

Global Governance for Environmentally Sustainable Food Systems: Certified Organics in a North – South and South-South Perspective¹

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Abstract

Challenged to consume with less environmental impact, consumers buy certified organic products to “proxy” environmental governance. The paper explores how far certified organic agriculture is institutionally embedded in Brazil, China, and Egypt. The three case studies illustrate how regulation, including standard-setting and certification processes differ between south and north, in terms of the evolution and nature of certification, as well as stakeholders and agency involved in shaping the regulation. A comparative analysis is presented on south-south differences in this regard along with some possible explanations of these. The paper finally discusses the perspectives in the global success of organic certification and whether it has potential to transform global agriculture towards higher overall levels of sustainability.

Introduction

Global agriculture is at a crossroads and discussions on policy options and regulatory frameworks intensifying (Izac et al 2009). ‘Organic’ certification has potential as a ‘globally accepted measure of sustainable agriculture’ (Constance, 2008). In the North, the rationale for public support to certified organic agriculture has been its potential to reduce environmental impacts and its value for sustainable rural development (Pugliese, 2001). Southern countries now increasingly produce and export organically certified products (Willer and Klicher, 2009). Certified organic agriculture has become a new field for international studies, representing ‘glocalisation’ options for the South and a global research programme for organic farming has been proposed (Egelyng and Høgh-Jensen 2006). The latter is already emerging with the International Society of Organic Agriculture Research (ISO FAR) and initiatives such as the Organic Research Centres Alliance (ORCA). Drivers for certified organic agriculture differ between countries and patterns created by the ongoing globalization of the organic food system therefore contributes contextual dimensions to studies of conditions under which agricultural pathways turns more or less environmentally sustainable. In this regard, one overall question concerns the extent to which developing country governments merely follows the agency of agribusiness, mobilising tropical smallholders to meet Northern demands for tropical certified organic agriculture products - and the extent to which the same governments develop new institutional frameworks allowing certified organic agriculture to play out its potential environmental and rural development functions.

Meanwhile, consumers continue buying certified organically produced commodities to “proxy” environmental governance, as much as some producers opt for a future as organic farmers for environmental reasons. In Southern metropolises, from Cairo to Shanghai, “organic” customers are typically expatriates stationed with foreign corporations and international organizations. Local customers are generally affluent higher middle class citizens (Kledal et al 2007 and 2008). To the extent local consumer’s buy organic, their motives are typically low degrees of trust concerning the environmental and food safety of local conventional products and limited attraction to imported organic products. Local organic products are valued as the best for health and environment, but price is seen as a key barrier for increased market shares (Siriex et al 2010). Organic farming has also proved to provide livelihood (Eyhorn, 2007) as well as monetary income (Bolwig, Gibbon and Jones 2009) for farmers in developing countries. In a case study of three Indian states, the intercropping in organic systems help farmers to increase food availability for home consumption in one state

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and organic farmers from all three states realised savings from reduction of purchased inputs, without affecting their net margins. This probably reduces their risk of debt and thus adds to other perceived benefits of organic farming in India – such as ability to perhaps better withstand climatic and economic shocks - challenges Indian farmers frequently encounter (Panneerselvama, Hermansen and Halberg).

Marketing of certified organic products in developing countries is typically organized differently depending on the characteristics of the food production system from where commodities are supplied. One may distinguish between at least three systems, each demanding specific requirements on volume, packaging, and delivery - and therefore also implying different agro-ecological farming systems. One category is the well known industrialized food system, with its emphasis on food safety, coordination and processing as well as organized retailers within a chain. The export market drives this system and the growth of organic production in developing countries is generally linked to this food system. The demand behind a second category of food system is the urban domestic market, organized and operated by national and/or international supermarkets, currently capturing market shares. The third type is an alternative food system, where farmers, various types of intermediaries and consumers are able to construct semi closed circuits of exchange. These semi closed circuits are often based on 'values' such as trust, community, social and environmental welfare and opposition to 'capitalist' values such as competition and concentration and specialization of production. This market and hence food systems connected to it, is absent in most developing countries, but significant in countries such as Bolivia, Brazil, India and Uganda. (Kledal, in preparation).

On this background, the paper pursues understanding of how organic certification systems evolve differently in three different case countries: Brazil, China and Egypt. North – South differences as well as South-South differences are identified and cross-cutting analysis of the cases undertaken. The role of the organic 'standard' within the broader discussion of environmental governance of the agricultural sector is then discussed.

