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The Green New Deal and Evolution of Institutional Environments for Multifunctionality: the case of Certified Organic Agriculture in Brazil and China.

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Abstract

The Global Green New Deal (GGND) aim to green the global economy across a range of sectors including agriculture, to pursue future prosperity and job creation, while at the same time addressing social and environmental challenges. Taking its point of departure in some of the institutional changes envisioned in GGND publications, the paper proceeds to present results of the authors' current research, within a research programme on institutional dimensions of the current globalization of certified organic agriculture. Case study results from Brazil and China are used to illustrate how institutional environments for organic agriculture differ between nations and to provide a basis for discussing the potential of organic certification to transform global agriculture towards higher overall levels of sustainability. The paper concludes linking the institutional analysis of the GGND and the findings of the presented cases to a broader analysis and discussion on the state of art of institutional environments for multifunctional agriculture.

1. Introduction

A Global Green New Deal (GND) has been proposed by the United Nations. The proposal aim to help the world grasp a "unique historical opportunity" to create a green economy and it refers to "ecological infrastructure" as vital, at both national and global levels (UNEP 2009; 23). Besides highlighting a need for changing sectoral fiscal stimuli, it includes propositions for new institutions and policy instruments to green the economy. The proposal points to existing global subsidies for fossil fuels amounting to over USD 200 billion annually and USD 273 billion in agricultural subsidies. Stressing how these subsidies distorts the agricultural profitability equation to the disadvantage of organic farming, the proposal wish to see a "level playing field for sustainable agricultural production, including organic products". (UNEP 2009:10 and UNEP 2009:8).

In its positive focus on organic production the GGND reflects a global trend and growing awareness among international organisations about the sustainability and development benefits of organic farming: as providing environmental protection, biodiversity enhancement (conservation biological control), reduced energy use, local food security and higher quality landscapes. A realization of the costs involved in business as usual has added to this awareness: in the UK, for instance, the social costs of water quality reductions caused by pesticides, alone, have been estimated at about EURO 190 million a year (Dabbert 2004). Such recognition of the multiple developmental benefits of organic farming has led to a realization that opportunities exist for harvesting at least double "dividends" from changes in agricultural policies (Egelyng and Høgh-Jensen 2006).

In parallel, a global market for certified organic products has emerged. Southern countries, including Brazil and China, are now increasingly involved through growing international trade in tropical COA products (Willer and Yussefi, 2008). These trends combined have made studies of institutional factors influencing certified organic farming in the South increasingly relevant. This paper report findings of country case studies focusing on the rules of the game – or institutions *sensu* North (2005) – constituting the institutional environment for certified organic agriculture in Brazil and China. Institutions are best investigated as they play out and our methodology has been based on field work and involved semi-structured interviews with respondents from a broad group of social agencies in both countries. The studies – part of a larger research project known as GLOBALORG - have involved exploring a host of research questions evolving around the following puzzle: whether, how and to what extent certifications as "organic" really work as an institutional vehicle to transform the world food system towards stronger environmental sustainability (Egelyng 2009 and 2008). The GLOBALORG studies undertaken to this end include comparative environmental assessments between organic and conventional food systems and value chains (Knudsen et al 2010, Liu et al 2010). Also policy options for reforming institutional environments, policies and programmes to be more conducive to sustainable agricultural methods has been produced and presented as part of the IAASTD (Izac et al 2009; 446, 460).

As we share the UN's GGND aim to help "green" the global economy and as we do believe creating a level playing field for a more environmentally sustainable agriculture is a sine qua none, we present our case study findings in the hope that these may be able to add to the global knowledge base on how to improve the incentive structures everywhere for producers wishing to produce with minimum environmental impact.

