i samfundet, miljøforbedring, naturbeskyttelse, vedligeholdelse og bæredygtighed er hans forpligtelser. Dette gør at hans værker genkendes og accepteres af befolkningen.

For det andet skal landskabsarkitekter have en komplet struktur af viden og evne. Grunden til Anderson igen og igen skaber mesterværker er ikke usammenhængende med hans uddannelsesmæssige baggrund og erfaring. Hans uddannelse som civilingeniør gør ham mere bekendt med detaljerne i konstruktioner, hvilket uden tvivl er en hjælp til at guide projektdesignet; og studierne i japansk kunsthistorie giver ham en dy forståelse for naturen i japanske haver. Dette gør det muligt at reflektere enkeltheden i japanske haver i hans værker, hvilket matcher det minimalistiske udtryk i danske haver. Derudover er hans uddannelse på arkitektskolen og hans korte læregerning i haveplanter vigtige grundsten i Andersons succesfulde karriere.

For det tredje skal landskabsarkitekter have en skabt kunstnerisk kunnen for

at forstå. Forståeligheden er grundlaget for skabelse og en forudsætning for at opnå resultater. I hans design er de brugte elementer så simple som beplantning, vandlayout, skabelse af terræn, brug af lys og faciliteter osv., men Anderson kan på sin egen måde, baseret på forståelse for områdets historiske sammenhæng, analyse af naturlige forhold, undersøgelser af udviklingspotentialet, estimering af brugbare funktioner samt hans indsigt og evne til at observerer og forstå, kreativt kombinere alle disse elementer for at opnår den bedste kombination af form og funktionalitet, potentiale og værdi. Dette bør anses som det unikke i kunstnerisk charme.

Kapitel 6 – Inspiration fra udviklingen af grønne byområder i København

Kapitel 6 kan enten opfattes som den sidste del af denne afhandling eller som konklusionen på undersøgelsen. Det fokuserer især på at udforske den inspiration Kina kan få fra København som eksempel, og fra udviklingen af de grønne byområder, for at sikre en høj livskvalitet i byerne. Konkret indeholder det følgende: vægt på videnskaben og stabiliteten i byplanlægning; highlights af vigtigheden af Københavns Fingerplan model; fokus på opførelsen af grønne byområder; realisering af vigtigheden af at skabe landskabsarkitektur med hjemlig identitet. Selvom den danske erfaring har sine særpræg, der er afhængige af nationale omstændigheder, kultur og traditioner, indeholder disse særpræg også universelle elementer.

6.1 Introduktion

Fra hovedindholdet i denne afhandling kan det konkluderes at måden at løse problemer relateret til byudvikling, mønsterudvikling, skalaudvikling og kvalitetsudvikling i byer gennem videnskabelige værktøjer er noget alle byer er nødt til at håndtere. I løbet af processen om at finde tilgange løsninger, er måden grønne områder kan opføres og beskyttes, for at skabe et godt bymiljø og forbedre

livskvaliteten udgangspunktet og det ultimative mål for byplanlægning. Selvom kerneproblemerne i byplanlægning er at bruge langsigtede udviklingsstrategier, og løse funktionalitets- og koordineringsproblemer som beboelse, transport, økonomi osv. i byudviklingen, er den grundlæggende tilgang at imødekommende de nuværende og kommende behov i byens rum gennem kontrol med hvordan landet bruges, især i den moderne kontekst, hvor målet for bæredygtig udvikling, øko-byer og lavt Co2 udslip er hvad der stræbes efter. Kerneværdien i denne sammenhæng er at tilfredsstille behovene i indbyggernes liv, og forbedre livskvaliteten.

København re som Danmarks hovedstad det nationale, kulturelle og økonomiske centrum. Dens byplanlægning omhandler ikke bare udviklingen af byen i sig selv, men den rolle og funktion i den langsigtede nationale udvikling er også taget i betragtning. Dette gør planlægningen sværere end i andre byer på grund af planens kompleksitet og forskellige krav. Ikke desto mindre har planlægningen af København, fra den oprindelige fingerplan i 1947 til den nyeste version i 2007, i over 60år kombineret karakteristikaene for byens geografi, ressourcer, befolkning og andre elementer, baseret på dens fremsynede og strategiske vision, og har succesfuldt skabt en videnskabelig langsigtet plan for byens planlægning. Det giver ikke bare gode forhold for byens udvikling i samtiden, men skaber også muligheder for langsitet udvikling. Samtidig har brugen af byplanlægning som retningslinjer for byens udvikling og for opførelsen af grønne byrum konstant ændret kvaliteten af det offentlig rum i indre København. Efter vedholdende anstrengelser gennem et antal årtier har København nået enestående resultater.

Denne afhandling fokuserer ikke på specifikke planlægningsteknikker eller rummelige design, men på udviklingsstrategi, lov, offentlig deltagelse, social ledelse, byens kultur osv. Derfor beskæftiger diskussionen om København som

case sig hovedsageligt med makropolitiske og ledelses aspekter. Generelt har denne afhandling bekræftet de to oprindelige hypoteser: (1) byplanlægning er vigtigt for den rationelle, harmoniske og sunde udvikling af en by. I løbet af de sidste 60 år, har København til stadighed gjort brug af byplanlægning som en tilgang til at guide udviklingen af byens udseende og funktioner i en passende retning. På den ene sidse beskytter det den vigtige rolle København har internationalt; på den anden side opretholder det den magtfulde status København har i den regionale konkurrence. (2) med politiske, lovmæssige, sociale og andre aspekter der tilsammen skaber et godt miljø, kan de grønne byrum dannet under byplanlægningens retningslinjer indeholde teorier og metoder fra landskabsplanlægning og – design for at skabe en variation af forskellige typer grønne områder, og tilfredsstille og sikre befolkningens behov for grønne områder i deres arbejde og fritid. Den konkrete inspiration kan hovedsageligt diskuteres omkring de følgende fire aspekter: vægt på videnskaben og stabiliteten i byplanlægning; vægt på vigtigheden af Fingerplanmodellen for Kina; vægt på opførelsen af grønne byrum; og vægt på at skabe en ny stil af landskabsarkitektur med lokale elementer.

6.2 Vægt på videnskaben og stabiliteten i byplanlægning

Byplanlægning er retningslinjerne og grundlaget for byudvikling. Derfor er opretholdelse af dens stabilitet og sammenhæng den mest vigtige faktor for byudvikling. Eksemplet om København har fuldt ud bevist, at rationel planlægning og implementering giver de forventede resultater. I kontrast til industrialiserede lande som Danmark, er Kina, selvom der er en lang historie for byplanlægning og – udvikling, langt bagud med den moderne byplanlægning i forhold til vestlige lande. Især efter det 19. århundrede, begyndte vestlige lande på urbaniseringsprocessen, mens Kina stadig var plaget af civil og udenlands krigsførelse. Det egentlige systematiske planlægningsarbejde på stor skala blev

ikke gennemført før i 1950'erne efter grundlæggelsen af folkerepublikken Kina. Dog blev det mere omfattende, dybdegående og systematiske byplanlægnings- og undersøgelsesarbejde udført relativt sent; er relativt stort gab eksisterer også i sammenligning med de vestlige lande.

På nuværende tidspunkt er Kina stadig på et stadie af udviklende urbanisering. Data har vist, at da Kina i 1978 begyndte sin reform og "opening-up" politik, var urbaniseringsraten kun 17.92% (kun 7.3% før 1949), men har i slutningen af 2009 nået 46,59 %. Denne vækst er uden fortilfælde. Historien indenfor urbanisering har vist at væksten i urbaniseringsraten fra 20 % til 40 % tog England 120 år, Frankrig 100 år, Tyskland 80 år, USA 40 år, og det tidligere sovjetunionen og Japan 30 år, men det kun har taget Kina 22 år. Ifølge bureauet for statistik i Kina, er antallet af større byer i Kina steget fra 132 i 1949 til 655 i 2007, hvoraf der er 36 byer med mere end 2 millioner indbyggere, 83 byer med 1-2 millioner indbyggere (antallet af byer med mere end 1 million indbyggere var kun 10 i 1949). Der var i alt 2173 mellemstore byer i 1978. i slutningen af 2007, var der 19.249 buer (de fleste opstået i tidligere landområder). Kinas bybefolkning har nået 620 millioner, og er det dobbelte af indbyggertallet i USA og ¼ mere en det totale indbyggertal i EU's 27 lande. Disse tal viser at Kina har opnået kæmpestore resultater indenfor udviklingen af urbaniseringen. Dette har i høj grad forbedret folks levestandard, og har også drevet Kinas hurtige økonomiske vækst. På samme tid har planlægningen af mange byer dog, på grund af denne hurtige udviklingen, ikke været i stand til at følge med, og derfor er planlægningen blev ændret år og får, hvilket har resulteret i at et stort antal byer gennemfører planlægning samtidig med opførelsen af ny bymæssig bebyggelse. Når man står overfor denne situation i Kina, er det meget svært at gennemføre videnskabelig og stabil byplanlægning som man har gjort i København. Mange byer mangler langsigtede overvejelser og visioner o befolkningsplanlægning, arealanvendelse, ressource forbrug og

landbeskyttelse, så det er svært at undgå blindhed indenfor planlægning og bebyggelse.