Brazil

The first Brazilian private organic standards were established in the eighties, based on international organic standards. Soon after Brazil initiated its organic exports to Europe, in 1988-89, a new European Council regulation on organic production and labelling, EC 2092/91, was published and this intensified pressure for a Brazilian authority of certification bodies (CB) and for national legislation to follow. Officially, the process in preparation for certified organic agriculture regulation was initiated in 1994 following pressure from civil society and by 1996 the Brazilian Congress started working on a law (Law 10.831) to serve organic production and labelling. By 1999 Brazil still had no law on 'organics' passed at Congress. However, as a result of a long and consultative preparatory process involving a diversity of stakeholders, it had a so-called "Normative Instruction" (IN 007/99) in force. This normative instruction had a broad and inclusive interpretation of certification and a diversified approach to the objective of regulating production, manufacturing, labelling and certification of organic products. (Egelyng et al., in preparation).

The organic movements now believed the emerging law in preparation at the level of Congress could risk to conflict with the consensus negotiated in the course of writing up the normative instruction, IN 007/99. Therefore, approval for regulations for Law 10.831 was further delayed and three "consensus" documents from Ministry of Agriculture, Livestock and Food Supply of Brazil worked for quite some time as de-facto regulation: (i) the normative IN 007/99 as mentioned above; (ii) A second Normative Instruction - IN 16/04, detailing procedures for registration of certain products of animal and vegetal origin, including supplier conformity declarations on how the organic quality is controlled) and (iii) A directive P.158/04, on the creation, composition and function of a new kind institutions, named organic commissions.

Finally in 2003 Brazilian Law # 10.831 was passed, formalizing the broad concept of "organic" that had emerged during the process outlined above, reflecting the broad constituency that had been involved in the process. Along the same line of inclusiveness, the law also institutionalized an "Organic Agriculture Productive Chain Sector Chamber" (CSAO) as an advisory body for the Ministry of Agriculture. The Chamber was established in 2004, with 33 public and private representatives of the organic sector. Further, an Inter-Ministerial Commission in Agroecology and Organic production systems - covering Education, Agriculture, Agrarian Development, Environment and Science, Technology and Innovation – was set up and continued work in relation to Law 10.831 (Medaets & Fonseca 2005, Medaets 2003).

Conversion from conventional agriculture to certified organic agriculture by a financially and legally well defined category of "family farmers" is promoted and supported through institutions such as the Brazilian accreditation institute (INMETRO) and the national agency for the development of SME (SEBRAE), under the Development, Industry and

Trade Ministry (MDIC), both of which has been known to help organic producers pay for certification costs. Similarly, but targeting a different group of farmers, the Brazilian Export and Investment Promotion Agency (APEX) has a project for the promotion of Brazilian organic products in international organic and natural products fairs. In 2005, during the III Brazilian Agroecology Congress, a multi-stakeholder initiative was launched (government sectors, in partnership with universities and NGOs), with a view to further improve and develop public policies for agro-ecology and organic production systems, at different levels and modalities, including education and teaching, social movements, production and cultural aspects. Till 2006, 21 organic state commissions (CPOrgs) were dedicated to certified organic agriculture.

By 2002 'GAO' - a network of people and organizations discussing certified organic agriculture standards and technical regulations - had evolved. GAO favoured participatory certification and in reaction to this - by 2004 - a Certification Body Forum was formed, the members (Certification bodies) of which wanted separate representation in CSAO (Fonseca 2005). As a result of all this Brazil can be said to have regulations for organic certification which follows international standards, and yet with some particularities about conversion period, "social justice", wild harvesting standards and criteria for conformity assessment systems including participatory group certification. Now, the Ministry of Agriculture, Livestock and Food Supply of Brazil, along with the Brazilian standards organisation (INMETRO) have become responsible for the Brazilian System of Organic Conformity Assessment (SISORG), as system implemented at the level of state and national commissions and covering all Brazilian organic products, except those sold directly by farmers. After accreditation and acceptance by state and national commissions, Ministry of Agriculture, Livestock and Food Supply of Brazil give credentials to certification bodies to work in Brazil. For family farmers observing a social control process of direct sales, certification isn't mandatory. In this case family farmers have to be members of a CSO, registered at Ministry of Agriculture, Livestock and Food Supply of Brazil or at a supervisory authority at local (district) level. (Fonseca et al 2008).