2. GGND instruments for a new food system

The existing rules of the game – including the subsidies - have contributed to a global situation documented by the Millennium Ecosystem Assessment (MA, 2005): degraded ecosystem services and irreversible loss of biodiversity. The GND proposes a new "incentive system of subsidies, taxes and regulations that encourage environmentally responsible behaviours and helps to internalize externalities" and point out that these externalities can be changed through taxes. It also proposes improvement of "environmental regulation" and observes that "national [environmental] legislation" can create "powerful market incentives and stimulate green investment". The GND proposal discusses agriculture as one example where "subsidies and protectionism have encouraged inefficient agricultural production in high-income economies and discouraged efficient and more sustainable production in developing economies (UNEP. 2009:10-13). An older example of evidence supporting this view is Conforti and Giampietro's (1997) comparison of energy output-input (O-I) ratios of 75 countries world-wide, finding O-I ratio variations from 156 to 0.41! Rich countries were found to have inefficient agriculture (O-I ratios < 2), and developing countries, such as Ghana, Niger and Uganda as having efficient agriculture (ratios > 30). Thus, a million food calories may be produced involving more or less energy and the same million may provide livelihood to many or few producers (Egelyng, Høgh-Jensen and Halberg 2006).

2.1 Existing institutional environment enough for multifunctional agriculture?

Agriculture operates within complex systems and is multifunctional in its nature. A multifunctional approach [...] will enhance its impact on hunger and poverty, improving human nutrition and livelihoods in an equitable, environmentally, socially and economically sustainable manner (6). Public policy, regulatory frameworks and international agreements are critical to implementing more sustainable agricultural practices (15). (Key Messages # 6 and 15 [1]).

Agriculture is multifunctional through the "inescapable interconnectedness of agriculture's different roles and functions" [McIntyre et al 2009]. A key ingredient in agricultural policy frameworks, multifunctional agriculture is officially defined by the OECD, as a 'multi-output activity producing commodities and non-commodity outputs such as environmental services, landscape amenities and cultural heritages'. Countries with large tropical agro-ecosystems may be theoretically perceived as having 'comparative' advantage for multifunctional agriculture, with biogeophysical functions, energetic and material flows providing potential for competitive advantage as well. Providing convincing arguments that traditional institutional foundations for multifunctional agriculture are undermined by commercialization, two international assessments called on national governments and donor agencies to develop new policies to enable agriculture continue producing environmental services. The report of the International Assessment of Agricultural Knowledge, Science and Technology for Development and the MEA thus called explicitly for multifunctional agriculture. The World Development Report for 2008 called for a "visible hand" of the state to regulate natural resources, secure desirable social outcomes and ensure "markets for environmental services are introduced" (World Bank 2007). Finally, COP15 stressed the imperative of accurate national accounts of natural capital stock - including measurement and accountability of carbon sequestration - for developing countries wishing to benefit from global (carbon) regimes. Of course, the same applies to other kinds of multi-functionalities of natural capital and environmental services, illustrating a possible need for re-integrating climate into the sustainability agenda

(IGES 2008). Pollinators and pollination are examples of one other set of natural capital cum environmental service of high economic importance (Eardley et al 2006 and Gallai et al 2009).

Increased documentation of positive as well as negative externalities associated with the agricultural sector is already a fact in the form of OECD datasets. When OECD farmers observe specific land use practices, OECD statistics document it all; from wild habitat or biodiversity functions to water conserved and landscape values, thus enabling public policies to reward reproduction of these values through the common agricultural policy (CAP). The datasets helped convince policymakers that investment in organic agriculture yield more environmental benefits in terms of floral and faunal diversity, soil organic matter and involve less pesticide pollution than from conventional farming, and is thus effective and economically efficient way of achieving environmental goals, supplying environmental services at low(er) costs (Dabbert 2005). In addition, the private sector has responded to the same policy rationale, through a diversity of economic or market conform 'certification' instruments: 'bird friendly', 'fair trade' and geographical indications. Legislative approaches based e.g on concepts like "patrimoine naturel" and "terroir" [Douguet and O'Connor. 2003] add to the existing diversity of institutions impacting or potentially impacting the multifunctionality of agriculture.

