

Challenges of Agro-Food Standards Conformity Lessons from East Africa and Policy Implications

Bolwig, Simon; Riisgaard, Lone; Gibbon, Peter ; Ponte, Stefano

Document Version

Accepted author manuscript

Published in:

European Journal of Development Research

Publication date:

2013

License

Unspecified

Citation for published version (APA):

Bolwig, S., Riisgaard, L., Gibbon, P., & Ponte, S. (2013). Challenges of Agro-Food Standards Conformity: Lessons from East Africa and Policy Implications. *European Journal of Development Research*, 25(3), 408–427.

[Link to publication in CBS Research Portal](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

If you believe that this document breaches copyright please contact us (research.lib@cbs.dk) providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 21. Jun. 2024



Challenges of Agro-Food Standards Conformity: Lessons from East Africa and Policy Implications

Simon Bolwig, Lone Riisgaard, Peter Gibbon, and Stefano Ponte

Journal article (Post print version)

This is a post-peer-review, pre-copyedit version of an article published in *European Journal of Development Research*.

The definitive publisher-authenticated version of "Challenges of Agro-Food Standards Conformity: Lessons from East Africa and Policy Implications" / Bolwig, Simon; Riisgaard, Lone; Gibbon, Peter; Ponte, Stefano. In: *European Journal of Development Research*, Vol. 25, No. 3, 07.2013, p. 408-427 is available online at: <http://dx.doi.org/10.1057/ejdr.2013.8>

Uploaded to [Research@CBS](#): May 2017

Challenges of Agro-Food Standards Conformity: Lessons from East Africa and Policy Implications

Simon Bolwig^{a,*}, Lone Riisgaard^b, Peter Gibbon^c and Stefano Ponte^d

^aTechnical University of Denmark, Roskilde, Denmark. ^bRoskilde University, Roskilde, Denmark. ^cDanish Institute for International Studies, Copenhagen, Denmark. ^dCopenhagen Business School, Frederiksberg, Denmark. *E-mail: sibo@dtu.dk

Donor interventions on agro-food standards: Policy lessons from recent research

Introduction

Agro-food standards are proliferating in number and in objectives, and increasingly demand demonstration of conformity through implementation of complex systems of management controls. These trends have led to concerns amongst academics and development agencies that low income country (LIC) operators, particularly small-scale producers, will become excluded from remunerative value chains and developed country markets. In response to these concerns, development assistance has been targeted at a range of standards-related objectives. In the wake of these interventions a critical literature has emerged that debates, and in some cases challenges, their effectiveness and efficiency. However, this literature is quite recent and its evidence base thin.

This paper considers the results of a recently completed research programme (Standards and Agro-Food Exports – SAFE), supported by Danida, on challenges of standards conformity in East Africa. These results provide lessons that can be used to enhance the impact of donor interventions aimed respectively at upgrading LIC national food safety conformity systems, improving the conditions of wage workers on large farms, and supporting smallholder certification. The next section briefly discusses some key trends in the area of standards and global agro-food trade. The following sections highlight the main issues arising from the academic literature on agro-food standards, the main features of standards-related interventions since the 1980s, and the literature engaging critically with such interventions. A short conclusion is preceded by a summary of the policy-relevant results of the SAFE programme, focussing on: export and national food safety systems; improving the conditions of wage workers; and participation of smallholders in standards-heavy value chains.

Standards and global agro-food trade

A growing proportion of global agro-food trade is currently managed through use of standards. This is the result of increasing developed country consumer concern with food safety and ‘sustainability’ (economic, environmental and social); the leading role assumed by large supermarkets and processors in agro-food global value chains; and massive investments by these retailers and processors in brand development and protection. Correspondingly, the growth in the role of

standards in agro-food trade management mainly reflects an increase in numbers of *private* standards and in the scale on which they are applied.

Many of the new generation of private standards pose greater conformity challenges than did earlier generations of public standards. This reflects their common requirements that operators establish and document not only specific product attributes but also detailed management controls. Furthermore, such controls now tend to cover the entire production and distribution chain rather than only one of its stages. New private standards are also characterized by ‘horizontal’ extension of compliance requirements across combinations of issues such as contamination by chemical residues *and* other types of toxin or – more challengingly – contamination, biodiversity and labour conditions.

The trend toward horizontal extension reflects strategic responses by standard setters to proliferation of standards and the consequent competition between standards for end-users (food processors and retailers). Standards with wider coverage give their setters potential access to a broader base of end-users. This dynamic also means that agro-food standards harmonization has little traction (Fulponi, 2007). Thus LIC operators are confronted by more standards, by standards demanding more capacities from them, and by standards requiring actions across a wider range of activities.

A striking recent development in the area has been the rise of ‘multi-stakeholder’ standards.¹ These differ from earlier generations of standards by focussing on sustainability issues. They also differ in governance, aiming to bring together end-users and NGOs – although excluding governments.² In the name of accountability and transparency, most of these standards now attempt to include LIC-based NGOs in standard setting and are moving towards setting standards in terms of a series of principles rather than detailed rules. However, requirements for management controls and documentation have become more rather than less entrenched, statements of principles tend to be elaborated into detailed guidelines, and almost all such standards refer to multiple (economic, environmental *and* social) rather than single dimensions of sustainability.

The academic literature on agro-food standards

The main line of division in academic discussion of agro-food standards concerns whether they should be interpreted mainly as technical barriers to trade (e.g., Wilson and Otsuki, 2003) or as opportunities for producers to access higher market segments than otherwise would be the case (e.g., Jaffee, 2003). Wilson and Otsuki (2003) argue that certain public sanitary and phytosanitary (SPS) standards provide negligible additional protection to consumer health while disqualifying potentially huge volumes of developing country exports. Jaffee (2003) and Jaffee and Henson (2004) argue that meeting standards provides developing country suppliers improved security of demand as well as higher prices than would be available in local or regional markets.

Later discussion has provided qualified support to both these arguments, rather than decisively affirmed or negated one or the other. Jaffee and Henson (2004) and Ponte (2007) show that

¹ Such standards now seek to regulate trade in bio-fuels, forestry products, fish products, aquarium fish, horticultural products, coffee, cocoa, tea, palm oil, soy, sugarcane and cotton. For some crops (e.g., coffee) there are competing multi-stakeholder initiatives.