There are three kinds of certification bodies, therefore: international certification bodies that operate in Brazil with or without a Brazilian office, national certification bodies with or in the process of gaining international recognition for accessing the main markets (US, EU and Japan) and/or accreditation from private international organic standards. (After 2000, some certification bodies evolved separately from organic farmers and advisers associations). Finally, some national organizations work with certification and participatory guarantee systems, as certified organic agriculture commercialize in internal markets. Up to 30 farmers associations and certification bodies (10 international and 20 national) have been active in the certifying organic production in Brazil, until around 2006 when the total number was probably reduced, despite new entrants such as TECPAR - a certification body backed by the state government of Paraná (Fonseca and Ribeiro 2003).

Some projects of the Ministry of Agrarian Development supported civil society participation in the discussions on adaptation of organic regulation to perceived Brazilian "realities". One strategy used to diminish transaction costs is the use of smallholder group certification (Fonseca et al 2008). Another was to help national certification bodies working with smallholders producing for domestic markets to adapt their management to the ISO Guide 65 standards, with a view to be accredited according to this standard. The Ministry of Agrarian Development also supported projects of organized groups of family farmers who wanted group certification, including support for construction of participatory guarantee system standards for use in organic agriculture products, in relation to the Brazilian Systems for Organic Conformity Assessment (SISORG) and within in the Brazilian System of Fair Trade.

China

In China, the first "certified organic" milestone was set in 1990 with export of one certified organic product (tea). In 1993, an "Organic Food Centre" was created and in 1994 the first national conference on organic farming was held in China. In the same year, the State Environmental Protection Administration (SEPA, known before 1998 as NEPA) established an Organic Food Development Centre (OFDC) - or rather about 20 provincial OFDCs - to play a role in organic agriculture development at the provincial level. While the OFDC was born as an official governmental authority, issuing government regulations, it has since been partly commercialized and now competes with a host of other, including international, certifiers. OFDC of today therefore sees itself as an "organic research, inspection and certification organization". The history of international certifiers active in China has included IMO (Switzerland), Soil Association, ECOCERT (France), BCS (Germany), JONA (Japan) and OCIA (USA). Expertise and manpower wise, these agencies draw on Chinese agricultural colleges and universities for local manpower. (Egelyng et al., in preparation).

SEPA has continued to play a regulatory role. In 2001, for instance, it published a guideline on 'Organic Food Certification and Management Measures', based on standards developed by OFDC, using IFOAM's basic standards. Similarly, SEPA issued a "Technical Norm on Organic Food" entering into force on April 1st, 2002. However, in 2003,

the China National Certification Administration (CNCA) was established with a mandate for national certification and accreditation. Authority was transferred from SEPA to CNCA, with regard to organic standard development and certification management and accreditation, and between 2003 and 2005 CNCA established itself as the “ruler” of Chinese organic standards (see also box 1). CNCA issue a guideline for Accreditation for Organic Products Certification Agents (2003) and a national organic products standards ‘GB/T19630’ (2005). At the same time an Organic Product Certification Management Rule took effect and more initiatives on management of organic certification are underway from CNCA.

The developments above are now influencing also the Chinese home market which has been and remains dominated by a product standard known as “Green Food”. While a high grade Green Food “A” standard continues, a Green Foods grade “AA” is phasing in favour of - or harmonizing with - organic certification. One reason for the latter is that while grade “A” is used by local certifiers and trusted by domestic consumers, the high standard “AA” is not internationally recognized and therefore not useful for exports. In China, a recent national action plan for rural environment protection is establishing three hundred organic food production “bases” soon to cover between hundred and ten thousand hectares. In terms of national capacity for certification or use of “standards”, the implementation of this plan will be able to benefit from the system of “standards” initiated with the assistance of what is today the Chinese ministry of environment, then State Environmental Protection Administration (SEPA). Today authority for “standards” development - certification management and accreditation rest firmly with the Certification and Accreditation Administration (CNCA) and China has an administratively strong certification system, with a broad coverage in terms of geography and production systems. As supplements to national policies and regulations, these local policies make more specific provisions on market access and implementation details. Local governments of Shanghai and Beijing are also know to have issued local regulations and policies such as “Provisional Measures on the Monitoring of Eatable Agricultural Product Safety of Shanghai Municipal Government” and the “Regulations on the Supervision and Administration of Food Safety of Beijing Municipal Government”. (Li, L and Egelyng 2008).