For at forbedre den videnskabelige tilgang og stabiliteten af byplanlægningen, og grundlæggende undgå blindhed i opførelsen af nye bydele, er det nødvendigt at være meget opmærksom på undersøgelserne indenfor planlægningsarbejdet, ligesom man har været i København, og disse undersøgelser skal motiverer og organiserer alle sociale grupper til at deltage. Undersøgelser og forslag fra offentligheden har skabt et godt fundament for udviklingen af København. Det er muligt at forestille sig, at hvis der ikke havde været magt i befolkningen til at udføre frivillige undersøgelser, ville den rummelige opdeling af København bære anderledes. Det viser også at det værdierne i det danske samfund skaber forudsætningerne for demokrati og videnskabelig tilgang til byplanlægningen. Dette vil hjælpe til at mobilisere og engagere alle sektorer i samfundet til at deltage i planlægningen, og dermed forbedre kvaliteten af planlægningsarbejdet på den ene side; og på den anden side hjælper der også til at maksimere refleksionen og repræsentationen af folks ønsker, og gør byen bedre stand til at servicerer befolkningen, hvilket garanterer brugbarheden ved at forbedre livskvaliteten i byen.

På nuværende tidspunkt er systemet for byplanlægning i Kina ledet af den nationale regering, og består af fire niveauer: landet, provinser, byer og distrikter. Selvom det virker forholdsvis ens på det institutionelle plan, når man sammenligner med treniveausystemet i dansk byplanlægning, eksisterer der enorme forskelle i procedurerne. Alle niveauer af byplanlægningen fortsætter samtidig med valgene på forskellige niveauer i Danmark, men modifikationer i byplanlægning har strengere procedurer, hvor hvert niveau og aspekt er klart defineret. Kinas byplanlægningen ændre generelt for hver periode, der varer 5 eller 10 år. Dog omformes den i overensstemmelse med cyklussen for etableringen

af en ny regering på alle niveauer (som regel hvert femte år). Det er nødvendigt at lave justeringer på grund af ændringer i situationen og prioriteter i planlægning, men hyppige justeringer på grund af ændringer i fokusområder laves af den nye administration. Dette forstyrrer ofte implementeringen af planlægningen og skaber forstyrrelser i planlægningens stabilitet og sammenhæng, så planlægning bliver mindre seriøs. Grundlaget for succesen med Københavns Fingerplan ligger for en stor dels vedkommende i stabiliteten og kontinuiteten af planlægningen. Hvis der var lavet justeringer med korte mellemrum, ville layoutet af nutidens København være svært at forudsige. Dette er også hvad vi skal lære fra erfaringerne i København.

6.3 Vægt på signifikansen af Fingerplan-modellen for Kina

Den kreative Fingerplan har ikke kun givet håndgribelige fordele for udvikling af København, fremkomsten af Fingermønstret har også en vigtig demonstrativ betydning. I byens udviklingsproces, er forbedringen af byens miljømæssige kvalitet ikke bare en garanti for en bedre livskvalitet i byerne, men også en afgørende udfordring, der skal løses. Betydningen af fingermønstret for København er, på den ene side, effektivt at forhindre uhæmmet vækst af byen gennem planlægning, skabe bymæssig udvikling i overensstemmelse med den planlagte strategi – langs jernbaner, udvikling i de planlagte ”fingerbyer”, for at opnå en kombination af by og rummelig struktur med byens naturlige forhold, ressourcer og miljø, og dermed skabe rummeligt grundlag for den bæredygtige udvikling af byen. Å den anden side bevares de grønne kiler mellem fingrene gennem planlægning. I begyndelsen, i stadiet hvor fingerplanen blev præsenteret, udgjorde ideen om kileformede områder ikke stor praktiske betydning eller værdi, og har måske endda givet anledning til økonomiske tab eller yderligere investeringer. Med den gradvise udbygning af København, gennem den ordentlige udadgående udvidelse, er disse kiler dog blevet en vigtig del af den rummelige

struktur af København helt frem til nu, og det er blevet et vigtigt fundament for grønne byrum, en vigtig økologisk korridor samt at sted for indbyggernes daglige rekreative aktiviteter, der i sandhed fremstiller deres vigtighed, funktionalitet og værdi. Derfor er er betydningen af Københavns Fingerplan reflekteret i specifikke tekniske aspekter og langsigtede strategiske aspekter.

Ved at analysere København, kan Fingerplanen kort sammenfattes som en ”tredimensionel” byplanlægningsmodel: de tre dimensioner er transportdimensionen, den grønne byrumsdimension og byrumsdimensionen, der beskæftiger sig med forholdet mellem byens udvikling, befolkning, areal og miljø. Inder denne models retningslinjer, kunne byen forme en struktur bestående af ”rygrads trafiklinjer” som forbindelsen, ”grønne områder” som mellemrum, og fysiske byrum som kernen i succesfuldt at håndtere de ovennævnte forhold (figur 6-4). Gennem modellens retningslinjer skabes der også muligheder for byens økonomiske vækst, og resulterer i et mere fleksibelt rummeligt layout og udvikling baseret på den danske ”vidensøkonomi”, ”serviceøkonomi” og ”informationsøkonomi” som hovedelementer i en ny økonomisk form. Fra studiet af København kan det ses at den ”tredimensionelle” planlægning succesfuldt har løst tendensen med uhæmmet vækst af byerne, og løst problemerne omkring beskyttelse af grønne byrum, og givet en grundlæggende garanti for byens økologiske balance, for at sikre at kunne imødekomme kravene til grønne områder i befolkningens dagligdag.

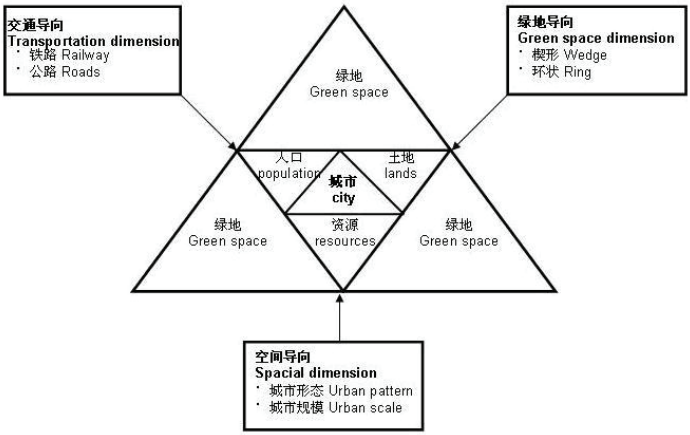


Fig. 6-4 De tre dimensioner i byplanlægningsmønstret

På det tekniske niveau, hjælper Københavns Fingerplan-model med at løse miljømæssige problemer, der er opstået i byudviklingen i Kina. Teknisk set forbedrer de grønne områder i København, der primært består af kileformede grønne områder og runde grønne områder, byens miljømæssige kvalitet og økosystemernes balance. Dette kan verificeres gennem den europæiske ”grønne hovedstads pris” i 2010 og 2011, hvor København lå som nummer otte blandt 35 kandidater. Selvom København ikke vandt førstepladsen, havde byen gode resultater på en række parametre som kuldioxidemissioner, svovldioxid og ozon niveauer og mængden af grønne områder per indbygger. Disse indikatorer har på den ene side vist at myndighederne i København har været meget opmærksomme på miljømæssig beskyttelse og reduktion af emissioner, og viser på den anden side at dette er uadskilleligt fra den rolle grønne byområder spiller. Derfor bør man i Kina lægge vægt på denne funktionalitet der ses i Købehavn, og udbrede disse allerede verificerede erfaringer.

Faktisk kan skyggen af Københavns byplanlægning ses i den forskning der er udført af Kinesiske professorer på området, og indflydelsen og inspirationen

eksemplet København har på folk, kan ses. For eksempel foreslog Feng Li og RUsong Wang fra Beijing Koncept Planlægning af Bymæssig forgrønnelse i 2005, at fokusere på de grønne byområder som guide, og introducerede ”kileformede grønne områder” for at reformere og forbedre strukturen og fordelingen af grønne områder. De foreslog at konstruere grønne områder og buffere i tre skalaer: den regionale skala indenfor hele området, Beijing by skalaen samt nabolagsskalaen. I denne planlægning kunne indførelsen af kileformede grønne områder (herunder parker, landbrugsjord, skove, floder, bjerge osv.), bringe de eksterne områder ind i byområderne, og dermed reducere det øgede pres fra befolkningstilvæksten, byens udvidelse, ulogisk layout af byen, især luftforurening, dårlig miljøkvalitet, skrøbelige økosystemer, mangel på offentlige rekreative områder samt andre problemer der bunder i det begrænsede areal af grønne områder. Ideen bag forskningen var i det hele taget meget foreneligt med formen, indholdet, funktionerne og rollen af de grønne kiler i Københavns Fingerplan.

I et andet case study, lavet for byen Nanjing af Professor C.Y Jim og Sophia S. Chen, reflekteres modellen af Københavns Fingerplan også i høj grad. På trods at København ikke blev nævnt som inspirationseksempel, nævnte de den stjerneformede udlægning af de grønne områder – en udlægning foreslået af Forman og Godron i 1986. ”stjernen” repræsenterer de bugtende bygrænser, og giver en lang kontaktflade og stor gennemtrængning af naturen i byens områder. Nanjings befolkningstæthed er 12.700 indbyggere per km^2 (i København er det 5.708 indbyggere per km^2) og byen har derfor ekstrem mangel på grønne områder med meget lidt grønt per indbygger. I dette Case study blev systemet af grønne områder i Nanjing analyseret. I den del af byen der er placeret langs Yangtze floden (sammenligneligt med havnefronten i København), eksisterede allerede en ”finger”-agtig struktur i de grønne områder, og rapporten foreslog at udnytte Fingerplan-modellen og kileformede grønne korridorer for at forbedre den grønne

struktur. Rapporten anbefalede at byens fremtidige udvikling skulle være langs fire retning fra byens centrum og ud mod de allerede planlagte nordøstlige, østlige, sydøstlige og sydvestlige regioner. På samme tid blev det forslået at styrke forbindelserne mellem de fire ”fingre” med to ringveje. Desuden blev fem grønne kiler planlagt, en mellem hver finger, gennem fastholdelse og opførelse. Heriblandt skulle landbrugsjord i den sydvestlige og sydøstlige del bevares, og andre kiler skulle bestå af de oprindelige bjerge og skove gennem bevarelse og genopførsel af skove.