² With the partial exception of OECD country development agencies (see below).

standards are often applied with unexpected flexibility in LICs. Yet, leeway around requirements is only negotiable to a limited degree and may be declining, as standard setters are challenged by renewed food safety scares and accusations of lax certification.³ The consistency with which certification is associated with real price and contract security benefits has also been disputed (Daviron and Ponte, 2005). The large premiums that certified organic and Fairtrade exports commanded during the 1990s have been eroded despite market growth. Currently, for many traditional tropical export crops, certified LIC production capacity exceeds developed country demand, forcing certified product to be sold on conventional markets.

In relation to standards-related market access issues, the literature has perhaps focused most on access for small-scale or artisanal producers. Proliferation of standards and escalation in their content is said to confer greater advantage to economies of scale and scope, intensifying access problems for small-scale producers – particularly those with low resource endowments (Unnevehr and Jensen, 1999; Antle, 1999; Buzby, 2003). The literature further argues that, as value chains become heavy with standards, they become shorter (as layers of suppliers are dropped) and leaner (as leading producers become vertically integrated). However, it is normally also acknowledged that these trends are not exclusive to ‘standards-heavy’ value chains. Most chains led by retailers or processors today express ‘demands for suppliers at each link to have a wider range of capacities and perform them more efficiently’ (Reardon and Huang, 2008). Thus, supplier shake out is found also in relatively standards-light chains, such as those driven by discount retailers.

In contrast with this literature, Gibbon and Ponte (2005) argue that a distinctive effect of standards, particularly those demanding demonstration of product traceability, is differentiation of new standards-specific value chains, rather than rationalization along the lines described. In some of the resulting chains in LICs (e.g., Fairtrade, organic) supply comes predominantly from smallholders, although vertical integration may be experienced in other links in these chain – notably that of crop procurement. If ‘exclusion’ is taken to refer to complete loss of export market access for a given product, then it is only in the case of standards-heavy fresh produce chains that there is evidence of generalized LIC smallholder exclusion from developed country markets. This evidence is extensive, spanning Cote d’Ivoire (Minot and Ngiigi, 2004), Ghana (Danielou and Ravry, 2005; Fold and Gough, 2008; Vagneron et al., 2009), Kenya (e.g., Graffham, Karehu and MacGregor, 2008), Senegal (Maertens et al., 2007, 2008) and Zambia (Graffham and MacGregor, 2008).

A final topic in the literature concerns the welfare (particularly income) impacts of inclusion and exclusion in standards-heavy chains. Efforts to quantify these are so far limited. Only a handful of studies specifying credible counterfactuals exist in relation to private sustainability standards for tropical crops or fish (for an overview see Blackman and Rivera, 2010). These are divided almost equally between ones showing smallholder certification to generate improvements in farmer revenue and income security, and ones showing no observable economic effects.⁴

³ See *Financial Times* [London] 8 September 2006 on Fairtrade coffee and *Financial Times* [Deutschland] 22 January 2010 on organic cotton. In relation to GlobalGAP, Ouma (2010) notes the planned introduction of a requirement for GPS-based field level traceability, presumably to provide an additional level of security for product integrity.

⁴ According to Blackman and Rivera (2010) the equally small number of well-designed studies of environmental outcomes lean in the direction of showing no observable effects from certification.

Quantitative studies of welfare outcomes in cases where LIC smallholder inclusion in fresh product chains has been retained (usually with donor support) supply equally mixed results (McCulloch and Ota, 2002; Gogoe, 2002; Graffham and MacGregor, 2008; Graffham et al., 2008; Asfaw et al., 2008; and Mwangi 2008). Together with evidence of exclusion, this has stimulated other studies comparing household incomes from smallholder fresh produce export production with household incomes from farm *employment*. Hence the studies by McCulloch and Ota (2002) from Kenya and Maertens et al. (2007; 2008) from Senegal all indicate that, while smallholder household incomes are considerably higher than farm workers' household incomes, households with wage workers on large fresh produce farms have incomes double those of households dependent on other forms of employment. A similar result is reported for another Senegal case in Maertens et al (2008).

The literature on welfare impacts of labour provisions within standards embracing social sustainability is particularly sparse, with only two comprehensive studies available (Barrientos and Smith, 2007; Nelson et al., 2007). Both cover several standards across various sectors and thus do not permit conclusions about the effectiveness of specific standards or about trends in particular sectors. Both report improvements in labour conditions in farms/companies that had adopted standards. But, except in relation to health and safety, only permanent or regular workers were able to access many of the benefits. In both studies only very weak impacts from compliance were found in regard to labour *rights* such as freedom to join unions or negotiate collective bargaining agreements, although these rights were mostly referenced by the standards concerned. The studies furthermore showed deficiencies in how these rights, termed 'enabling' in this literature, were monitored.

Donor activity on standards

Donor activity on standards, standardization and developing countries has gone through three main phases. The first of these dates from the early days of development assistance until around 1995-2000; the second dates from the late 1990s until around 2005; the third starts around 2005 and still continues.

In the first period, several donors provided developing countries with a combination of technical assistance and hardware to upgrade public systems for standards conformity and conformity assessment. Among the main targets were national laboratories dealing with food safety issues. Support to national bureaus of standards was also undertaken, although in the former British colonies this dates back to the late 1970s. Much such assistance was directed through multilateral agencies such as the World Bank and UNIDO, but some donors (e.g. Sida in Tanzania) supplied it bilaterally. From the mid-1990s part of it was aimed at supporting developing country participation in international standard-setting organizations such as Codex Alimentarius. Also during the 1990s, as the EU harmonized and enforced SPS rules for fisheries and meat imports, a few developing countries benefited from programmes designed to update the conformity capacity of national institutions and private operators.

Another target of assistance prior to 1995 was individual private operators, usually in the context of formal business partnerships with companies from donor countries, in order to achieve corporate certification to relevant international private standards. Many bilateral donors started such 'Business

to Business' (B2B) programmes in the 1980s and early 1990s, under which funding for certification was permitted following the implementation of EU organic regulations.

In the second period, from around 1995, the standards-related development assistance architecture changed in two main ways. Firstly, support to public conformity systems was subsumed within a wider framework of support to so-called 'enabling (business) environments'. Secondly, a new modality of direct support to the private sector was established, aimed mainly at EU or US corporations of a larger scale than those typically attracted to B2B programmes. This modality, pioneered by GTZ and by Dutch development agencies was termed 'Public-Private Partnerships' (PPPs) and involved companies such as Kraft Foods, Jakobs Coffee, Ritter, Ahold Coffee, Proctor & Gamble and Douwe Egberts supplementing or taking over former public extension and quality control functions for designated coffee or cocoa producing zones in Vietnam, Uganda as well as several countries in Latin America. The objectives were to institutionalize and implement improved quality standards, as well as to provide independent assurance of labour conditions and environmental sustainability (GTZ, 2003a, 2003b; Ackermann, 2001). PPPs did not replace B2B programmes, which indeed increased in number in this period. A dedicated programme supporting organic certification of African exporters emerged from a Swedish B2B programme at the end of the 1990s – the EPOPA programme in East Africa, which was to run to 2008. The EU Pesticides Initiative Programme, initiated in 2001, similarly provided support to ACP exporters to achieve conformity to EU maximum residue level (and later, traceability and GlobalGAP) requirements.