Two different national seals have been introduced covering all organic and ‘in-conversion’ foods sold domestically. The national standards for organic products have four component parts covering: production, processing, labelling and marketing, and management systems. The CNCA has also established an information system, about the certification of food and agricultural products. Information regarding certification for organic products is released through the internet and includes the name of the producer, processor, and trader, the issue number of certification, date of expiry and contact person. By the end of 2006, thirty-one local certifiers had received CNCA accreditation and more than 200 inspectors were registered. An estimated 20 per cent of domestic inspectors are trained in China by the International Organic Inspectors’ Association (IOIA). One of the consulting agencies on certified organic products, Dalian Swift Information Consulting Service Ltd., founded in 2000, is authorised to conduct the certification consulting service for the organic base, process and trade sectors and was rewarded the first certificate China’s organic food consulting agency.

Box 1: Milestones in Institutional Development for Chinese Organic Agriculture:

2005	<ul style="list-style-type: none"> • ‘Implementation Rules of the Certification for Organic Products’ and ‘National Standards on Organic Products’ (GB/T19630.1- GB/T19630.4 2005)) issued by CNCA.
2004	<ul style="list-style-type: none"> • Above 600.000 hectares, 2 million tons of agricultural products and more than a thousand agricultural “projects” in China certified as “organic”. Estimate of Value of Chinese organic products reach USD 200 million.
2003	<ul style="list-style-type: none"> • OFCD received full IFOAM accreditation giving OFCD label full international acceptance. • “Implementation Suggestions on the Establishment of Certification and Accreditation System for Agricultural Products” issued by CAAC and MoA. • China National Accreditation Board for Certifiers (CNAB) issued the “Basic Requirements on the Accreditation of Certifiers’ Certifications to Organic Agricultural Products and Processing”.

- Ministry of Agriculture issued “Procedures on Identifying Origins of Non Pollution Agricultural Products”, “Procedures on the Accreditation of Non Pollution Agricultural Products”, a “Notice on Properly Managing the Accreditation Work of Non Pollution Agricultural Products” and the “2003-2007 Plan of Promoting Quality Safety of Competitive Agricultural Products”.

2002

- On July 25th, 2002, the Ministry of Agriculture issued 137 industrial standards, such as the “Standards on Non Pollution Cucumber”.
- General Administration of Quality Supervision, Inspection and Quarantine of China (AQSIQ), State Administration of Industry and Commerce (SADIC) and the former Ministry of Foreign Trade and Economic Cooperation (MOFTEC) issued “On the issuance of the Measures of the Administration of Approval, Registration and Monitoring of Certifiers, Accreditation Training and Consultative Agencies”.
- SEPA issued “State Administration Committee for Organic Foods”, “Basic Accreditation Requirements for Organic Food Certifiers” and “Registration Norms for Organic Food Examiners”.
- Ministry of Agriculture and AQSIQ jointly issued “Measures on the Administration of Non Pollution Agricultural Products”.

2001

- The State Environmental Protection Administration issued the “Measures on the Administration of the Accreditation for Organic Food”.
- Ministry of Agriculture launched the “Action Plan of Non Pollution Products”
- AQSIQ issued “Regulations on the Administration of Labelling for Non Pollution Agricultural Products”.

1999

- Value estimates of Chinese organics reach USD 12 million, in product line of >50 different certified products.

1998.

- Nanjing Institute of Environmental Sciences becomes first Chinese IFOAM member.

1995

- OCIA China Chapter was established in, as the first international organic certification body operating in China.

1994

- OFC becomes *China* Organic Food Development Centre (COFDC) and first national conference on OA in China.
- “Regulations on Administration of Organic (Natural) Foods Labelling”

1993

- Rural Ecosystem Division of NIES renamed “Organic Food Centre” (OFC) and China Green Food Development Centre (CGFDC) was established in Beijing, under MOA. CGFDC associated with IFOAM.

1990

- As first Chinese export of organic food, organic tea from Lin’an county of Zhejiang Province was exported with the certification of SKAL of the Netherlands.

(Based on Egelyng, Li and Qiao 2006)

The main certified areas are in Northeast China (for grain and bean production), Middle East part of Shandong in Jiangsu province (for vegetable production), Southern China - Zhejiang, Jiangxi and Yunnan Province – (mainly for organic tea production). The organic products are mainly exported from these provinces to EU, US and Japan. The domestic market remains small, but growing, with significant price premiums in some crops (IFAD 2005; 28-30). This is true both for export products (tea and sugarcane) and products (vegetables) sold in supermarkets in Beijing and Shanghai.