Fra disse to ovennævnte eksempler ses det at Københavns Fingerplan model, kan overføres til Kinesisk byplanlægning. Denne reference er derfor betydningsfuld, uanset om det er med hensyn til rummelig opbygning af byen, eller opførelsen af grønne byrumssystemer. Den kan ikke bare hjælpe med at ændre udviklingens modellen, kaldet ”kagemodellen”, som mange Kinesiske byer følger, men kan også være med til at forhindre ulogisk og dårligt layout af byens områder, der er et resultat af den uordnede udvikling af byerne, med især den store mangel på grønne områder til følge.

6.4 Konstruktionen af grønne byrum

6.4.1 Styrkelse af konstruktionen af grønne byrum

Danskerne er blevet udpeget til at være det lykkeligste folkefærd i Verden. Denne lykke bunder selvfølgelig i mange forskellige årsager, men en af de vigtigste faktorer er uden tvivl de grønne byrums rolle i danskernes liv. De vigtige elementer for at opnå succes med de grønne byrum er regeringen planlægning, designernes arbejde samt den aktive deltagelse fra befolkningen. Gennem af analysen i de foregående kapitler, ses det at det i København er lykkedes gennem arbejdet for opførelsen af de grønne områder og beskyttelsen af byens områder, at opnå gode resultater. Førstnævnte er reflekteret i de grønne byrum der er skabt i mange forskellige skalaer i byen med mange forskellige funktioner og stilarter.

Sidstnævnte reflekteres gennem en mangfoldighed af beskyttede naturlige og semi-naturlige grønne områder, landbrugsarealer, skove, åer og søer. Fra disse to aspekter alene, er København støttet af kunstige og naturlige grønne områder både inden og uden for byen, hvor land og vand er blevet koordineret i rekreativ og økologisk beskyttelse og miljømæssige forbedringer. Disse to aspekter er bemærkelsesværdige for denne afhandling og for Kina.

I sammenligning med vestlige lande, især med Danmark, mangler de Kinesiske byer i historisk set offentlige områder, især grønne offentlige områder. Forud for Kinas indtræden i det moderne samfund, og på grund af det langvarige feudale styre, var udviklingen af Kinas byer meget langsom. Almindelige kinesere levede i overfyldte og faldefærdige traditionelle boligområder og baggårde, og kun den kongelige familie, magthavere og nogle få velhavere havde deres egne private haver, som den almindelige kineser kun kunne se på med misundelse. Dette er også hovedårsagen til at private haver var overdådige i det historiske Kina, og blev kultiveret som elegant og enestående kunst. Ifølge historiske data, var Beijing i ældre tid 32 km^2, men der var kun syv parler, der blev omdannet til kongelige haver og få andre grønne områder, med et areal på kun 733 hektar, da Den folkelige republik Kina blev grundlagt i 1949. På det tidspunkt var Guangzhou by kun omkring 32,6 hektar. I slutningen af 2004 udgjorde grønne områder 36.754 hektar af det bebyggede areal af Beijing, herunder var 8.948 hektar offentlige grønne områder hvoraf 5.900 hektar udgjorde 169 parker.

Med den dybdegående udvikling af ”opening-up” reformen, undergår Kinas socio-økonomi, kultur, livsstil og udseendet af byer og landområder til stadighed store forandringer. Disse forandringer er på den ene side reflekteret i urbaniseringsprocessen og på den anden side har urbaniseringen fremskyndet disse forandringer. Men som befolkningen i byerne stiger, og byerne udvides, med især den hastige stigning i motordrevne køretøjer, er byernes miljøproblemer blevet

mere og mere alvorlige. Dette står i stærk kontrast til målet om at skabe smukke, beboelige, dynamiske og bæredygtige byer, og offentlighedens forventninger om forbedringer i nærmiljøet og kravene om forbedret livskvalitet.

Historien for parker i Kina er relativt kort. Ikke før grundlæggelsen af Folkerepublikken Kina, og i særdeleshed ”opening-up” politikken for 30 år siden, at parkerne virkelig blev en vigtig del af folks liv. Af historiske grunde har planlægningen og opførelsen af parker i Kinas byer ikke fået så meget opmærksomhed som det burde i de forgangne årtier. Parkerne blev ikke behandlet på samme måde som anden infrastruktur, herunder transport, el-netværket og telekommunikationen, og derfor er parkernes status som grundlag for grønne byområder i høj grad deformeret i fortiden og ubetydeliggjort i nutiden. På grund af den meget vigtige og uerstattelige rolle parkerne spiller i byen, er flere og flere byer i både udviklede og udviklings lande begyndt at opfatte parkerne som en grundlæggende facilitet i nutidens verden. Parker er ikke kun en vigtig og uundværlig del af byers udformning, men også symbol og tegn på civilisation, og bliver i fremtiden en vigtig del af opførelsen af lav-karbon samfundet og bæredygtig udvikling af byer.

Når man ser på udviklingen af grønne byrum i de industrialiserede, vestlige lande, herunder Danmark, har de alle gennemgået en storskala langsigtet parkbevægelse. I det tidlige 19. århundrede, begyndende med den industrielle revolution, og drevet af international handel, har mennesket resulteret i en tilstand af miljømæssig forurening og ødelæggelse af naturen under urbaniseringsprocessen i de vestlige lande. For at forbedre folks nærmiljø og helbred, og ændre de overfyldte og beskidte byer med høj kriminalitet, opstod den første parkbevægelse i 1830’erne med Storbritannien son repræsentant for Europæiske lande, og i 1950’erne med USA som repræsentant for Nordamerika. Nu er byernes parker ikke bare blevet et sted for daglig adspredelse, men også en

vigtiginfrastruktur til forbedring af miljøet, opretholdelse af den naturlige balance og bevarelse af biodiversiteten. Selvom parkbevægelsen ikke var så energisk i Danmark som i Storbritannien og USA, blev de oprindelige problemer med mangel på grønne parker løst gennem en relativt let udviklingsproces.

Især efter indtræden i det 20. århundrede, blev Danmark fortsat ved med at øge intensiteten af planlægningen, og opførelsen af parker. Dette er blevet kombineret med slum-fornyelsesprojekter i 1960'erne og 1970'erne og byrenoveringer i 1980'erne-1990'erne, hvilket ikke kun har gjort trenden for parklayout mere fair og fornuftig, men også i høj grad har gjort befolkningens dagligdag lettere.

Siden Kinas indførelse af "opening-up" reformen, især i de sidste 10 år, er antallet af parker i Kina steget fra omkring 1000 i 1980'erne til mere end 4000 i 2002, 5832 i 2005 og 7913 i slutningen af 2006. Som følge heraf har byernes udseende også ændret sig og parkerne har spillet en positiv rolle i at imødekommet folks behov for daglige aktiviteter. På grund af historiske dybder er de nuværende parker dog generelt for få, og ekstremt ulige fordelt samt meget små af størrelse, hvilket alle sammen bør løses. I fortiden har byplanlæggere og beslutningstagere ikke været opmærksomme på opførelsen af parker og planlægningen af arealanvendelse i parker, er ikke blevet prioriteret højt nok. Nu er det tid til at ændre denne situation.

I Europa og USA er parkerne blevet udviklet på en mere ideel måde, ikke kun med hensyn til antal og størrelse, form og funktion, men også med hensyn til layout og tilgængelighed. For i eksempel i lavede man i Sveriges hovedstad, Stockholm i 1999 "Det Grønne Kort", der foreslog at der skulle være en "grøn ø" indenfor hver 200 m til leg, fitness, gang og solbadning, og en "folkepark" med et areal på 1-5 hektar til picnic og sport for hver 500 m, og en "regional bypark" med et areal på 5-50 hektar. I dag er der 1000 parker i Stockholm og et offentligt

grønt område på 68.704 hektar, der udgør 36% af byens areal og har et areal på 86 m2 per indbygger. Det er blevet foreslået i ”the Open Space Strategies” i London i 2008, at en minipark på 0,4 hektar og et lille åbent område på 2 hektar skulle opføres med en radius på 400m. Desuden skulle der indenfor denne 400 m radius være en park og et åbent område på 2 hektar. I EU foreslog EU’s miljøagentur i 1990’erne at afstanden fra boliger til et grønt område skulle være indenfor 15 minutters gang (fortolket som gåafstanden fra en ældre person svarende til 500 m). i 2002 definerede Miljørapporten (Nr. 30), en 300 m distance for offentlig adgang til åben områder. I København kan 79% af indbyggerne finde det nærmeste grønne område indenfor 300 m (66,9 % for hele Danmark).

I modsætning til disse standarder, selvom regeringen i Kina har sat en standard på 500 m radius for parkerne, kan meget få byer i realiteten opnå dette under planlægnings- og opførelsesprocessen. For eksempel er der selv i Beijing mere en 3 km til et grønt område fra flere boligområder. På trods af det faktum at det er en meget svær opgave at opbygge parker i Kina og der er er lang vej endnu, bør vi udnytte denne unikke mulighed som urbaniseringsprocessen er, for hurtigt at fremme opståen af ”parkbevægelser” tilsvarende de forskellige lokale forhold, og bygge flere parker med forskellige størrelser, funktioner og former, for at danne en god, solid basis for fremtidens byers bæredygtige udvikling og fremtidige generationers livskvalitet.