In the third period, from 2005 onwards, a re-conceptualization of support to the agricultural sector took place – in the form of the 'linking farmers to markets' paradigm (Henson et al, 2008). This mostly entails support to providing so-called missing market linkages, but also encompasses 'value chain'-focused projects subsuming certification to international public and private standards. By 2010 there were a large number of 'linking farmers to markets' programmes⁵ and – alongside this - an increasing number of specialist implementing agencies delivering such programmes, such as Technoserve and Fintrac.

A second post-2005 trend has been for former PPP programmes to be recast in terms of 'developing and scaling-up (private sustainability) standards' (GTZ, 2009). The first instance of this involved extension of a GTZ PPP project to include writing the 'Common Code of the Coffee Community' (4Cs) standard. Subsequently, GTZ and more recently SECO and IFC have been involved as 'stakeholders' as well as de facto secretariats in several international multi-stakeholder standards. GTZ (2009) in particular now profiles its expertise on voluntary international standard setting, benchmarking, and testing. Other donors, including DFID, have supported writing of new voluntary standards by developing countries stakeholders. According to Henson et al. (2008) this shift corresponds to claims by donors that they can play an 'honest broker' role in otherwise unregulated international commodity trade.

Meanwhile each of the standards-related aid modalities of the two previous periods also continue, sometimes with new emphases (e.g. inclusion of LIC private conformity assessment bodies in

⁵ Programmes of this kind are supported by: the World Bank, IFAD and Andean Development Corporation among development banks; the Common Fund for Commodities and UNIDO among inter-governmental organizations; USAID, DFID, Danida, JICA, EVD and AUS-Aid among bilateral donors; and Solidaridad, Cordaid, Gatsby Trust and Shell Foundation among international NGOs.

‘enabling environment’ support) but for the most part simply with further programmes and projects.⁶ Thus the coverage of different standards-related donor programmes has expanded greatly, both in terms of numbers of agencies, the range of issues addressed, and the numbers of developing countries covered. Some large joint programmes have emerged, such as the FAO-OIE-WHO-World Bank ‘Standards and Trade Facility’, as have fora dedicated to identification and dissemination of ‘best practice’ between donors, standard setters and implementing agencies - such as the Trade Standards Practitioners Network.⁷ These developments reflect convictions that standards are here to stay, and that they should be mainly construed as opportunities rather than barriers. Furthermore, these opportunities are not confined to ongoing or enhanced market access, but also encompass improvements in environmental and social conditions.

Critical discussion of donor interventions

A literature discussing donor policies and programmes on standards has emerged in the wake of these changes. Like that discussing economic impacts of certification, it is limited in extent. No up-to-date critical overview has been published and for most assistance modalities there are only one or two contributions.

A first modality for standards-related assistance discussed in the literature refers to *support to public authorities*. Writing in 2005, Jensen (2005) identified support to upgrading food safety compliance arrangements for exports as probably the most successful area of donor activity in relation to standards at this time. Success in this area can be readily measured by reference to the EU’s recognition of such systems even for the artisanally sourced fisheries of Senegal and Lake Victoria. Yet, success has been harder to obtain in relation to national systems assuring safety of meat exports from Africa into the EU (Hoffman, 2007). Also, Van der Meer (2007) shows that national systems for assuring export food safety are rarely integrated with systems covering the domestic market and with public laboratories and national standards apparatuses. Although national conformity assessment capacity is widely present, it is frequently underutilized while national standards institutions are usually ineffective in promoting conformity with international standards. Nor is there evidence of local spillover effects from developing country participation in international standard setting.

Van der Meer (ibid.) attributes these problems to failures by development assistance to address problems of national direction, coordination and accountability – resulting in a persistence of overlapping responsibilities and competition between agencies and ministries. Donors continue to respond to uncoordinated shopping lists for training and laboratory equipment, from institutions possessing neither surveillance or other work programmes nor operational budgets to support them. Investments thus have low impact, while the private sector meanwhile makes its own arrangements, either along their own value chains by using foreign buyers as information and testing sources, or by reducing ambitions and exporting only to standards-light markets. Van der Meer (2007) concludes that donor support in the area should be coordinated around national governments’ long-term

⁶ For example, Belgium alone has two current programmes supporting developing country exporter or producer organization (PO) certification to sustainability standards: the public BTC Producer Support Programme and the private Efico Foundation programme.

⁷ See www.tradestandards.org

strategic planning of (export and domestic) food safety systems. In the planning process donors' role should be limited to verification of plans' feasibility, and in the absence of domestically generated plans there should be no support.

A second standards-related assistance modality discussed in the literature is interventions falling under the *'linking farmers to markets'* paradigm, or relating to it by providing dedicated support to certification to private voluntary standards. Critical discussion in this area also converges on the conclusion that impacts are limited or patchy. Programmes and projects generally work through existing or prospective exporters, mostly private companies but sometimes POs. Indeed, in some cases POs have been *created* through such interventions. Besides certification, projects normally finance training considered relevant to certification (e.g., in the case of GlobalGAP, on safe chemical handling and integrated pest management). But because of ignorance of how value chains work (unlike in the GTZ PPP programmes of the 1990s) buyers to whom beneficiaries can sell their produce have been involved only exceptionally (Humphrey, 2006, 2008). This gives rise to a series of problems, of which the most frequently mentioned is half-hearted exporter participation.

Agro-Eco and Grolink (2008) cite projects' lack of focus on importers as a cause of exporter beneficiaries' very uneven implementation of agreed commitments, particularly ones entailing investment in infrastructure or human resources. Similarly, Rios et al. (2009) observe that exporters implemented on average only half the mandated actions identified in 'gap' exercises under the EU PIP programme in Uganda. In relation to interventions mainly targeting POs, these problems were replicated at a different level, since here lack of involvement of *exporters* is common (Ouma, 2008).