In China's marginal areas, most farmers do without money to buy agricultural inputs and rely on practices such as crop rotation, manure application and legume crop integration, for soil fertility maintenance and pest & disease control. In other words practices that may be called de-facto organic, but are not certified as such. More than half of China's cultivable land has only a thin layer of arable soil and is of medium to bad quality. Combined with population pressure, the result is often unsustainable agricultural practices (such as cultivation of steep slopes) on very small land plots and deforestation. Yet, about two thirds of the population in marginal provinces depends mainly on agriculture, and rural per capita net incomes there remain low, in comparison to national average and the official poverty threshold. Most of these de-facto organic farming areas are hard to reach, and their small plots are difficult to manage. These "de-facto" organic farmers are often poor and less than well educated and often unable to meet quality, safety, packaging and labelling standards of the "supermarket revolution", from where the demand for organic products originate (IFAD 2005; 32-33).

Egypt

Egypt's certified organic agriculture sector exports medicinal herbs, ornamentals, dry onions, potatoes, garlic and many other vegetables as well as organic cotton and olives (Kledal, El-Araby and Salem 2008). While many smallholders produce without significant use of chemical fertilizers or purchased agrochemical pesticides, most certified organic production is concentrated around the Nile. For irrigation, organic production depend on the Nile water, direct from the irrigation canals from the Nile or from under ground water which seep from the Nile to the underground rivers west and east of the Nile Delta and Valley. Data about certified organic agriculture are dispersed among certification bodies and there is no systematic federal government register. However, the current estimate of Egypt's certified agricultural area is in the order of 14,165 hectares, wild collection excluded. It is estimated that in Egypt organically certified producer's farmed about 0.4 % per cent of its agricultural area by 2007. While early estimates of organic production have had a record of being imprecise, due to the absence of official national statistics, the global statistics published by FiBL indicated that more than half of the approximately 260 organically certified Egyptian farmers cultivate between four and a half to twenty hectares. 20% of the organic acreage is farmed by farm enterprises with more than four hundred hectares, mainly in new reclaimed lands west and east of the Delta, the Nile Delta and Upper Nile (Kledal, El-Araby and Salem 2008).

Egyptian consumers can be broadly divided into three groups: i) those too poor to buy certified organic food, ii) those who could afford certified organic products, among competing priorities and iii) those who can easily afford it. In general price premiums for organic products range between 20 and 25% for vegetables and fruits and more than 20 organic product lines are available domestically, sold through more than 50 sales outlets and concentrated in the cities, mainly Alexandria and Cairo: increasingly in conventional supermarket chains (such as Metro), farmers' markets, and health food stores. However, the development of certified organic agriculture in Egypt has mainly been driven by demand from export markets; the opportunity for exporting certified organic agriculture products with a price premium has been a strong driver for conversion attracting private companies, as reflected in the presence of a number of active international certifiers in Egypt.

A draft regulation on how to process and handle organic products in Egypt aim to guarantee that all stages and steps of production and marketing of certified organic agriculture products confirm with relevant standards and that producers are kept from mixing their products with non-organic produce. Egypt cannot apply for inclusion in the EU third country list on the basis of a decree and emerging law, with its long view to ratification by the National Assembly. Officially, the Egyptian Organization for Standardization (EOS) and the Ministry of Economics and foreign trade are important institutional loci of responsibilities for organic standard development, certification management and accreditation. The draft regulation is based on a concept paper prepared by a committee with representatives from Ministry of Economics and foreign trade and representatives or stakeholders of organic sector. The paper was adopted by the Egyptian Ministry of Agriculture, as a ministerial decree; 'Regulation to process and handle organic products in Egypt', in 2009. The decree text applies the term certified organic agriculture, to include conformity assessment procedures according to IFOAM basic standards and the EU regulation 2092/1991. The decree consists of seven articles and seven annexes. The

articles define important terminology used in the certified organic agriculture sector, introduce a concept of 'Social Justice', define procedures for registration, inspection and certification, as well as permitted methods for production of organic agricultural crops and for processing and handling of organic food, and finally provide information on rules for trade marks and logos. The annexes list products allowed in soil fertilisation, pest management; weed and growth regulation and provide additional information on the rules for assessment of input use in organic farming, including rules on non-food items used as additives, a list of procedures for plant breeding and information on biodynamic agriculture. The decree has no clause for participatory group certification, but a new initiative, not yet settled, is underway to address the problem of high certification costs being prohibitive for small scale farmers. (Egelyng and El-Araby, in preparation).