Even so, world agriculture remain at a crossroads where many nations still face critical choices on institutional models driving agriculture along different pathways (McIntyre et al 2009). Both the IAASTD and the Millennium Ecosystem Assessment (MEA) stressed the multifunctional nature of agriculture: agro-ecosystems stock natural capital and provide environmental incomes and services (MEA 2005). Use of public funds to valorise this multifunctionality, seems nevertheless largely restricted to Europe and the USA (Groenfeldt 2006, Vries 2000). The large majority of farmers from the South, for instance, may not operate under publicly funded incentive systems moving towards support for environmentally sustainable production behaviour and agricultures multifunctional values. World market integration can irreversibly destroy multifunctionality; erode resilience and natural wealth of nations (McIntyre et al 2009). On the other hand, targeted regulation of market forces can allow commercial and multifunctional agriculture to co-exist [Johnston and Joshua 2009, Kyosti and Jukka 2005, Jones and Clark 2004, Douguet and O'Connor. 2003]. World trade rules do allow nations to compensate farmers as custodians of nature through public policy instruments in a so-called 'Green Box' [Meléndez-Ortiz, Bellmann, and Hepburn. 2009]. Though global consumers aim to compensate all farmers as 'caretakers' through market instruments such as fair trade, bird friendly, organic and low carbon certification, few southern governments use 'green box' subsidies to compensate their 'green' farmers the way many European countries do, under the CAP. In addition to the monetary compensation provided by consumers paying voluntary premiums for "organic" products in the market, multifunctional agriculture in the highly commercialized OECD area depends on a diverse range of macro level institutions: agri-environmental programmes and direct per hectare payment schemes rewarding farmers for custodianship of natural capital and environmental services [Meléndez-Ortiz, Bellmann and Hepburn. 2009., Kyosti and Jukka 2005, Jones and Clark. 2004].

3. Case studies

3.1 Analytical framework

Our analytical and comparative framework has five dimensions: (I) overall policies, (II) regulation – in particular conformity assessment systems; (III) research, education and extension that targets COA; (IV) agency and the roles of the private sector and Civil Society Organisations (CSOs) and (V) a broader contextual analysis. The first dimension focuses on the nature of overall national policy concerning COA: law(s) on organic agriculture and the extent to which COA strategies are translated into national action plans. The second dimension assesses the institutional localization of responsibilities for the development of organic standards, certification and accreditation, and other aspects of conformity assessment recognised in organic regulations. The third dimension investigates the extent and nature of

organic research and education at agricultural universities and colleges, and the extension provided by public and private organisations. The fourth dimension determines whether, to what extent and how the private sector, including companies, farmers' organizations and other CSOs undertakes activities and assumes a de-facto policy development role, towards organic agriculture. Finally, the fifth dimension provides data on the contextual environment for COA and explores how policy goals on organic agriculture sit within the overall agrarian and rural development strategy. This framework aims to provide indicators as to whether organic farming finds itself in a 'policy ghetto' or is more or less integrated in other policy areas such as tax, environment, rural development, and health and consumer policy. It particularly focuses on the balance between command and control rules and regulation (laws, input and product standards, administrative regulations, and research infrastructures), economic instruments (tariffs, subsidies, labelling) and information. The extent to which the polluter pays principle influences agriculture, so as to possibly help level the playing field for COA, is also included in our framework for exploration.

3.2 BRAZIL

Brazil has a rapidly increasing organic sector for both certified and de facto organic agriculture. A recent estimate of certified agriculture is 880.000 hectares, wild collection excluded (Willer and Yussefi 2008). In 2007, estimated organic exports reached USD 21 million according to the Brazilian Export and Investment Promotion Agency (APEX). More than 700 organic product lines are available domestically, sold through more than 600 sales outlets, and concentrated in the cities: conventional supermarket chains, farmers' markets, health food stores, and home delivery schemes. Estimates of organic production often seem to vary, as sources are not always explicit and specific with regard for instance to distinction between certified and de-facto organic or inclusion/exclusion of wild collection. The Agriculture Ministry (MAPA) estimated a 2004 area of 6.587.637 hectares as COA, including wild harvesting. Based on these different sources, it seems a realistic estimate that Brazil has about 15.000 organically certified producers constituting one per cent of the country's farmers and just about a third of a per cent of its agricultural area.