Other problems arise from low entry barriers to exporter selection and from a predominant focus upon certification as such – rather than on securing that beneficiary operators institutionalize the processes and procedures upon which exporting (certified) products depends. Rios et al. (2009) observe that selection for support both of POs and private exporters is frequently driven by supply of funds rather than demand from operators. Beneficiaries' technical and managerial capacity, or even experience with the markets or crops targeted, is often too limited for them to benefit from assistance. The supply-driven nature of many programmes is underlined in Henson et al.'s (2008) analysis of responses to a 'practitioners survey' on donor programmes of this kind. This suggests that the impact indicators most frequently used by donors and implementing agencies relate to numbers of producers certified rather than measures of change in long-term supply capacity or in participants' welfare status (see also Humphrey and Navos-Alemán 2010).

Such problems appear to be particularly acute where support has been directed to certification to more demanding standards. Humphrey (2006; 2008: 48) highlights how donor programmes supporting certification of Kenyan smallholders to GlobalGAP Option II⁸ -- in their haste to enroll exporters and POs – overlooked the sustainability of recurrent costs of conformity and the capacity of smallholders to independently run the required quality management system. In particular, few Option II POs set up through these initiatives proved capable of providing adequate internal supervision of farm activities or guaranteeing product integrity.

⁸ Option II allows group certification of smallholder POs (see next section), whereas Option I is for large farms.

Humphrey (2006; 2008) and Rios et al. (2009) conclude that it is futile to support smallholder enrolment in schemes for certification to more demanding standards – certainly in the horticulture sector in relation to GlobalGAP. Calls to link farmers to markets in this context take inadequately into account the multiple nature of the challenges involved. Smallholders, according to this argument, should instead be encouraged to focus on markets that they already supply, that is, local and regional ones. Humphrey (2006) proposes that donor efforts in relation to more demanding standards in the horticulture sector should be concentrated instead on using standards to improve the conditions of wage workers. In relation to this, Barrientos and Smith (2007) suggest that a focus on ‘enabling’ *rights*, rather than working conditions, would lead to greater improvement for all groups of employees. Simultaneously, they argue that the effectiveness of the implementation of labour conditions clauses would be greatly enhanced by a more ‘participatory’ form of auditing. This is defined in terms of greater involvement of unions and NGOs in auditing, use of a wider range of auditing techniques and measures to ensure coverage during audits of all groups of workers (Barrientos and Smith, 2007). In the last few years, these arguments have been taken up also by stakeholders within some standard setting bodies, with the result that certain standards in the fresh produce sector now incorporate reference to labour or ‘enabling’ rights.

Policy-relevant research in the SAFE programme

The SAFE research and capacity building programme was undertaken jointly by the Danish Institute for International Studies and Sokoine University of Agriculture (Tanzania) between 2005 and 2009. Under the programme, three main groups of standards were studied: EU food safety regulation; ‘sustainable’ standards for agricultural production (organic, GlobalGAP, UTZ Certified); and labour standards. Food safety standards were studied in relation to Lake Victoria fish products; sustainability standards in relation to horticultural products, traditional tropical crops and spices in Tanzania and Uganda; and labour standards in the cut flower industries of Tanzania and Kenya (see details in Gibbon, Ponte and Lazaro, 2010).

Export and national food safety systems

The export fish food safety system currently in place in the three riparian countries of Lake Victoria (Tanzania, Uganda and Kenya) is the result of adjustments made in the late 1990s and early 2000s in response to successive import bans placed by the EU between 1997 and 2000 on the basis of food safety concerns. More recently, the system has evolved to include assurance of other quality attributes (Henson and Mitullah, 2004; Ponte, 2007; Ponte et al., 2010). As a result of the bans, several plants closed down completely, and the rest worked at much lower capacity. At the same time, the bans and feedback provided by EU missions led to streamlining of the regulatory and inspection systems with authority centralised in national Fisheries Departments rather than spread between ministries and different levels of government. There followed a revision of food safety procedures and guidelines and of monitoring and inspection systems, and upgrading of several landing sites. An internationally accredited private laboratory was established in Uganda that now serves the needs of the industry and the competent authority. Support for these adjustments was obtained from the EU, JICA, FAO/COMESA, UNIDO and ADB, among others. But what really distinguished the process was the close collaboration between government Fisheries Departments and the industry, especially in Uganda and Tanzania, and gradual regional harmonization of

regulations and procedures within the framework of the Lake Victoria Fisheries Organization (LVFO). As a result, EU market access for artisanally caught Lake Victoria fish has continued uninterrupted since 2000.

Public-private collaboration arose in a context where the crisis of market access (and related losses) was of such proportions that it left no alternative to industry and government. At least in Uganda, public-private cooperation was facilitated by the fact that the Fishery Commissioner was a technically competent person that had built good relations with the industry association. The level of regional harmonization achieved within LVFO, given the slow pace of change in other areas of East African Community cooperation, can be linked to a combination of massive donor support (although by itself not a sufficient condition) and specific targeting harmonization endeavours on standard operating procedures. Later this was sustained through LVFO coordinating a regional response to the reputational threat posed by the 2004 documentary *Darwin's Nightmare*, which made serious allegations against the Tanzanian Nile perch industry (cf. Molony et al. 2007). Also, some copycat dynamics occurred, whereby 'best practices' developed by the Ugandan industry in a voluntary system monitoring minimum size of fish bought at landing sites were later adopted regionally (Ponte et al. 2010). The system depends on enforcement support from relevant competent authorities.

This experience shows that LICs can maintain public compliance with export food safety standards in ways that do not affect participation by small-scale operators. However, the main preconditions for this in East Africa were a lengthy crisis and a unique combination of private, public and donor reactions to it. The national food safety and conformity assessment systems of the riparian states did not contribute to resolving the crisis – rather they were by-passed in this process. Nor do there appear to have been subsequent spillover or learning effects in wider national systems from how the crisis was resolved. Indeed, a Tanzanian case study (Akyoo and Lazaro, 2010) depicts a wider public food safety conformity system closely mirroring Van der Meer's (2007) account of lack of coordination and unnecessary duplication (see above). Five public food safety laboratories falling under four different ministries and an independent agency have used support from WHO, the Global Fund, the Clinton 4x4 initiative, UNICEF and the IAEA to duplicate the most expensive categories of testing equipment, all of which remain underutilised as a result of absence of surveillance programmes, failure to install complementary software, problems in sourcing reference materials and lack of international accreditation for relevant tests. Furthermore, the Tanzania National Bureau of Standards seeks to involve itself extensively in the export sector with little or no consultation of exporters. Indeed, involvement of the private sector is minimal at all levels and there is no national policy or coordinated plan for the development of the system.