A set of specific and perhaps complementary-cum-competing set of organically (bio) produced food standards exist, prepared by the Egyptian Organization Standardization (EOS) under the Ministry of Trade and Industry, prepared in 2006 and destined to become official standards in the near future. These include EOS No. 5733-5738 on: definitions of terms applied in Organic (Bio) produce products (5733); rules for production and preparation of animals and animal products as organic produce (5734); rules for production and preparation of organic honey (5735); organic agricultural products (5736); on the information and claims (labelling) of organic produced food (5737) and 'inspection and certification of organically produced food (5738). These standards resemble the Codex standard GL 32L1999 revised 1/2001 (Guidelines for the production, processing, labelling and marking of organically produced food) and the EEC decision No. 2092/1991 on organic produce. These standards aim to govern and support production, processing and handling (marketing) of organically produced foods, with a view to coordinate and unify production methods, definitions and labelling of organically produced products. Our analysis did not include a view to how these standards conform to the new and more recent EU regulation for production, control and labelling of organic products, the majority of provisions of which went into effect on 1 January 2009, and with the remaining to be effective of July 2010 (http://ec.europa.eu/agriculture/organic/eu-policy/legislation_en). Now, a council for organic agriculture is found also within the Egyptian Agribusiness Association (EAGA). Through the Commodity Council of Ministry of Economy and Foreign Trade – which now has a committee on organic agriculture – the majority of organic sector stakeholders (producers, researchers, certifiers, organic growers representatives of the civil society) participate in discussions on how to adapt the organic regulation to Egyptian circumstances.

Egypt has a legacy of 'state run' conventional farmers union, challenging producers to provide alternative organisations. The Egyptian organic agriculture movement began in 1979 initiated by Sekem, a non-governmental organisation cum private company applying biodynamic methods on a parcel of land. Sekem evolved into a major and well known business, also creating the Egyptian Biodynamic Association. The story of Sekem, its 1979 Sekem farm founder and 2003 Right Livelihood Award winner Dr. Ibrahim Abouleish is well published (www.rightlivelihood.org/sekem). As early as 1983 Sekem introduced its organic herbal teas in the domestic market, with success. The Biodynamic label, however, proved to partially constitute or work as a hindrance for wider expansion, until the organic movement started in 1994, adding a broader and more inclusive acceptance of organic methods and enabling expansion of certified organic agriculture at the National level, beside the Sekem initiative. Sekem of today is a holding company with subsidiaries: Atos, Libra, Hator, Conytex and Isis, employing a total of more than 2000 people and witnessing significant revenue growth rates.

In the institutional landscape of Egyptian organics one noteworthy feature is the similarity of names of some certification agencies-cum associations for organic agriculture: COAE, ECOAS and ECOA. This similarity, it turns out, is not only a matter of similarity of acronyms, but a history of evolution. The Center of Organic Agriculture Research in Egypt (COAE) was established in 1990 by initiative of the Biodynamic movement in Egypt, first as a 'non-profit organisation' aspiring to become a research centre, and evolving to become a national certification body by 1996 – in collaboration with Demeter Bund and the Institute of Market Ecology (IMO) of Switzerland. The Egyptian Center of Organic Agriculture Society (ECOAS) was established as an NGO in 1995 (El-Araby (1998)). Initially focusing not only on certification and inspection, but also on training or capacity development, ECOAS has members from a diversity sectors, including the scientific community, organic growers, organic farmer's organizations, environmental activists and organic agriculture experts. ECOAS has been actively promoting organic agriculture, provided organic agriculture information and consultation, undertaking projects and training, workshops, seminars and conferences and also implemented applied research projects in the field of organic agriculture. Further, it has provided assistance to other developing countries, in terms of helping to establish inspection, and certification bodies. ECOAS is further guided by a mandate of educating farmers and consumers through lectures, seminars, and conferences. Already conducting applied research projects in the field of environmental protection, waste recycling as well as community development through education, and training of children, adults, and women, it is aspiring to do scientific research in the field of organic agriculture as well. It is currently providing services to farmers who want to go organic and thus

will need to be certified. ECOAS, however, established the Egyptian Center of Organic Agriculture (ECOAS) in 1998, as a company, to focus only on certification and inspection. ECOAS is a certification body in the field of organic agriculture and EUREPGAP compliance and it is active inside as well as outside of Egypt. Now governed by a board of 5 members, elected by a general assembly and encompassing a group of recognized specialists, ECOAS is an independent legal entity, providing certificates for organic produce for the local market, for export to EU (in collaboration with IMO/Naturland) as well as for export to the US. ECOAS also provides annual certificates for farms producing organic produce and annual certificates for companies handling organic produce. (Egelyng and El-Araby, in preparation).