6.4.2 Bedre beskyttelse af de grønne byrum

Samtidig med der lægges store anstrengelser i at bygge forskellige typer af grønne områder, som parker, haver, rekreative grønne områder og legepladser, bør vi ihærdigt styrke forbedre beskyttelsen af forskellige naturlige og semi-naturlige områder samt skove, landbrugsjord, floder og søer i byerne, og også forbedre beskyttelsen af byens udkant og dennes eksterne miljø, for at skabe bedre, mere effektive og mere rige grønne områder.

Under accelerationen af urbaniseringsprocessen i Kina, har landressourcerne konstant været en bekymring og den flaskehals der bremser byens udvikling. Derfor er mange udvikleres og beslutningstageres opmærksomhed i høj grad rettet mod de grønne og de naturlige områder i mange byer, hvor de ønsker at opnå kommercielle fordele ved fx at bebygge de grønne områder, og naturområder der udgør samme funktion. For eksempel fyldte man i Wuhan by i de forgangne årtier naturlige søer op, for at løse problemet med mangel på byareal, hvilket reducerede antallet af søer i byen fra 127 til 38. Under denne proces har byens ledere og ejendomsmæglere opnået deres respektive fordele, mens nogle indbyggere også har draget fordel af huse bygget på disse arealer. Denne ændring af det naturlige miljø har dog fundamentalt ændret byens udseende samt det originale landskabsmønster af byens grønne rum. Som et resultat er byens miljø og mikro-klima desuden ændret radikalt. Selvom folk ikke kan vide med sikkerhed hvad de ultimative konsekvenser vil være, opleves større udbredelse af byens overophedede områder, et fald i fiskearter i søer og ødelæggelse af vandkvaliteten af indbyggere hver dag, og dermed er ødelæggelser af byens langsigtede bæredygtige udvikling allerede i gang.

Relaterede studier har vist at Wuhans temperatur de sidste 50 år er steget, både hvad angår gennemsnits-temperaturen samt højeste og laveste temperatur. Den gennemsnitlige årstemperatur er steget med 0.917°C på de 50 år, den højeste temperatur med 0.388°, og den laveste temperatur med 1.53 °C. i perioden 1991-2004 er den gennemsnitlige årstemperatur i disse 14 år 1.1°C højere end den var i de 40 år mellem 1950-1990. Siden 1998 har byen Wuhan oplevet 18 ”varme vintre”. Udover den øgede temperatur, har nedbørsmængden i Wuhan ligeledes vist en opadgående kurver, hvor antallet af oversvømmelser er steget signifikant siden 1990’erne. Selvom denne situation er opstået på baggrund af mange faktorer, er modifikationerne af Wuhans interne naturlige miljø natur en af de vigtigste

grunde til denne forandring. Selvom om den udbredte fremgangsmåde med at fylde naturlige søer i Wuhan er et ekstremt eksempel, er drastiske ændringer af byens vandveje og samtidig bebyggelse på forskellige typer grønne områder i byerne, et vidt spredt fænomen i Kina. Disse handlinger der både ødelægger byens udvendige grønne barriere og den indre bys grønne områder, er skadelig og bør bremses og vendes med det samme.

Udover at forbedre beskyttelsen af en række naturlige og semi-naturlige grønne områder på inder- og ydersiden af bygrænsen, bør man også øge indsatsten for at beskytte de eksisterende grønne områder i byerne, så det allerede meget begrænsede antal grønne byrum, især dem i det oprindelige indre byområde og gamle bydele, får den rigtige vedligeholdelse, og der opnås fordele for befolkningens daglige liv og arbejde. Det er en vigtig måde at forbedre livskvaliteten i byerne, og også på dette område kan København være brugbar inspiration. Byen oprindelige indre byparker, haver og grønne områder er beskyttes som byens historiske og kulturelle arv. Disse grønne områder kan ikke bare blive omlagt eller bebygget, og byens lokale beslutningstagere har desuden investeret betragtelige menneskelige og materielle ressourcer i at bevare dem. I modsætning har mange kinesiske byer gjort det langt farligere. For eksempel i Harbin by, var byens størrelse stadig relativt begrænset i starten af det 20. århundrede, og strukturen af de interne og eksterne grønne områder var skabt efter få runder af planlægning og opførelse. Men siden midten af det 20. århundrede, med grundlæggelsens af Folkerepublikken Kina gjorde den økonomiske og sociale udvikling op med den langvarige trend skabt af lang tids krig, og gik ind i et nyt stadie af rivende udvikling. Indtil slutningen af 1960'erne udvidedes byens område også drastisk. På grund af udviklingen i industrielt byggeri. På samme tid blev de oprindelige grønne områder og parker i byens ældre områder lidt efter lidt indtaget og ændret til kontorområder, industriområder, kommercielle områder

og boligområder. Dette resulterede i betydelige tab af forskellige typer grønne områder i den indre by, hvor befolkningen kunne have udført aktiviteter, da disse grønne områder er svære at finde.

I de seneste år har Harbin by øget intensiteten af grønne byplanlægning og opførelsen af grønne byrum. Indtil 2006 var byens grønne områder i alt på 354 hektar med en grønt byrums forhold på 25,24 %, og et totalt offentligt grøn område på 636 hektar med 7,01 m2 grønt byrum per indbygger. På grund af den høje densitet af både befolkning og bygninger i de gamle byområder, det lille antal grønne områder og høje grundpriser, er det dog umuligt at gennemføre grundlæggende forbedringer i disse områder. Derfor har mange kinesiske byer et fænomen i dag, hvor fordelingen og tilgængeligheden af grønne områder i nye bydele er relativt jævne, og fornuftige, og hvor grønne områder i gamle bydele er ikke eksisterende af historiske grunde. Denne situation bør altså ændres gennem konstante anstrengelser i fremtiden.

6.4.3 Forbedring af designet af grønne byrum.

Gennem studiet af udviklingen af grønne byrum i København o forrige sektion, kan det ses at danskerne har mange succesfulde erfaringer indenfor design af alle typer grønne byrum. Disse inkluderer en respekt for deres kulturelle traditioner, respekt for folkets behov og respekt for kunsten. De danske landskabsarkitekters bestræbelser har medført design af de forskellige typer grønne områder nævnt ovenfor i relevante sektioner, som i ”havneparken”, ”kirkegårde”, ”legepladser” samt undersøgelsen om designere. I denne sektion opridser hovedsageligt design metoder og modeller i designet af grønne områder. Dette kan opsummeres i et fem dimensionalt design mønster: Planlægnings og Design dimensionen, Matrix dimensionen, Social Funktion dimensionen, Miljø dimensionen og Vedligeholdelse og Drift dimensionen. Disse fem dimensioner indeholder hver specifikke dele (figur6-20).

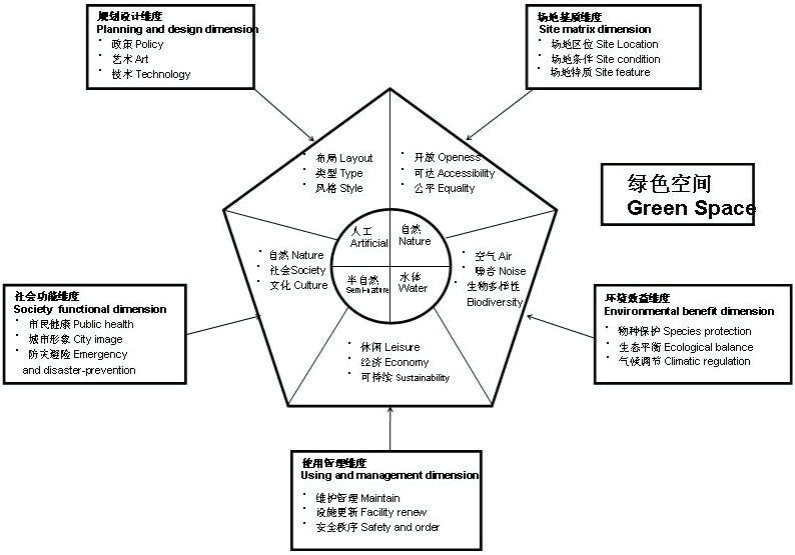


Fig. 6-20 Modellen for de fem dimensioner af design

Det skal nævnes at det fem dimensionale designmønster er summeret på baggrund af design metoder baseret på danske erfaringer. Selvfølgelig er indflydelsen fra hver af dimensionerne forskelligt alt efter typen af byrum man ser på. For et konkret projekt kunne dette være bestemt projektets funktion, folkets behov og designeres stil. Derudover bør kinesiske landskabsarkitekter kombinere de danske designmetoder med deres egen situation på grund af nationale skikke, kultur og andre aspekter. Dette gælder for eksempel park designet, hvor danskerne favoriserer den naturlige stil, mens kineserne foretrækker kunstige elementer. Danskerne fokuserer på at skabe en atmosfære i deres kirkegårdsdesign, hvor kineserne lægger mere vægt på Feng Shui og placering. Derfor er det nødvendigt at fokusere på en kombination af egne forhold og udenlandske koncepter og metoder.