Against this background, Van der Meer's (2007) recommendations deserve revisiting. The proposal for moratoria on donor support when public coordination is absent should arguably be supplemented by insistence that this coordination involve the private sector. Furthermore it should be complemented by radically improved donor coordination. In addition, donors should actively consider the option that, if comprehensive public coordination is not forthcoming, then *sectoral* public-private solutions similar to those for export fisheries should be encouraged instead. As the export fishery example shows, these should be seen as means of reducing the fragmentation of public authority and provision, rather than as exacerbating it. Experience moreover shows that it may

be easier to mobilise effective private participation in sectoral coordination arrangements than in national ones, where questions of who has the authority to represent whom tend to block progress.⁹

Improving the conditions of wage workers

Research conducted in Tanzania and Kenya investigated those (mainly) multi-stakeholder standards placing greater emphasis on ‘enabling’ rights in the cut flower industry. The focus was on if, and how, local labour organizations (trade unions and labour NGOs) had been able to use such standards to pursue their own objectives – and implicitly those of the workers they represent (Riisgaard, 2009).¹⁰ While the aggregate market share of this group of standards is only between 5-10 per cent of European consumption, it has been rising quite rapidly.¹¹ In 2006, about one in eight of Kenya’s 150 flower farms and three out of ten of Tanzania’s were certified to one or more of these standards. As larger farms are more likely to be certified, this corresponds to much larger shares of total exports.

Several difficulties have been experienced in implementing these standards. Farm-level implementation is often sub-optimal even where exporters sign up to them. In some countries, national labour organizations are uninterested in engaging with them, as they consider them ‘Northern driven’. In Kenya, exporters have largely resisted participatory monitoring and trade unions have perceived standards as a threat to their position. Thus, where adoption has occurred, little union involvement and no significant increase in unionization have occurred, and relations between unions and national NGOs promoting labour rights even worsened (Riisgaard 2009; 2010)

In other circumstances where national trade unions have engaged with standard initiatives, implementation has enhanced union organization and facilitated adoption of farm-level collective bargaining agreements. In Tanzania, this occurred through constructive interaction between the Plantation and Agricultural Workers Union of Tanzania (TPAWU) and the FLP standard, whereby FLP required union assurance that freedom of association and collective bargaining rights were in place before certifying farms. Ensuing activity resulted in collective bargaining agreements on the two largest farms. This facilitated access by TPAWU to the rest of the sector. By 2006, six of the then ten farms had become unionized. Delegation of decision-making over certification to the union modified power relations between management and union at farm level and established a negotiating space that the union could exploit.

In Tanzania, unionization and the establishment of collective bargaining agreements accelerated since 2006 through a project (also operating in Uganda and Ethiopia) jointly conducted by TPAWU and the UK-based NGO ‘Women Working Worldwide’. This involved analyzing working conditions, training workers and management and intensifying organizing efforts. By the end of 2009, union branches and women’s committees had been established and collective bargaining agreements reached on 16 out of Tanzania’s now 18 flower farms. Impacts of organization and

⁹ For other examples of successful public-private coordination in export sectors in Sub-Saharan Africa see Poulton et al (2004).

¹⁰ The main standards concerned are MPS-SQ (Milieu Project Sierteelt- Socially Qualified), FLP (German Flower Label), FFP (Fair Flowers and Plants), FLO (Fairtrade), and HEBI (Horticultural Ethical Business Initiative, Kenya). HEBI was supported by DFID.

¹¹ The aggregate EU market share for product certified to all standards in the sector is between 50-75 percent.

recognition at farm level remain undocumented, both in relation to working conditions and wages and to the extent that casual and temporary workers share any improvements attained by permanent workers. Experiences of independent trade unions bargaining with private employers are limited in the East African context, where labour has traditionally focused on national agreements in the public sector. Since a majority of farms remain uncertified to standards promoting enabling rights, there is certainly room for interventions supporting compliance with them. These are likely to be more effective where direct support to work by independent labour organizations is included.

Participation of smallholders in standards-heavy value chains

Nine studies under the SAFE programme compared returns to small-scale farmers or fishers from participation in standards-heavy international markets with those deriving from production for 'conventional' (international, regional or local) markets. All these studies used control groups while five controlled for selection into 'treatment' and control groups on the basis of Heckman models or variants of them. Two of the studies using Heckman models involved re-surveys of the same populations at a three-year interval (2005/6-08/9).

The standards covered were EU organic (for pineapple, Arabica coffee, cocoa and spices), UTZ certified (for Robusta coffee), GlobalGAP (for fresh produce) and EU food safety standards (for fish, see above). In all cases involving formal certification of producers (i.e., all but fish), this was on a 'group certification' basis and enjoyed donor support. Organic certification alone in East Africa was supported over seven years by a Sida programme worth over \$16 million. Normally, group certification is used in contract farming schemes linking certified farmers to an exporter.

Regarding returns from compliance with EU organic standards, only in the case of pineapple was it possible to compare prices and incomes in certified organic and local and regional markets. In this case the crop variety cultivated in an organic contract farming scheme was actually more suited to local and regional markets than to export ones, by virtue of its large average size. Thus, only a minority of pineapple produced by contract farmers conformed to export market requirements and consequently scheme members sold only 24 percent of production to the scheme. Because a premium was paid only for this share of production, the overall average unit price received by scheme members was only slightly higher than for conventional producers. Scheme members nonetheless earned significantly higher net incomes from pineapple than the control group (\$1940 per annum as against \$801). Controlling for other factors, the treatment effect of scheme membership contributed only a third of this difference (Gibbon et al., 2010).

There were significant income benefits for smallholders participating in three other organic contract farming schemes studied. Members of two organic Arabica coffee and one cocoa scheme in Uganda earned net incomes from the certified crop that ranged between 75 and 100 percent higher than control groups producing for the conventional export markets, controlling for selection (Bolwig et al., 2009; Gibbon et al, 2010; Jones and Gibbon, submitted). But, notwithstanding the scale of these effects, the cash value of these increments was no more than \$100-\$400 per household, depending on the scheme. Thus, while participation in successful organic schemes increased income, it did not on its own lift households out of poverty (Gibbon et al, 2010). Moreover, in two further organic schemes examined (for organic spices in Tanzania) there were no observable effects from participation. Nor were there observable effects from participation in a Robusta coffee scheme in Uganda certified to UTZ standards (see below).