Overall Policy in Brazil

A broad and inclusive concept of organic production was established in Brazilian draft law (#10,831) in 2003¹. Aiming at flexibility vis-à-vis different social, cultural, political and economic realities, the law text applied the term COA broadly, to include alternative types of conformity assessment procedures that differ from the international standards normally implied by organic certification. In Brazil, therefore some producers are conformity assessed under Participatory Guarantee Systems (PGS) – stakeholder oriented systems, with a supplier conformity declaration and verification by peer review is accepted as an alternative to formal certification (Fonseca et al. 2008). At present data about COA are dispersed among civil society and Certification Bodies (CBs) and, with the exception of a few states, such as Parana, there is no systematic federal government register. The Organic Agriculture Productive Chain Sector Chamber (CSAO), consisting of thirty three public and private representatives of the organic sector was established (2004) as an advisory body for the Ministry of Agriculture. This institutionalised space – including an Inter-Ministerial Commission for Agroecology and Organic Production Systems – discusses the implementation of draft Law 10,831. MAPA's Organic Agriculture Development Programme (PRO ORGÂNICO) was set up to support production, manufacture and commercialise COA products, with a budget of US\$ 1.000.000 in 2005, already. The action plan involves participation from all of MAPA's units, states, municipality authorities and CSOs, including CSAO, the Organic Production Commissions in Federal Units (CPOrg) and the Organic Production National Commission (CNPOrg).

¹ BRASIL. Congresso Nacional. Lei n. 10.831. Dispõe sobre a agricultura orgânica e dá outras providências. Diário Oficial da União, Brasília, DF, 24 de dezembro de 2003. Seção 1, p. 8.

The Agrarian Development Ministry (MDA) also supports the development of COA by giving financial support for conversion from conventional agriculture for a financially and legally well defined category of 'family farmers'. By definition, family farmers are farmers who generate at least eighty per cent of their household revenue from agriculture, have a maximum of four area units (the size of which differs across regions, districts and agro-ecosystems) and no more than one employee. Land redistributed under recent agrarian reforms is also eligible for special financial support for organic agriculture. The programme also facilitates smallholders' participation in the process of national regulation and provides funds to support networks of organic farmers and smallholders. National policy also provides for technical advisers and rural extension services to support sustainable production systems, with specific financing for organic production (such as funds distributed via PRONAF Agroecologia). MDA also has partnerships with the German International Cooperation agency (GTZ) and the Slow Food movement. The Environment Ministry (MMA) programmes for natural resource conservation also support organic agriculture. The Brazilian accreditation institute (INMETRO) and the National Agency for the Development of SMEs (SEBRAE), help organic producers meet certification costs and the Trade and Promotion Agency (APEX) has a project to promote Brazilian organic products at relevant international trade shows. Finally, the Bank of Brazil also provides some financial lines to COA initiatives in regions with threatened agro-ecosystems.

The awareness of organic labels and principles and benefits of COA by consumers and shop managers appear to be developing from a low base (Guivant et al. 2003, Darolt 2004). There are national, state and municipal policies of 'buying organic', which increase both market demand and awareness. One example is the Family Farmers Acquisition Food Programme (PAA), a partnership between the Social Development Ministry (MDS) and MAPA, implemented by the National Supply Company (CONAB). In 2005, procurements under this scheme laid at US\$ 7,993 million. CONAB pays a thirty per cent premium for COA products. This premium is justified in order to preserve agro-biodiversity and environmental sustainability management of systems. In some rural areas organic agriculture is promoted for its beneficial effects on food security. Organic 'knowledge centres' (such as ABD, Fundação Mokiti Okada, Centro Ecológico, ASSESSOAR) advise the private sector and supermarkets in major cities offer specialised internet sites for COA (e.g. www.planetaorganico.com.br). In 2005 and 2006 a full week of promotion of organic foods, was undertaken with workshops and events in all major cities. This was jointly sponsored by MAPA, MMA and MDA, the Brazilian supermarket association (ABRAS), and other public and private stakeholders. Information on organic agriculture is provided by NGOs, the private sector and government bodies. This is aimed at students, farmers, technicians, retailers, and consumers. TV programmes about COA are broadcast and downloadable documents about organic agriculture available at main research institutes, organic agriculture legislation is available at government and commercial sites, and national journals publishing on organic agriculture include both scientific ones by public research organisations and universities and private magazines such as *Boletim Agroecológico*. In Parana state, an Organic School Meal Programme funded by the Environment Secretary distributes locally produced organic products to sixty six municipalities. This programme aims to reduce the use of agrochemicals, facilitate smallholder access to new commercial chains and stimulate local food consumption. A similar programme exists in Santa Catarina State, where the secretary of Education, in partnership with farmers' associations, established a programme for supplying local organic foods for school lunches. Set up in 2002 this programme provided organic lunches for around 30.000 children in 2004.

Regulatory framework in Brazil.