National, regional and local workshops relating to certified organic production, and involving multi-stakeholder participation, have been and continue to be organised. Independent farmers' organizations have played a significant role in the development of organic agriculture, while other CSOs (such as religious communities or environmentalists) are little involved in organic activities. The first public organic conference in Egypt was organised by Sekem around 1992 with special emphases on organic cotton. A second organic conference was organized by IFOAM and IFOAM Egyptian members in 1996 followed by other 'organic' events, including conferences, exhibitions (2007), workshops and seminars at both local and international levels. The first organic exhibition organised jointly between civil society and MOA, around 2003. Since, Egypt has hosted a number of meetings and conferences on organic agriculture, including the Second International Conference of Organic Agriculture (Healthy Food for Every one), 25-27 March 2004, at the Cairo International Conference Center. Some bilateral donors (Italy), some international development agencies (EU) as well as some international NGOs (CARE) are active in Egypt, and is known to have included support for Egyptian organic agriculture in their portfolio of activities. In Egypt the situation with regard the costs of certification evolve in pace with training of local inspection personnel, but since Egypt has no group certification cost of certification remain a challenge for smallholders. (Egelyng and El-Araby, in preparation).

3. Crosscutting Analysis.

Major parts of the consumption of certified organic products take place in the global North and West, while at the moment there is a huge increase in certified production in the global South and the East. The Brazilian case demonstrates that standards originating in the South can differ significantly from those originating in the North. In contrast, the Egyptian as well as the Chinese case demonstrates that "Southern" standards may also be developed mainly to align with the "Northern" system (i.e. American, European and Japanese organic certification or standardization systems). One major difference in the evolutionary history of these systems is the extent to which the demand for certification has originated in civil society or involved civil society. In China, the State – the State Environmental Protection Administration (SEPA) – played the pioneering and pivotal role in the early 1990's, establishing a number of organic food development centres which later transformed themselves to certification agencies and/-businesses, in a nation the domestic market of which is largely dominated by some very different (product) standards, including those of Non-Polluted-Food and "Green Food".

South-south differences is evident across all three cases: Brazil has developed a "sui generis" system, unique in providing different sets of institutions serving export of agricultural commodities produced and processed to meet international certification standards such as the EU, Brazil's domestic (super) markets and direct sales within its informal markets, respectively. China has developed a certification system effectively serving export businesses, initially with less aspiration to serve a domestic market, which is dominated by a different product standard: "Green Food". The case of Egypt is one in which both the state and the civil society (in a broad sense) has played a limited role as far as the development of organic "standards" are concerned: the organic sector in Egypt really evolved on the foundation of the private sector in the form of a (biodynamic) entrepreneur who – in the absence of any public or other civil initiatives, except perhaps involvement of academia - developed a "certification arm" to provide Egypt with capacity to certify and export "organic" products. On the basis of these explorations we may therefore distinguish between three possible models for developing organic agriculture in the South, namely that of the development state (China) where the state pioneers an institutional model initially and then partially 'privatise' it and allow it to develop further, in partnership with the "private" sector; the almost 'purely' business model (Egypt), where the private sector undertake a significant share of the role(s) normally expected for the state to perform, and then the civil society based development state (Brazil), where the state accepts the cost and task of facilitating an institutional system, the formation of which the civil society plays a significant role in bringing about, in a broad Coalition which includes business interests as well.

The differences in certification and standardization systems between Brazil, China and Egypt may, of course, be discussed and explained in many ways, at different levels and from different disciplinary perspectives. As the reader will recall, our main errand is to understand the extent to which certification and standards can serve and thus help achieve policy goals of stronger environmental sustainability. We are therefore pursuing indicators for estimating

ecoefficiency levels. Agricultural systems differ in capacity to produce eco-efficiently. Energy-wise, for instance, Conforti and Giampietro (1997) compared output-input (O-I) ratios of 75 countries world-wide and found O-I ratio variations from 156 to 0.41! The countries shown to have the most in-efficient agriculture (O-I ratios < 2) included mostly rich countries. The countries seen to have efficient agriculture (ratios > 30) included Ghana, Niger and Uganda.