6.5 Skabelsen af en ny stil landskabsarkitektur med nationale elementer

Når man ser på den historiske udvikling i landskaber i Danmark, kan man konkludere at kun når designet er baseret på en nations egen historie, kultur, havetraditioner og æstetiske opfattelse, kan udviklingen af landskabsarkitekturen opnå sin egen status og ære indenfor landskabsarkitektur verden over. Selvfølgelig opnås denne status og ære ikke natten over, men er opnået gennem danske landskabsarkitekters anstrengelser gennem flere generationer. Selvom klassiske kinesiske haver har opnået en høj anseelse som kunst i historien, har udviklingen af moderne landskabsarkitektur i Kina fulgt en snoet vej de sidste 30 år. Indenfor de sidste år er der heldigvis opstået stadig flere referencer til den neo-kinesiske landskabsarkitektur stil. Uanset om det drejer sig om design af boligområder eller parker, er mange designere bevidst begyndt at inkorporere denne stil der er forskellig fra tidligere designstile. Den ”neo-kinesiske” landskabsarkitektur har dog stadig brug for tid til at vokse, og vejen frem er ikke flad og uden forhindringer, men består nærmere i et gennembrud i sin søgen efter ny udvikling indenfor og udover nutidig kinesisk landskabsarkitektur. Den har også uden tvivl bragt nyt håb for den kinesiske landskabsindustri samt en ny udviklingsretning.

6.5.1 Fremkomsten af den neo-kinesiske stil: historisk tilfældighed og nutidig sikkerhed

De traditionelle kinesiske haver er en skat for den kinesiske kultur, og har en unik position og værdi i verdens historie. I den første halvdel af det 20.århundrede, beskæftigede færre mennesker sig med haverne, på grund af både ekstern og intern krig og heraf følgende modgang. Med grundlæggelsen af Folkerepublikken Kina, opnåede Kinas traditionelle haver genoprejsning i 1950’erne og 1960’erne, og fik desuden ny form og indhold. For at imødekomme folkets voksende materialistiske og kulturelle krav på dette tidspunkt, blev et stort antal parker med moderne udseende bygget på tværs af hele landet. Denne periode var grundlaget for den

første prototype af den moderne kinesiske have, og kan anses som begyndelsen for den neo-kinesiske havestil.

Siden ”opening-up” reformen i 1970’erne, har udseendet af by og land områder, samt folks liv, undergået enorme forandringer i Kina. I denne store omvæltningsproces, har udviklingen af kinesisk landskabs-arkitektur mødt hidtil usete muligheder. På den ene side er der sket et stort spring fremad, både hvad angår det materialistiske og tekniske niveau, det kunstneriske og uddannelsesmæssige niveau og driftsniveauet. På samme tid er der på grund af den hurtige udvikling af Kinas urbanisering og hidtil usete aktivitet i ejendomsmæglerindustrien, opstået ubegrænsede forretningsmuligheder indenfor landskabsindustrien, hvilket har resulteret i et hurtigt voksende antal af nationale og multi-nationale landskabsdesign agenturer der udfører det ene projekt efter det andet. På grund af den hurtige udvikling er der opstået mange problemer relateret til overforbrug af ressourcer, skade på miljøet og naturlig ubalance, hvilket også har givet anledning til utallige nye problemer, som den kinesiske landskabsarkitektur skal tackle. På den anden side er udviklingen af den kinesiske landskabsarkitektur som respons på mulighederne og udfordringerne i denne periode, blevet forstyrret af konkurrencen mellem forskellige interessenter og fordele. Dette ses blandt andet på planlægning og design der er stærkt inspireret af den vestlige og eksotiske stil, der gjorde at den europæiske og amerikanske stil blev udbredt over hele Kina. Selv udenlandske professionelle blev overraskede. For eksempel den Hollandske landskabsarkitekt Hank van Tilborg, der skrev ”højere, større, hurtigere for at betale prisen for ændringerne i miljøet og traditionerne” til det første nummer af Scape i 2006. Desuden skrev han ”en stor del af de Europæiske arkitekter og byplanlæggere der arbejder i Kina, blev bedt op designe i Europæisk stil og med Europæiske kunsttraditioner som de nye opførelser i tysk, engelsk og hollandsk stil”. Denne kritik og undren over dette

fænomen i den kinesiske landskabsarkitektur er ofte blevet hørt. Efter en lang periode med imitation, læring og fordøjelse, kombineret med en større opmærksomhed på kulturel tilbagekomst, er den Kinesiske landskabsarkitektur endelig på vej tilbage mod et udtryk af traditionel og lokal identitet. Derfor er den neo-kinesiske havestil ikke tilfældig; den indeholder en nedarvet logik og uundgåelighed i den historiske udvikling. Baseret på genkendelse og forståelse af landskabsarkitekturen i vestlige lande, og udryddelsen og arven fra de traditionelle kinesiske haver, samt nødvendighederne for udviklingen af det moderne kinesiske samfund, er det tænkeligt at udviklingen af den neo-kinesiske landskabsarkitektur går en klar fremtid i møde.

6.5.2 Bibetydningen af den neo-kinesiske stil: nationale karakteristika og tidssvarende elementer

Den neo-kinesiske landskabsarkitektur stil har relationer til både den traditionelle kinesiske have til den moderne landskabsarkitektur der opstået de sidste få årtier. Den traditionelle kinesiske have har skabt en glorværdig historie, og er kendt som ”et vidunder i havekunstens verden”. På trods af at denne havestil blomstrede under det feudale samfund, oplevede den et tilsvarende fald med feudalismens fald, men de kinesiske karakteristika og den kinesiske stil den skabte, er uden tvivl en værdifuld historisk arv for os. Selvom denne havekunst blev grundlagt under det feudale samfund, er det infiltreret og fyldt med bibetydninger og konnotationer fra den kinesiske kultur og kunst; den er i overensstemmelse med den æstetiske psykologi og spirituelle søgen i den kinesiske nation. Selvom tiden og samfundet har ændret sig markant, er bidraget til folk kulturelle psykologi og ønsket om et bedre liv ikke forandret. Dette er lige præcis den næring og interne basis fra den traditionelle havekunst til udviklingen af en ny kinesisk landskabsarkitektur.

Selvom der i udviklingen af kinesisk landskabsarkitektur de sidste 30 har

eksisteret utilfredsstillende aspekter som identitetstab, blindt byggeri og grådighed for store konstruktioner, er der generelt gjort store fremskridt. På den ene side har udviklingen spillet en vigtig og aktiv rolle for at ændre strukturen og layoutet af grønne byrum, for at forbedre miljøet og for at forbedre folks livskvalitet. På samme tid er vigtigheden af landskabsarkitekturen som driveren for byens grønne infrastruktur påskønnet af flere og flere mennesker. På den anden side, forsøger mange landskabsarkitekter sig med udforskning af forskellige former og bevidst eller ubevidst at kombinerer morderne landskabskoncepter og metoder med den kinesiske situation, samt med den traditionelle kinesiske havekunst, på trods af at langt det meste af denne moderne landskabsarkitektur ikke kaldes under navnet den neo-kinesiske stil. Disse udforskninger er meget værdifulde. Desuden har denne moderne landskabsarkitektur bygget på Kinesisk jord en hjulpet den kinesiske landskabsarkitekturindustri til at føle og forstå sin udvikling i udlandet, og givet mulighed for at være opmærksom på de essentielle karakteristika for moderne landskaber. Dette har resulteret i uddannelsen af professionelle på højt niveau og akkumuleringen af erfaringer, hvilket har været grundlaget for de koncepter, metoder, tekniker og personale der hører til udviklingen af den neo-kinesiske have. Det er på grund af de 30 års erfaring og lærte lektioner at muligheden for at undersøge og evaluere retningen og målene for fremtidig udvikling af den moderne kinesiske landskabsarkitektur, samt chancen for at gen-forstå og tænke på den traditionelle kinesiske have og dens værdi for den nutidige forståelse, opstod.

Baseret på denne ovennævnte forståelse, bør bibetydningen af den neo-kinesiske landskabsarkitektur både indeholde en stærk national identitet og en klar moderne karakter. Den nationale identitet er stilens sjæl og refleksion af de forskellige geografiske og kulturelle, historiske og lokale skikke, og dens adskillelse fra andre etniske grupper eller regioner i verden. Dette identitetsbidrag

er det kulturelle gen for den kinesiske civilisation, kunstgenet for den traditionelle kinesiske havekunst og det æstetiske gen for den omfattende refleksion af de kinesiske samtidige sociale værdier. Det bør understreges at vi ikke tilgår den nationale identitet af neo-kinesisk landskabsarkitektur, som retro eller brug af gamle haveformer for at dekorere nye genstande. Desuden står den moderne landskabsarkitektur i sig selv overfor problemer og udfordringer, der rækker langt ud over det traditionelle havedesigns formåen. Derfor er den nationale identitet et udtryk for ”kinesisk karakteristika”, ”kinesisk kvalitet” og ”kinesisk charme”.

De nutidige karakteristika er de basale egenskaber og manifestationer af neo-kinesisk landskabsarkitektur, da det er refleksionen af det spirituelle livssyn og det æstetiske formål, refleksionen af skabelsen af nye former for landskabsarkitektur, og refleksionen over ny teknologi og andre resultater opnået af det moderne kinesiske folk. På samme tid reflekterer det resultatet af hvordan det moderne kinesiske folk har beskæftiget sig med forholdet mellem menneske og natur, og samfund og miljø. Desuden inkluderer det og reflekterer alle de nye koncepter, teknikker, materialer og håndværk i den avancerede landskabsarkitektur, som kinesiske professionelle har lært og taget til sig fra verden, og interaktionen mellem verden og et åbent Kina.