Certification to GlobalGAP was associated with significantly higher revenues per hectare for smallholder vegetable producers in a Tanzanian scheme, relative to non-certified farmers contracted to the same exporter – but for only one of the three certified crops cultivated (Mnenwa, 2010). For this crop, the certified farmers commanded not only higher prices than the control group but also significantly higher yields. For the other two certified crops, there were no observable income effects.

Returns from standards-heavy markets and local and regional markets were directly comparable for fish. Kadigi et al. (2010) observe that net incomes of boat owners and artisanal fishers participating in the Nile Perch export chain to the EU were respectively 132 and 65 per cent higher than those of the same groups participating in other Lake Victoria-based value chains, where conformity with EU food safety standards was not a requirement. While this result was not controlled for selection, similar differences are reported in other studies around the Lake (Henson et al., 2005; Odongkara, 2002).

In sum, of the nine studies, four (of which three controlled for selection) report measurable income benefits associated with standards conformity; two report income benefits confined to only part of certified production or which, when controlled for selection, cannot be mainly attributed to certification; and three report no observable income benefits. The overall picture broadly follows the uneven pattern of earlier findings summarized in Blackman and Rivera (2010). This pattern of results implies that certification, or other types of conformity with standards, does not in itself result in measurable income benefits. At the same time, in certain cases there are substantial – though not financially spectacular - impacts. The question therefore arises of whether there is a specific group of conditions associated with consistent and successful (in terms of income benefits) standards conformity arrangements.

In this regard we observe firstly that all the ‘successful’ cases where conformity led to (or was associated with) significant income benefits, were organized in well-functioning contract farming schemes. These involved ‘classic’ contract farming arrangements in the Nile Perch case, where exporters supplied lumpy investments (engines, nets) on credit, specified fish handling methods and recovered input costs out of Nile Perch purchase prices (Kadigi et al., 2010). In agriculture, however, only ‘lighter’ versions of contract farming were implemented – with exporters supplying only extension advice and paying a premium price on delivery against specified crop attributes. While all the consistently successful crop cases involved certification to EU organic standards, in them organic premiums were not paid against deliveries by certified farmers *per se*, but rather only when they met additional quality requirements (Bolwig et al, 2009; Gibbon et al, 2010; Jones and Gibbon, 2010).

The difference between the classic Nile Perch and the lighter ‘organic plus’ contract farming models relates to the fact that, whereas there is a guaranteed market with premium prices for all processed fish conforming to EU food safety requirements, there is no such guaranteed premium market for organically certified product. The international organic market is in periodic if not frequent over-supply. Hence exporters targeting such markets need to offset the risk of investing in certification by ensuring that, if necessary, crop can be sold at a premium price on *conventional* markets. This entails incentivizing certified farmers to produce crop with quality attributes recognized across *all* markets.

For the organically-certified crops produced in the successful schemes (Arabica coffee, cocoa), attaining the quality attributes desired across markets depends upon farmers committing additional labour – and sometimes cash - in harvest and post-harvest operations,¹² as well as deferring payment for the time (usually weeks) that these processes take. While taking steps to assure good quality supply allowed scheme owners to minimize their operational risks, owners' provision to farmers of marketing guarantees, transparent marketing conditions (e.g., moisture counters at buying posts) and a contract to pay price premiums (of 15 per cent or more) for qualifying crop established incentives for the latter to commit additional labour and other resources (Bolwig et al, 2009; Jones and Gibbon, 2010).

This discussion of smallholder participation in standards-heavy value chains raises the question of why, if it is effective, the standards conformity arrangements just described were not found more widely in East Africa. We have identified six conditions that were present in each of the cases of successful conformity, where success is defined in terms of supply capacity and welfare outcomes:

1. the exporter/scheme operator has sufficient corporate resources to cover (or share with donors) initial establishment and later scaling-up costs;¹³
2. the exporter/scheme operator has prior experience of conventional as well as certified markets, since it is necessary to operate in both;¹⁴
3. the conventional markets in question have a remunerative price spread between fair-average and premium quality, in order to allow exporters/scheme operators to recover their costs (and still pay farmers premiums) when certified markets are in over-supply;¹⁵
4. certification entry barriers for *farmers* have to be low; high farmer entry barriers entail greater investment costs and risks both for exporter/scheme operators and for farmers, which in turn de-incentivizes participation unless there are very strong marketing guarantees and high price premiums;¹⁶
5. the exporter/scheme operator has either obtained advanced commitments from importers or is itself an international trading company;¹⁷
6. donor support for certification, establishing an internal control system, and related investments by exporters/scheme operators, is of relatively limited duration (maximum three years), directed primarily at commercial viability of the operation and implemented through consultants working closely with the exporter.¹⁸

¹² Timely/frequent harvesting, and pulping and sun drying (Arabica coffee) or fermentation and sun drying (cocoa).

¹³ In one of the unsuccessful organic spice schemes studied by Akyoo (2010) the scheme owner ran short of crop finance and withdrew from the market. Another organic buyer purchased most of the crop, but on an 'as seen' basis without a premium.

¹⁴ Both the operators of the spice schemes studied by Akyoo (2010) sold only to the organic market.

¹⁵ The absence of a remunerative price spread in the Robusta coffee market appears to have been one factor underlying low exporter commitment in an UTZ scheme studied by Bolwig (in progress).

¹⁶ In the range of cases studied, certification entry barriers for exporters and farmers were lowest for organic certification (and were also low for farmers, but not necessarily exporters, for Fairtrade certification). This related to organic standards being defined mainly in terms of prohibitions on use of synthetic inputs rather than prescriptions for specific production methods, and to low or negligible existing use of synthetic inputs amongst East African smallholders.

¹⁷ Two of the three successful schemes studied were operated by international trading companies. The third was operated by a PO with a long-standing link to a UK Fairtrade buyer.

¹⁸ Multiple donors supported the UTZ scheme referred to in note 15 over an extended period. The agendas of some, such as setting up POs or promoting specific production models, were not related to the scheme's commercial viability and were implemented by NGOs independently of the scheme owner (Bolwig, in process).