The first Brazilian private organic standards, based on international organic standards, were established in the 1980s. When Brazil started to export organic products to Europe, in 1988-89, pressure for the establishment of a Brazilian authority of certification bodies and for national legislation followed. The process for regulating COA was initiated in 1994, following pressure from CSOs, and reached Brazilian Congress in 1996. There was intense debate in the organic movement about the inclusion of group certification and participatory guarantee systems when, in 1999, MAPA provided a 'Normative Instruction' regulating the production, manufacturing, labelling and certification of organic

products. This included provision for PGS and group certification, although subsequent attempts to ratify these elements have continued to be the source of much debate.² The draft law (10,831) allows for both group certification and PGS, but this has yet to be ratified by Congress. At present three interim 'consensus' documents from MAPA are operating: (i) IN 007/993; (ii) Normative Instruction - IN 16/044 and (iii) Directive P.158/045. The proposed law broadly follows international standards, but has particularities about conversion period, 'social justice', wild harvesting standards and criteria for conformity assessment systems, including PGS. Some of these sections are still evolving documents.

According to the regulations under the new law (10.831) MAPA, INMETRO and Civil Society Organisations are responsible for the Brazilian System of Organic Conformity Assessment (SISORG), a system still managed by state and national commissions, but leaving INMETRO in charge of accrediting Certification Bodies (CBs) based on ISO65 standards and according to Brazilian organic regulations. Family farmers may follow a social control process for direct sales. For marketing purposes organic products must be produced in accordance with the Brazilian regulation and certified by an accredited CB, and for this purpose family farmers have to be members of a CSO, registered with MAPA or an equivalent body authorised at the local level. There are at least three kinds of Certification Bodies (CBs) operating in Brazil: international CBs with or without a Brazilian office, national CBs 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 (IFOAM Organic Guarantee System) and CBs that have evolved from organic farmers' and advisers' associations. In addition some national organizations work with certification and PGS. According to Fonseca and Ribeiro (2006), thirty farmers' associations and CBs (ten international and twenty national) are involved in certification.

Brazilian Research Policy.

The involvement of the national government in OA research officially began in 1988, when PESAGRO-RJ established an experimental centre in Rio de Janeiro. At the national level, EMBRAPA, the national research institute established a programme for organic agriculture in the year 2000. EMBRAPA also operates 60 hectares of organically managed agricultural research land, managed under a partnership since 1992, which provides an important reference point for organic and agro-ecological production systems. In 2003 more than twenty six PhD theses on 'organic' subjects had been published and sixteen more were ongoing. In 2002, EMBRAPA launched a project for developing organic agriculture, involving 135 researchers from fifteen of its research centres. The National Council of State Agricultural Research Enterprises, (CONSEPA) is a consortium of seventeen research and development organisations, and has around forty researchers and advisers work directly involved in R&D for COA, including involvement in COA at the municipal and state level.

Brazilian agency at the level of Civil Society including private sector.

² While Codex and EU (EC 2092/91) rules only recognize individual certification, IFOAM standards and criteria also allow for smallholder group certification and IFOAM supports moves towards PGS. In practise, however, the 'equivalence' principle allows products certified under group certification to enter the EU as certified organic.

³ IN 7/99. Ministério da Agricultura e do Abastecimento. Instrução normativa 7, de 17 de maio de 1999. Diário Oficial da União, Brasília, DF, 19 de maio 1999. Seção 1. p.11-14.

⁴ IN 16/04. BRASIL. Ministério da Agricultura, Pecuária e Abastecimento. Instrução normativa n. 16, de 11 de junho de 2004. Diário Oficial da União, Brasília, DF, 2004. 3p.

⁵ BRASIL. 2004. Ministério da Agricultura, Pecuária e Abastecimento. Portaria n. 158, 08 de julho de 2004. Diário Oficial da União, Brasília, DF, 2004.

The first ecological street market was organised by COOLMEIA, a farmers and consumers cooperative which, when it was first set up, in 1989, involved twenty five farmers from different parts of the state of Rio Grande do Sul. In 2004, this Street Market involved more than 100 farmers, with an estimated 10,000 visits and consumers on Saturdays⁶. In 2004, members of the ECOVIDA network⁷ marketed produce worth of around US\$ 15 million. The most valuable commercial channels are local street markets and trade and institutional markets (e.g. schools) which together account for 66 per cent of total sales volume (Santos, 2004).