6.5.3 Den neo-kinesiske stils vej: eksteriør integration og interiør innovation

Det bør bemærkes at på trods af den sjældne mulighed for udviklingen af neo-kinesisk stil skabt af udviklingen af det moderne Kina, tager processen for udviklingen og væksten stadig tid. Udstrækningen og hastigheden af denne proces afhænger af interaktionen mellem interne og eksterne faktorer. De interne faktorer afhænger af vores forståelse for dens natur og metoder, vores forståelse for naturlige ressourcer og miljøet, samt målene og den fremtidige menneskelige og sociale udvikling. De afhænger ligeledes af vores forståelse for os selv og vores egen kultur og vores måder at handle på. Specifikt kan udviklingsvejen for

neo-kinesiske haver opdeles i de følgende fire aspekter: Arv, Læring, Innovation og Samarbejde.

6.5.3.1 Første aspekt: Arv

Arv fra civilisationens bedrifter er hjørnestenen i udviklingen af det menneskelige samfund, og også en vigtig kilde til udvikling. Den neo-kinesiske landskabsarkitekturs arv indeholder både succesfulde bedrifter fra moderne landskabsarkitektur samt kulturel og historisk arv. Efter grundlæggelsen af Folkerepublikken Kina og gennem 30 år med ”opening-up” reformen, har kinesisk landskabsarkitektur gennemgået en relativ hurtig udvikling på forskellige områder. Især udviklingen de sidste 30 år er hidtil uset. Dette har mindsket afstanden mellem kinesisk landskabsarkitektur og resten af verden, og hjulpet Kina til i sandhed at forstå og genkende realiteterne for moderne landskabsarkitektur, givet mulighed for at lære og mestre teorierne og metoderne i moderne landskabsarkitektur, og at bruge dem i praksis, hvilket har muliggjort ændringen fra traditionel havekunst til moderne landskabsarkitektur. Med hensyn til videregivelsen af den historiske arv, bør vi insistere på princippet om at ”fortiden skal tjene nutidens innovation fra gammel til ny”, for at arve og videregive den dyrebare værdi af ”harmoni mellem menneske og natur, harmoni mellem liv og kunst, harmoni mellem at skabe scenerier og bygger haver, harmoni mellem arbejdsplads og miljø, harmoni mellem almindelige og udefinerbare metoder, samt harmoni mellem eksternt sceneri og intern kulturel betydning” i den traditionelle havekunst.

6.5.3.2 Andet aspekt: Læring

Historisk set foregik udviklingen af franske haver baseret på italienske haver, udfordringen engelske have bragte de franske haver, og måde de amerikanske haver overgik europæiske haver, alle sammen i forskellige tider med forskellig

baggrund, men en ting de har til fælles er hvordan de senere lærte af tidligere. Det danske landskab oplevede også stadier hvor det lærte og imiterede de franske og engelske haver. Som et land i udvikling, er gabet mellem Kina og vestlige lande tydeligt. Eftersom de befinder sig i forskellige udviklingsfaser, bestemmer dette at udviklingen af den neo-kinesiske stil stadig ikke kan adskilles fra læren om koncepter og teknologier. De store forskellige der eksisterer i kulturelle traditioner, værdisæt og æstetiske præferencer mellem øst og vest bør minde os om at skabe en hvis balance under læringen. På nuværende tidspunkt, hvor den vestlige stil læres og imiteres, er fokus udelukkende på imitationen af eksterne former, og i ringe grad på at udforske de tilsvarende betydninger og værdier. De eksterne former og dog en måde at udtrykke betydning og værdi. Desuden er nuværende fokus kun på at følge moden, hvorimod udforskningen af historie og kultur er sat i baggrunden. Mode er dog netop en refleksion af historie og kultur. På samme tid har bestræbelserne på succes ledt til en uhæmmet kopiering af andre stilarter. For at afslutte dette, bør vi tage valg, lave analyser og undersøgelser i fremtidens læring. Det er den eneste måde at opnå målet om at ”gøre brug af andres fordele for at mindske vores egne svagheder” og skubbe udviklingen af neo-kinesisk stil i den rigtige retning.

6.5.3.3 Tredje aspekt: Innovation

”videnskab og kunst” – kombinationen der er den nedarvede karakteristika for landskabsarkitektur fastsætter at innovation er nøglen til om den neo-kinesiske landskabsstil kan vokse og opnå vitalitet eller ej. For det videnskabelige potentiale og processen mod at opnå en bæredygtig udvikling, er måden vi forholder os til forholde mellem miljø, natur, ressourcer og land en vigtig mission og et vigtigt ansvar for både østlige og vestlige lande. Derfor er fortsat udvikling af teori, teknologi og ledelse vigtige aspekter for at overkomme disse udfordringer. Fra et kunstnerisk syn, med forbedringen af folks levestandard og spirituelle søgen og

æstetiske smag, stiger kravene til landskabsarkitekturens kunst ligeledes. For at imødekomme folks higen efter materialistiske og spirituelle aspekter, kan landskabsarkitekter kun udforske og udvikle inden for de kunstneriske former, kulturelle betydninger og funktionelle brug der findes i landskabsarkitekturen. Derfor skal innovationen både være en vej for udviklingen og en indikator for at måle niveauet af udvikling i den neo-kinesiske stil.

6.5.3.4 Fjerde aspekt: Samarbejde

Fremgangen i moderne videnskab og teknologi har gjort global udveksling og samarbejde til en vigtig drivkraft for at skubbe udviklingen fremad. I landskabsindustrien er der på den ene side økonomisk globalisering og internet informationer har ført menneskeheden ind i en helt ny æra. Med den videre udvikling af Kinas ”opening-up” reform, er Kina mere end nogensinde før sammenkoblet med resten af verden. På nuværende tidspunkt vindes mange storskala højprioritets-projekter af udenlandske firmaer, hvilket hæmmer udviklingen af lokale institutioner og virksomheder, og skaber usikkerhedsfaktorer i udviklingen af den neo-kinesiske landskabsarkitektur. Derfor er det vigtigt at styrke kommunikationen og samarbejdet mellem kinesiske og udenlandske professionelle og mellem lokale og udenlandske institutioner, for at skabe vej for den neo-kinesiske stil. Konkurrence fremmer udviklingen, men det er helt sikkert et tveægget sværd, især for lokale virksomheder og institutioner, der står i relativt ugunstig position. På den anden side er den neo-kinesiske stil, uden for landskabsindustrien, involveret i andre industrier, områder og discipliner som arkitektur, planlægning, miljø, landbrug, skovbrug, osv. Alle disse forhold og interesser skal tages hånd om og koordineres, og bør støtte hinanden ved koordineret planlægning og fælles udvikling.

6.5.4 Konklusion

Tilsynekomsten af den neo-kinesiske stil er en historisk nødvendighed for

Kinas oprejsning i det 21. århundrede. Det guider ikke bare retningen for fremtidig udvikling af kinesisk landskabsarkitektur og sætter rammerne for talentfulde landskabsarkitekter, men bliver uden tvivl også en milepæl for Kinas moderne landskabsarkitekturs udvikling. Selvom denne vej til udvikling ikke vil blive glat, indikerer det at den kinesiske landskabsarkitektur har fundet en ny koordinator. Som kommenteret af udenlandske professionelle er ”arkitekter involveret i landskabsdesign og opbygning på udkig efter nye designteknikker, der ikke bare lever fuldt ud op til kravene fra den moderne levevis og integrerer elementer af traditionel kinesisk havekunst, men også ligeligt tager højde for vigtigheden af at beskytte begrænsede naturressourcer og landskabers udseende”. Så længe der er tiltro til at den kinesiske kultur skal være baggrund med moderne havedesign som læringseksempel, med det kinesiske folks ve og vel som mål og med fortalerne for Kinas moderne landskabsudvikling som rygrad, vil vi være i stand til at komme ind på en vej mod triumf og succes. Vi ser frem til snart at se neo-kinesisk landskabsarkitektur på den internationale landskabsarkitekturscene, og vinde ny status. Dette er præcis den vej de danske landskabsarkitekter tidligere har oplevet. Den ”danske designstil” er også skabt gennem kommunikation og læring fra andre professionelle samt gennem integrationen af egne nationale kulturelementer og traditioner.

6.6 Den retningsgivende opbygning af landskabsarkitekturuddannelsen

En anden vigtigt inspiration fra opbygningen af danske grønne byrum, er den store anstrengelse der lægges i at uddanne professionelle, og på formaliseringen og standardiseringen af den professionelle uddannelse. Disse ting kan let vises ved de professionelle kvalifikationer af danske landskabsarkitekter, deres resultater og rygte. Den danske landskabsarkitekturuddannelse begyndte tidligt i forhold til andre europæiske lande, og modtog samme niveau af opmærksomhed som byplanlægning og arkitektur, hvilket resulterede i en fremragende udvikling.

Eftersom der er jævnlig kommunikation mellem industri og professionelle i Europæiske lande, er kvaliteten af professionelle uddannelser relativt høj. Da Danmark er et lille land, er skalaen af landskabsarkitektur også relativt lille, så det er let at opnå konsensus indenfor den normative professionelle uddannelse, hvilket sikrer overensstemmelse mellem uddannede professionelle med hensyn til specifikationer og standarder.