The length of this list suggests that, while African smallholder certification to the new generation of standards can be straightforward, certification in forms that generate measurable and consistent benefits is highly demanding. The research conducted in the SAFE programme suggests that this entails a combination of a specific kind of exporter with a specific relation to other market participants, specific products, specific standards and specific modalities of donor support. The restrictiveness of these conditions suggests that donors should be somewhat less sanguine in relation to increasing prevalence of standards, particularly private standards, in global agro-food trade. Specifically, where donors directly participate in standard-setting (as is the case with several multi-stakeholder standards) or where they are organized in forums with possible leverage over standard-setting, they should favour restraint in standards content, less market access barriers be increased. Creating such barriers may be avoided, for example, by insisting on economic impact analyses prior to adoption of new standards, codes or guidelines. Additionally, as Rios et al (2009) imply, donors should evaluate their standards projects and programmes primarily in terms of its supply capacity and welfare impacts, rather than how large a population has been reached.

Conclusion

While the academic literature does not provide clear support for the ‘trade barriers’ interpretation of the impact of the new generation of agro-food standards, it does underline the absence of systematic evidence showing that conformity – whether in ‘inclusive’ forms or not – is associated with welfare benefits in LICs. Nevertheless, where donors have been active in the standards area, their assumptions generally seem to be that substantial benefits flow more or less naturally from certifying increasing numbers of farmers (and fishers) to an increasing number of private standards, as well as from reforming private standards so that they provide assurance for end-users over a widening range of issues.

New evidence has been reported here in relation to national systems of conformity and conformity assessment, the challenges presented by new generations of labour standards, and certification of smallholders to enable their participation in standards-heavy value chains. This evidence suggests that the more favoured donor interventions only have an impact under restricted conditions. In what is currently the favourite area of donor activity – support to smallholder certification – measurable and consistent supply capacity and welfare benefits are found only where a large number of rather demanding conditions apply. This suggests a need for donor activity in the area to be framed more cautiously and selectively, and for it to be combined more consistently with indicators and evaluation tools focused unambiguously on supply capacity and welfare outcomes.

References

Ackermann, U. (2001) A bitter business, *Akzente Fokus*, at www.gtz.de/dokumente/de/AKZ_2001_PPP/peru.pdf. accessed 24 January 2005

Agro-Eco and Grolink (2008). *Organic exports – A way to a better life? Export Promotion of Organic Products from Africa*. Bennekom and Höje.

Akyoo, A. (2010). *The economics of compliance with international food standards in Tanzania: The case of organic spices*. PhD dissertation. Morogoro: Sokoine University of Agriculture.

Akyoo, A. and Lazaro, E. (2010). Institutional capacity for food safety conformity in Tanzania. in Gibbon, Ponte and Lazaro (eds.), 43-69.

Antle, J. (1999). Benefits and costs of food safety regulations. *Food Policy*, 24 (6), 603-23

Asfaw, S., Mithöfer, D. and Waibel, H. (2008). 'Food safety standards: A catalyst for the winners – a barrier for the losers? The case of GlobalGAP horticultural exports from Kenya'. in de Battisti et al., (eds.) 70-73.

de Battisti, MacGregor, J. and Graffham, A. (eds.) (2008). *Standard bearers. Horticultural exports and private standards in Africa*. International Institute for Environment and Development, London.

Barrientos S, and Smith S. (2007). Do workers benefit from Ethical Trade? Assessing codes of labour practice in global production systems. *Third World Quarterly*, 28, 713-29

Blackman, A. and Rivera, J. (2010). The evidence base for environmental and socioeconomic impacts of 'sustainable' certification. Resources for the Future Discussion Paper 10-17. Washington.

Bolwig, S. (in process) Incentive problems in smallholder contract farming: The case of UTZ Certified Robusta coffee in Uganda.

Bolwig, S., Gibbon, P. and Jones, S. (2009). The economics of smallholder organic contract farming in tropical Africa. *World Development*, 37 (6), 1094-1104.

Buzby, J. (ed.) (1999). International trade and food safety: Economic theory and case studies. US Department of Agriculture. Agricultural Economic Report 828, Washington.

Danielou, M. and Ravry, C. (2005). The rise of Ghana's pineapple industry. Africa Region Working Paper Series No. 93. World Bank. Washington.

Daviron, B. and Ponte, S. (2005) *The coffee paradox*. Zed Books: London.

Financial Times (London, Frankfurt), various.

Fold, N. and Gough, K. (2008). From smallholders to transnationals: The impact of changing consumer preferences in the EU on Ghana's pineapple sector. *Geoforum* 39, 1687-1697.

Fulponi, L. (2007). The globalisation of private standards and the agro-food system, in Swinnen, J. (ed.), 5-19.

Gibbon, P. and Ponte, S. (2005). *Trading down? Africa, value-chains and global capitalism*. Temple University Press, Philadelphia.

- Gibbon, P., Ponte, S. and Lazaro, E. (eds.) (2010) *Global agro-food trade and standards: Challenges for Africa*. Palgrave: Basingstoke and New York.
- Gibbon, P., Akyoo, A., Bolwig, S., Jones, S., Lin, Y. and Rants, L. L. (2010). An analysis of organic contract farming schemes in East Africa. in Gibbon, Ponte, and Lazaro, (eds.), 70-100.
- Gogoe, S. (2002). Costs and benefits of smallholder compliance with the EurepGAP protocol in Ghana. M.Sc dissertation, Natural Resources Institute. Greenwich.
- Graffham, A., Karehu, E. and MacGregor, J. (2008) Impact of GlobalGAP on small-scale vegetable growers in Kenya. in de Battisti et al., (eds.) 53-56.
- Graffham, A., Cooper, J., Wainwright, H. and MacGregor, J. (2008). An exploration of farmers' decision-making and reasons for participation and subsequent withdrawal from GlobalGAP. in de Battisti et al., (eds.) 89-91.
- Graffham, A. and MacGregor, J. (2008). Impact of GlobalGAP on small-scale vegetable growers in Zambia, in de Battisti et al., (eds.) 57-60.
- GTZ (2003a) Ecological cocoa growing in Nicaragua Project description at www.gtz.de/ppp/english/praxisreport/, accessed 18 January 2005.
- GTZ (2003b) Improvement of coffee quality and sustainability of coffee production in Vietnam Project description, at www.gtz.de/vietnam/ppp/ppp_coffee_eng.htm, accessed 18 January 2005.
- GTZ (2009). Programme Office for social and ecological standards: Services, approaches, successes. Eschborn: GTZ
- Henson, S and Mitullah, W. (2004). Kenyan Exports of Nile perch: Impact of Food safety standards on an export-oriented supply chain. World Bank Working Paper 3349. Washington DC: World Bank.
- Henson, S., Mitullah, W. and Opiyo, R. (2005). Poverty Impacts of Nile Perch Exports from Kenyan Shores of Lake Victoria. mimeo, study commissioned by the World Bank.
- Henson, S., Jaffee, S., Cranfield, J., Blandon, J. and Siegel, P. (2008). Linking African smallholders to higher value markets: Practitioner perspectives on benefits, constraints and interventions. World Bank Policy Research Paper 4573. Washington.
- Hoffman, J. (2007). Fostering Trade through Private – Public Dialogue. Expert Meeting on SADC – EPA negotiations, June 2007. Stellenbosch.
- Humphrey, J. (2006). Policy implications of trends in agribusiness value chains. *European Journal of Development Research*, 18 (4), 572-592.
- Humphrey, J. (2008) Private standards, small farmers and donor policy: EurepGAP in Kenya. IDS Working Paper 308. Institute for Development Studies, University of Sussex.