Findings such as Conforti and Giampietro (1997) raise important methodological questions: what forms and units of energy were compared and were comparison made at farm or sector level? Were comparisons made of selected products only and using similar products across countries? Do differences found reflect different shares of livestock production? Such methodological questions remain relevant in the context of particular commodity chains, agro-ecosystems, geographies and in different policy environments. For sure, farming systems across Brazil, China and Egypt are too diverse to allow any generalisations. Some indications reflecting the diversity, however, can be illustrated and recent results focusing on energy or GWP as a measure of environmental sustainability are particularly relevant in this respect.

As indicated above, organic certification is also particularly evident in large scale, specialised and less diverse 'farm' production units, particularly perhaps in China and Brazil. Such production units rely on a huge input of 'organic nutrients', and therefore the GWP of their certified organic product may be higher than for a comparable "conventional" product. This was found to be the case for some Chinese Pear production units (Liu et al, 2009). In a case of Brazilian Oranges the GWP of the organic product was found to be similar or slightly lower than the conventional one (Knudsen et al, 2010). At the same time, it has been shown that organic soybean production in China and small scale orange production in Brazil, with less manure import and a more diversified growing practise, resulted in a lower GWP of the products at farm level compared to conventional products, in both cases. In the case of soybean imported into Denmark from China, organic soybeans has a lower environmental impact, with regard to non-renewable energy use, global warming, acidification and eutrophication potential per ton produced compared to the conventional soybeans (Knudsen et al 2009, 2010). This may be said to indicate that while organic farming may have the potential to produce foods with lower GWP, the forces driving organic food chains does not necessarily support this. Both for Brazil, China and Egypt, high dependence on an external supply of nutrients, which typically originate from mineral sources, pose a significant challenge for certified organic farmers in the countries wishing to follow the principles of organic agriculture. The said principles stress that nutrients removed from the system in harvest shall be replaced by recycling, regeneration and addition of organic materials and nutrients (Oelofse et al. 2010). Therefore, the relevance of comparative studies of environmental impacts of certified organic farming vis-à-vis other (certified and uncertified) production systems, as well as within different systems of organic certification, will probably remain high on the international research agenda and of importance for international development studies.

4. Discussion

Certification as 'organic' can be viewed as an institutional vehicle for environmental sustainability and it is conquering the world as a perceived proxy for sustainable development. Carrying the organic market, a global movement of environmentally educated consumers and producers use their purses and skills to pursue "fixing" institutional deficiencies in environmental policy regimes at various levels. In terms of progress towards sustainability, the interesting question is whether this social movement can really transform the pattern of incentives governing nationwide choices of agricultural production methods and move agriculture towards a truly macro level environmentally sustainable food and fibre system. If not, certified organic agriculture may end up as a commercial brand inviting questions about the extent to which it really serves global sustainability goals. An important factor in this regard is to quantify and document what neoclassical economics refer to as positive and negative "externalities" of agricultural production. We believe a major "milestone" for the development of certified organic agriculture in Europe was achieved when the OECD started publishing a series of statistics documenting the environmental service functions of organic agriculture. Markets are only as intelligent as public policies and institutions make them, and the case of certified organic agriculture is a highly important arena providing crucial lessons of policy learning in this respect. Therefore, we deem research to quantify the environmental impacts and footprints of agriculture, as essential for the global future of certified organic agriculture.

The imperative of mitigating climate change holds potential to strengthen certified organic agriculture as a global standard for agriculture. The same imperative, however, may well challenge certified organic agriculture on at least two fronts. The first is to demonstrate in quantitative terms that certified organic agriculture is indeed eco-efficient, energy efficient and low carbon, - which may prove generally easier in Africa and Brazil than in Europe and the USA. As for the second front, the onus is as much on society at large to demonstrate a willingness to remove the economic and institutional distortions currently discouraging the majority of farmers from adopting certified organic agriculture. Global consumers have been able to see and react to the governance failures, including agricultural resource (over)use and pollution more directly and faster than voters have, partly because there is more of a world market than world

governance. Ironically, the successful consumer driven emergence of a global certified organic agriculture may not be able to transform global agriculture towards sustainability. The current rules of the game relying on market labels may only result in dispersed organic farms serving only affluent and educated global consumers paying voluntary price premiums. This system de-facto taxes the environmental consciousness of these educated individuals, instead of taxing all polluters and resource users. For certified organic agriculture to gain optimum possibilities for contributing to overall national policy goals, other policy instruments at national and global levels may therefore prove indispensable.

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