I sammenligning blev den moderne landskabsarkitekturuddannelse i Kina grundlagt sent i forhold til grundlæggelsen af Folkerepublikken Kina. Selvom det kun er et begrænset antal universiteter der grundlagde uddannelsen, og landskabsarkitekturuddannelsen led under den historiske situation og sociale forhold i en periode, dannede den stadig grobund for den moderne kinesiske landskabsarkitekturuddannelse og akkumulerede erfaring og kultiverede talent. Siden ”opening-up” reformen og sideløbende med Kinas hurtige økonomiske, sociale og kulturelle udvikling, især med den accelererede urbaniseringsproces og forbedringen i levestandard, er opmærksomheden på miljømæssige kvalitet og naturbeskyttelse i hele samfundet steget, hvilket har givet en god mulighed for udviklingen af landskabsarkitekturuddannelsen. Efter næsten 10 års opbygning og udvikling, er der på nuværende tidspunkt (2009) 184 universiteter der har en bacheloruddannelse i Landskabsarkitektur eller synonyme uddannelser som landskabsplanlægning, med mere en et par hundredetusinde studerende. Derudover har 62 universiteter (i 2006) fået tilladelse til at give en masteruddannelse i landskabsarkitektur, og antallet af studerende er mere end 10.000. resultaterne indenfor professionel uddannelse ses ikke bare i antallet af studerende, men også i bidragene til forskning og design til samfundet, og på landskabsarkitekturens omdømme i samfundet. I 2011 blev landskabsarkitekturen bekræftet som en af de 110 top discipliner og modtog den samme status som byplanlægning og arkitektur.

Det skal dog bemærkes at der er mange forskellige på uddannelsen i landskabsarkitektur på ”college” og universiteter hvad angår kvalitet, ansatte, læringsmål, pensum, læringsmetoder og bøger, hvilket har medført forskelle i niveau og kvalitet af uddannelsen fra universitet til universitet. Som resultat af den nye situation og ønsket om at opbygge et harmonisk samfund i Kina og de nye krav fra reformer for højere uddannelse, er det nødvendigt at tage ved lære af erfaringer fra Danmark og andre udviklede lande, for at standardisere den kinesiske landskabsarkitekturuddannelse, for på den ene side at skubbe dette felt mod en bedre fremtid og opfylde samfundets behov for multifacetterede professionelle, og på den anden side at nå målene om uddannelse på højt niveau af høj kvalitet.

6.6.1 Forudsætninger for uddannelsesmæssig ensretning: enstemmighed i positioneringen

Sideløbende med den hastige udvikling af landskabsarkitekturindustrien i de sidste 10 år, har folk opnået en mere dybdegående forståelse for naturen og begrænsningerne for moderne landskabsarkitektur, og en mere omfattende forståelse for betydningen og reguleringen af landskabsarkitekturuddannelsen. Samtidig er der opstået forskellige syn på hvordan man forstår landskabsarkitekturens natur, hvilket har medført en fortsat debat. På nuværende tidspunkt er langt størstedelen af professorerne på Det Kinesiske Akademi, enige om, og accepterer at disciplinen har udviklet sig fra den traditionelle have. Dette stemmer overens med den internationale forståelse for ”Landskabsarkitektur”. Der er dog nogle der mener at eftersom landskabsarkitektur har sin oprindelse i vesten, eksisterer der fundamentale forskelle i forhold til den kinesiske landskabsarkitektur, og de to hører derfor ikke under samme disciplin. Ifølge dette synspunkt er den kinesiske landskabsarkitekturuddannelse en fortsættelse af den traditionelle havekunst, hvor den uddannelsesmæssige filosofi, læringsmål,

indhold og metoder samt forskningsteorier og –områder endnu ikke er adskilt fra begrænsningerne ved traditionel landskabskunst. Eksistensen af denne påstand har skabt en del forvirring i folk opfattelse og forståelse, og har påvirket standardiseringen af landskabsarkitekturuddannelsen. På trods af en vis afstand mellem det nuværende udviklingstrin i kinesiske og vestlige landskaber, skabt af det historiske stadie af Kinas sociale, økonomiske og kulturelle udvikling, involverer Kinas akademiske felt faktisk ikke meget anderledes indhold end den internationale landskabsarkitekturuddannelse i nogen sammenhænge. Desuden skal det bemærkes at gennem anstrengelser de sidste år, lærer professionen landskabsarkitektur i Kina aktivt af udenlandske teknologier, uddannelsesfilosofier og ledelseserfaringer, hvilket gradvist mindsker gabet mellem teori og praksis under processen.

Med hensyn til forholdet mellem historiske haver og moderne landskabsarkitektur deler vestlige professorer ikke det samme syn på denne opdeling som visse kinesiske professorer, og behandler i stedet den moderne landskabsarkitektur som kulturel arv og udvikling af historiske haver ud fra en kulturel fortolkning og videregivelses synspunkt. For eksempel skriver den berømte amerikanske landskabshistoriker, Norman T. Newton i forordet til bogen ”Design on Land: Development of Landskape Architecture” at: ”Denne bog er skrevet på baggrund af en urokkelig tro på at udviklingen af landskabsarkitekturen stemmer overens med en forståelse – betragte det som en slags kunst og en slags profession – evnen til at skabe værdifuld ny viden for at hjælpe mennesker med at forstå den verden de lever i. Landskabsarkitektur, en beskæftigelse som kun er 100 år gammel, den menneskelige eksistens så gammel som kunsten. … Hvilket betydning skal landskabsarkitektur tillægges? Her vil det blive forstået som kunst – eller videnskab, der arrangerer land og rum sammen med objekter til brug for mennesker på en sikker, effektiv, sund og behagelig

måde. Set fra processen og resultaterne, uanset hvor og hvornår det var i fortiden, blev denne kunst praktiseret, denne kunst som kaldes landskabsarkitektur med nutidens terminologi".

For at opnå bedre udvikling indenfor disciplinen og den professionelle uddannelse, bør gamle og nye professorer inden for landskabsarkitekturprofessionen derfor søge et fælles grundlag for at nedbryde barrierer og fordomme. Gennem bekræftelsen af det Nationale Videnskabelige og Teknologiske Terminologi Agentur og godkendelse af den nationale uddannelse "Landskabsarkitektur" som en ensbetydende term, kan udviklingen ad landskabsarkitekturuddannelsen reguleres og tendensen til ideologisk forvirring og adskillelse undgås. Med en sådan konsensus kan der skabes et forhold mellem landskabsarkitektur og andre beslægtede discipliner. For eksempel forholdet mellem byplanlægning, arkitektur, miljøbeskyttelse, ressourcebeskyttelse, kunst design, landbrug, og skovbrug samt geografi. Gennem udveksling og samarbejde med andre discipliner, er det muligt at bidrage til hinandens arbejde uden at erstatte eller kontrollere hinanden for at opnå en samlet forbedring og fælles udvikling.

6.6.2 Grundlag for en uddannelsesmæssig ensretning: Krav til arbejdsstedet

At etablere grundlaget for ensretningen er udgangspunktet for standardiseringen af landskabsarkitektur-uddannelsen. Dette grundlag skal baseres på både objektiv professionel træning specifikke målinger for at opnå en uddannelse der stammer fra akkumuleringen af viden om landskabsarkitekturuddannelsens erfaring fra specifikke krav til den sociale udvikling. På grund af det sociale bidrag til uddannelsen, skal den aktivt imødekomme de forskellige krav for talenters udvikling, hvilket opnås gennem selv-justering. Altså skal ensretningsgrundlaget komme fra det sociale liv, der er i konstant udvikling og fra krav til talenter, som er resultatet af udviklingen.

Regelmæssigheden i uddannelse er en konklusion på det omfang de videnskabelige metoder om talentkultivering er forstået, sammenfattet fra processen med at tilpasse og opfylde disse krav. I den nuværende historiske sammenhæng, hvor reformering af højere uddannelse til stadighed uddybes og udforskes, skal landskabsarkitekturuddannelsen fuldt ud opsummere brugbare erfaringer fra fortiden og samtidig bringe et mere aktivt og bevidst fokus på ændringerne i efterspørgsel for talent kvantitet, niveau og størrelse på jobmarkedet, og baseret på dette opsætte retningslinjer og mål for den professionelle træning.

Gennem udviklingen i de sidste årtier, har Kinesiske universiteter skabt deres egne pensumsystem og karakteristika, herunder landbrug og skovbrug, konstruktion, byplanlægning, kunst og Universiteter med omfattende udbud af uddannelser, og har også skabt deres egne læringssystemer og uddannelsesmetoder indenfor deres respektive kompetenceområder. Disse systemelementer er sammenkædet med den nuværende læringsform ved højere undervisningsanstalter i Kina, og også tæt sammenbundet med behovet for talenter under den nuværende sociale udvikling. Eftersom fremtiden for udviklingen og jobmulighederne i landskabsindustrien ser ud til at være favorable, udnytter mange universiteter deres fordele og karakteristika for at grundlægge denne disciplin for at opnå uddannelsesmæssige og markedsmæssige ressourcer på området. Så efter dette spring i udvikling står alle universiteter overfor de samme problemer med udtømning af måden uddannelserne er tilrettelagt, altså hvordan man skal forholde sig til forholdet mellem ”generalister” og ”specialister”, og hvordan man håndterer forholdet mellem ”praktisk” og ”akademisk” uddannelse. Mange universiteter lægger i dag vægt på de stuerenes evner til planlægning og design, og de fleste studerende er også opsatte på at arbejde for firmaer indenfor planlægning og design området, hvilket leder til en favorisering af netop planlægning og design i uddannelsesprocessen.

På baggrund af behovet for landskabsarkitekter i samfundet, mangler arbejdsgiverne nu færdiguddannede primært til konstruktion, vedligeholdelse og ledelse, og kun sekundært til planlægning og design, undervisning og videnskabelig forskning. Ifølge undersøgelser om beskæftigelsen af bacheloruddannede i de sidste par år, er ca. 1/5 ansat i planlægning og design – relateret arbejde, 3/5 arbejdede med konstruktion, vedligeholdelse og ledelse, og 1/5 var ansat i andet arbejde. Ved at sammenholde disse tal med uddannelsernes fokus, er det ikke svært at observere, at der på den ene side er en vis afstand mellem jobmarkedets behov og de studerendes viden og akademiske evner samt universiteternes nuværende pensumsystem, og denne opdeling på arbejdsmarkedet, der reflekteres i den efterspurgte viden og evner. P den anden side er meget af den viden og teori studerende lærer fra tekstbøger ofte ikke koblet til praktisk arbejde. Derfor er ændringer af landskabsarkitekturuddannelsernes mål højst nødvendige, og det primære mål bør være at opdele de alt for generelle læringsmål i specifikke videreudviklinger, samt at skifte primært fokus fra planlægning og design til mere bredt at fokusere på planlægning, design, konstruktion og ledelse. Dette er indbygget i de normative krav, og skaber også basis for implementering af uddannelsesstandarder.