- Humphrey, J. and Navas-Alemán, L. (2010). Value chains, donor interventions and poverty reduction: A review of donor practice. IDS Research Report 63. Institute for Development Studies, University of Sussex.
- Jaffee, S. (2003). From challenge to opportunity. The transformation of the Kenyan fresh vegetable trade in the context of emerging food safety and other standards. Agriculture and Rural Development Working Paper 2, World Bank. Washington.
- Jaffee, S. and Henson, S. (2004). Standards and Agro-Food Exports from Developing Countries: Rebalancing the Debate. World Bank Policy Research Working Paper 3349, Washington
- Jensen, M. F. (2005). Capacity-building in pro-poor trade. Learning from the limitations in current models. UNDP Human Development Report Occasional Paper 15. New York.
- Jones, S. and Gibbon, P. (2010). Developing agricultural markets in sub-Saharan Africa: Organic cocoa in rural Uganda. Under review.
- Kadigi, R., Mdoe, N., Senkondo, E. and Mpenda, Z. (2010). Food safety standards and fishery livelihoods in East Africa. in P. Gibbon, S. Ponte and E. Lazaro (eds) (op. cit.), 162-183.
- McCulloch, N. and Ota, M. (2002) Export horticulture and poverty in Kenya. IDS Working Paper 174. Institute for Development Studies, University of Sussex.
- Maertens, M., Dries, L., Dedehouanou, F. and Swinnen, J. (2007). 'High value supply chains, food standards and rural households in Senegal.' in Swinnen, J. (ed.), 159-172
- Maertens, M., Colen, L. and Swinnen, J. (2008). Globalisation and poverty in Senegal: A worse-case scenario?. LICOS Discussion Paper 217/2008. Katholieke Universiteit Leuven.
- Minot, N. and Ngigi, M. (2004). Are horticultural exports a replicable success story? Evidence from Kenya and Côte d'Ivoire. EPTD/MTID Discussion Paper. IFPRI. Washington.
- Minten, B., Randrianarison and Swinnen, J. (2007). Global supply chains, poverty and the environment: Evidence from Madagascar, in Swinnen, ed. 147-58.
- Molony, T, Ponte, S. and Richey, L. A. (2007). Critical Assessment of 'Darwin's Nightmare', *Review of African Political Economy* 113: 598-608.
- Mnenwa, K. (2010). *Costs and benefits of compliance with GLOBALGAP standards: The case of vegetable exports from Tanzania*. PhD dissertation. Morogoro: Sokoine University of Agriculture.
- Mwangi, T. (2008). The impact of private agrifood standards on smallholder incomes in Kenya. in de Battisti et al., (eds.) 78-81.

- Nelson, V., Martin, A., and Ewert, J. (2007). The impacts of Codes of Practice on worker livelihoods: Empirical evidence from South African wine and Kenyan cut flower industries. *The Journal of Corporate Citizenship* 28, 61-72
- Odongkara, K. (2002). Poverty in the Fisheries: Indicators, causes and interventions. *FIRRI Technical Document*, Jinja: FIRRI.
- Ouma, S. (2008). Development practice, agrifood standards and smallholder certification: The elusive quest for GlobalGAP?. in de Battisti et al., (eds.) 144-148.
- Ouma, S. (2010). Global standards, local realities: Private agrifood governance and the restructuring of the Kenyan horticulture industry. *Economic Geography* 86 (2), 197-222.
- Ponte, S. (2007). Bans, Tests and Alchemy: Food Safety Regulation and the Uganda Fish Export Industry. *Agriculture and Human Values* 27(2): 179-193.
- Ponte, S., Kadigi, R. and Mitullah. W. (2010). When the market helps: Standards, ecolabels and resource management in East African export fisheries. in P. Gibbon, S. Ponte and E. Lazaro (eds) op. cit., 104-204.
- Poulton, C., Gibbon, P., Kydd, J., Larsen, M. N., Osorio, A and Tschirley, D. (2004). Competition and coordination in liberalized African cotton market systems. *World Development*, 32 (3), 519-36.
- Reardon, T and Huang, J. (2008). Patterns in and Determinants and Effects of Farmers' Marketing Strategies in Developing Countries. Synthesis Report: Micro Study, at www.regoverningmarkets.org.
- Rios, L.D., Jafee, S., Henson, S. and Mugisha, J. (2009). Not yet up to standard. The legacy of two decades of private, governmental and donor efforts to promote Ugandan horticultural exports. Joint Discussion Paper 1. World Bank, University of Guelph and Makerere University.
- Riisgaard, L. (2009) Global value chains, labour organization and private social standards: Lessons from East African cut flower industries. *World Development*, 37 (2), 326-40
- Riisgaard, L. (2010) Localising private social standards: Standards initiatives in Kenyan cut flowers. in Gibbon, Ponte and Lazaro (eds.), 136-161
- Swinnen, J. (ed.) (2007). *Global supply chains, standards and the poor. How the globalization of food systems and standards affects rural development and poverty*. CABI International. Wallingford.
- Unnevehr, L. and Jensen, H. (1999). The economic implications of using HACCP as a food safety regulatory standard. *Food Policy*, 24 (6), 625-35.
- Van der Meer, K. (2007). Building capacity for compliance with evolving food safety and agricultural health standards. in Swinnen, J, (ed.), 281-294.
- Vagneron, I., Faure, G. and Loeillet, D. (2009). Is there a pilot in the chain? Identifying the key drivers of change in the fresh pineapple sector. *Food Policy* 34, 437-446.

Wilson, J. and Otsuki, T. (2003). Balancing risk reduction and benefits from trade in setting standards. in Unnevehr, L. (ed.) *Food safety in food security and food trade*. IFPRI. Washington.