Man kan sige at denne justering er af realistisk og nødvendig karakter, fordi de professionelle områder og begrænsninger der dækkes af landskabsarkitektur i moderne tid, ikke er samstemmende med noget andet tidspunkt i historien. Grundet de omfattende arbejdsområder, kræves der praktisk viden for at have en bred forståelse og horisont, hvilket skaber mere specifikke professionelle og specialiserede krav. For at gøre dette foreslog Sven-Ingvar Anderson, en berømt dansk landskabsarkitekt at landskabsarkitekturen kunne inddeles i tre ekspertiseområder, som er landskabsplanlægning, landskabsarkitektur og havedesign. Disse områder blev defineret som: Landskabsplanlægning fokuserer på byer og regional planlægning i et makroperspektiv; Landskabsarkitektur

fokuserer på organisationen af udendørsområder og layout, primært i byer; havedesign fokuserer på specifikke detaljer af designs, så rummet opnår en poetisk effekt. Selvom denne opdeling måske ikke virker fornuftig, kan hans forslag til denne underopdeling i karriereveje have sine fordele i forhold til de stadig mere komplekse opgaver indenfor landskabsarkitektur.

Med hensyn til hvordan universiteter bør inddele antallet af undervisningstimer, og finde balancen mellem ”generalister” og ”specialister” er et dilemma. Baseret på behovene for social udvikling og studerendes interesser og potentiale, bør undervisningsprogrammet opdeles i forskellige uddannelsesretninger, som for eksempel planlægning og design, konstruktion, ledelse og plantebrug. Dette kunne være med til at imødekomme de sociale behov for forskellige grader af talent og kunne også løse problemet med modsætningen mellem ”generalister” og ”specialister”.

6.6.3 Indholdet i en uddannelsesmæssig normativitet: Mangfoldighed i enighed

Der er tre aspekter for et normativt indhold. Det første bør være de basale krav til at skabe et pensumsystem; det andet bør være at opsætte de basale behov til undervisningsindholdet; og det sidste bør være de generelle krav til resultaterne af undervisningen. Disse tre grundlæggende krav, bør anses som referencepunktet for kvalitet i landskabsarkitekturuddannelsen. De bør både fungere som minimumskravene for højere uddannelse samt for de grundlæggende krav for kvalificerede færdiguddannede. Tilrettelæggelsen af disse krav skal ske både for at tage højde for de forskellige regioner, forskellige baggrunde og forskellige forhold på universiteterne, og også for at opbygge en fælles platform for samarbejde og forbedring af interaktionen mellem forskellige universiteter. Selvfølgelig bør alle universiteter ud over dette standardgrundlag, opfordres til at udnytte deres styrker og karakteristika til at udvikle en højere standard end de grundlæggende krav, for at belyse deres tilsvarende rygte og værdi,. Hvilket kunne have indflydelse på

værdien af de studerendes personlige resultater.

Med hensyn til pensumsystemer, vil der være stor forskel på jobbene for færdiguddannede på grund af det brede felt landskabsarkitektur er involveret i. På nuværende tidspunkt benytter nogle universiteter en model hvor der først opbygges en professionel vidensplatform bestående af offentlige kurser, professionelle basiskurser, humanitære og socialvidenskabelige kurser, for derefter at begynde undervisningen i den professionelle viden og evner indenfor planter, design, planlægning, bevarelse, ledelse, miljøvidenskab, økologi og kunst. Der bør være en bedre model.

Undervisningsindholdet er kernespørgsmålet indenfor normativiteten af den professionelle uddannelse, fordi det er direkte relateret til universitetspersonalets aldersstruktur, akademiske struktur, fagstruktur og også til strukturen af undervisernes viden, forskning, professionelle etik, professionalisme og andre faktorer. På samme tid er alt dette relateret til de overordnede forhold og det overordnede niveau, læringskultur og skolekultur på universitet. Med hensyn til læringseffektivitet er det det sværeste at måle indenfor professionel uddannelsesnormativitet. Det er også den mest direkte og omfattende refleksion af standardisering af både pensumsystemet og læringsindholdet, og er relateret til lærernes metoder og erfaringer samt skolens forhold – som fx faciliteter, støtte og udveksling. Selvfølgelig er der også en direkte relation til de studerendes kvalitet, evner, anstrengelser, ambitionsniveau osv. Derfor er begge de ovennævnte aspekter nøgleparametre for standardiseringen af landskabsarkitekturuddannelsen.

Det bør nævnes at ensartetheden i det normative indhold ikke er for at skabe en professionel uddannelse der er ens på alle universiteter og dermed identiske studerende. Faktisk er dette hverken muligt eller nødvendigt. Målet med et normativt indhold er at opmuntre til udvikling af diversitet på basis af fælles krav og at opfordre til stræben efter gode resultater i mangfoldigheden af udviklingen.

Som et resultat har alle universiteter en fælles platform og kan ved at kombinere deres respektive karakteristika og fordele skabe deres egne elementer stilarter indenfor professionel uddannelse, og altså forbedre der overordnede nivau af landskabsarkitekturuddannelse.

6.6.4 Udviklingen af uddannelsesmæssig normativitet: fremgang i udforskning

Standardiseringen af landskabsarkitekturuddannelsen er en meget svær opgave, og promoveringen af dette arbejde er en proces med udforskning og udvikling. Denne promovering kan imødekommes fra følgende to aspekter: et er at opsætte en specifik handlingsplan, og en anden er at udforske og afprøve alle former for brugbare former og metoder.

For at skabe en specifik handlingsplan er tæt samarbejde mellem den nationale udviklingsafdeling, industriafdelinger, lokale uddannelsesinstitutioner, professionelle sammenslutninger, universiteter og arbejdsgivere nødvendigt. Støtte fra uddannelse og andre relaterede afdelinger, arrangement fra organisationer, samarbejde mellem universiteter og arbejdsgivere er den organisatoriske garanti for promoveringen af uddannelsesmæssig normativitet. Fordi dette arbejde involverer forskellige universiteter og lokale interessegrupper, er forskellige former for modstand uundgåelige, hvilket kan bunder i traditionelle ideer og fra nedarvede mønstre for læring og ledelse. For at skabe en fordel for den samlede landskabsarkitektur industri, og drive uddannelsen i en sund retning, bør alle interessenter dog udvide deres rammer for enstemmighed så meget som muligt, og derefter gennem ordnet planlægning, effektiv kommunikation og formulering af en handlingsorienteret plan, sikre en glat standardiseringsudvikling.

For at udforske og referere til brugbare former og metoder, bør den professionelle uddannelses komite under den Kinesiske Association for Landskabsarkitektur for det første tage ansvar og spille en rolle i at vejlede, balancere og promovere under standardiseringsprocessen. For det andet bør

universiteter spille en aktiv rolle i denne udfordring. Fordi de er hovedbestanddelen af den professionelle uddannelsesnormativitet, er de dem der hovedsageligt vil opleve fordelene. Uanset om det er et større eller mindre universitet kan de alle opnå forskellige grader af forbedringer i organisationen og metoderne indenfor uddannelsen. For det tredje bør der tales for et samarbejde og udveksling skolerne imellem (både nationale og internationale) under standardiseringsprocessen. På nuværende tidspunkt fokuserer de vestlige universiteter i høj grad på samarbejdet og udvekslingen mellem nationale og internationale universiteter. For eksempel kan udvekslingsstuderende indenfor landskabsarkitektur fra Danmark studere på andre universiteter i ind eller udland i 6 måneder eller mere. På den ene side hjælper det de studerende med at udvide deres horisont og akkumulere erfaring, på den anden side er det også til gavn for universiteterne med hensyn til erfaringsudveksling og præstationer indenfor skoleledelse.

På nuværende tidspunkt er der en objektiv, tydelig forskel mellem de forskellige kinesiske universiteters landskabsarkitekturuddannelse. Universiteter der har fordele bør hjælpe dem med færre fordele, samt der bør opfordres til at kendte og dygtige forelæsere arbejder deltid eller forelæser på andre universiteter. Faktisk har mange danske landskabsarkitekter erfaring med deltidsundervisning på universiteter. Dette spiller en afgørende rolle for at højne uddannelsesniveauet.

6.6.5 Konklusion

Normativiteten i landskabsarkitekturuddannelsen er ikke bare en refleksion af uddannelsens elementer, status og værdi, men også en refleksion af dens professionelle elementer og interne nødvendigheder. Formålet med at udføre dette uddannelsesmæssige normative arbejde er at det kan guide retningen for uddannelsens opbygning og skabe et solidt fundament for udviklingen af talenter of professionelle af høj kvalitet. På nuværende tidspunkt er

landskabsarkitekturuddannelsen i Kina midt i en god udviklingsperiode, og vi bør udnytte denne mulighed fuldt ud for at forbedre uddannelsens kvalitet of niveau gennem standardiseret professionel uddannelse for at uddanne mange kvalif icerede professionelle der i fremtiden kan videreudvikle disciplinen i Kina.

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