Brazilian price premiums on organic products range from twenty to 250 per cent depending on the product and commercial chain. Prices charged to consumers by supermarkets in Rio de Janeiro have increased in recent years, although this increase has not been passed onto producers (Guivant et al., 2003). Costs of external audits, implementing control systems, and investment on training personal are bottlenecks for national and international accreditation (Medaets and Fonseca, 2005). There are commercialization problems with the high costs of certification, high levels of rejection (out-grades), packaging and transport logistics. Smallholder group certification is one strategy used for reducing transaction costs, as these can decrease certification costs for each group member by up to thirty five times (Medaets, 2003). The direct cost to farmers of Participatory Certification is significantly lower for smallholder group certification, but the indirect costs (organisation, technical advice and capacity building) are higher. These are covered by voluntary work of farmers, technicians, sympathisers and consumers (Medaets, 2003). In a PGS the members contribute a small monthly fee (US\$ 6 to 17 per month). In exchange they receive resources from government sustainable development projects or from international agencies, to cover internal controls, meetings, visits and registers (Meirelles, 2004).

Some MDA projects support civil society participation in discussions about how to adapt the organic regulation to Brazilian circumstances. Others help national CBs, mainly those working with smallholders producing for domestic markets, to adapt their management to ISO standards, so that they can receive accreditation. MDA has also supported organised groups of family farmers seeking group certification, providing support for developing PGS standards that will meet Brazilian criteria for Organic Conformity Assessment (SISORG) and for Fair Trade.

Context in the case of Brazil.

MMA has proposed new environment policy instruments to the Brazilian Congress. These include changing articles in national environmental and agricultural legislations (6.938 and 8.171 respectively) and for introducing tariffs to provide incentives for production activities that are environmentally sustainable. Discussions on GMO regulations and eco-taxation are ongoing between government and the CSO. There are mechanisms to linking organic farming with tourism, which are being supported by MDA using resources from PRONAF. Several states use funds collected through sales tax for environmental purposes including the promotion of organic agriculture (Fonseca, 2002).

3.3. CHINA

Chinese Ecological Agriculture (CEA) has been promoted by the Chinese government since the early 1980s as an alternative to conventional agricultural practices. By the mid 1990s there were reportedly 2000 pilot schemes and demonstration sites, but CEA did not fit well with the de-collectivisation of agriculture and finally succumbed to supply side problems and under-developed markets (Sanders, 2006). CEA, however, provided an important precursor to the development of COA. Chinese A-grade Green Food (GF) – based on a product standard – is now found all over China. Consumers are aware of and prepared to pay a premium for GF, which is generally 20 to 30 per cent above conventional food prices (IFAD, 2005). Certified organic production was introduced in the 1990s in several provinces

⁶ Source: Proceedings from an IFOAM "workshop on alternative certification", Centro Ecológico, Brazil (13-17 April 2004).

⁷ ECOVIDA network (Rede Ecovida de Agroecologia), was created in 1998, and has member organizations from the three Southern states in Brazil. It has 23 nodes, involves 2.600 families who are organized in 290 groups of small farmers, retailers and consumers cooperatives.

and has since grown into a large business, mainly driven by export oriented market chains. It is estimated that China had 2.3 million hectares of certified organic land in 2005 and that organic exports were worth US\$ 146 million (Kledal et al., 2007).

Overall Policy of COA in China.

The institutional environment for COA is more recent than that for Green Foods. The public body initially involved in promoting and regulating COA in China was the State Environmental Protection Administration – now Ministry (SEPA), issuing the ‘Measures on the Administration of the Certification for Organic Food’ (which expired in 2005). SEPA also issued accreditation to certifiers for organic food, when there were few specific policy measures for COA. Authority for standards development, certification management and accreditation was transferred from SEPA to the Certification and Accreditation Administration (CNCA) in May 2004. While organic food for export must meet international standards, domestic organic produce is perceived by policy makers, as a complement for non-polluted and Green Food. In October 2006, SEPA issued ‘The National Action Plan for Rural Environment Protection’ aiming to control pollution and to improve environmental conditions in rural China. Among other things this plan calls for the establishment of an ‘organic food production base’. Three hundred such bases specialising in organic production will be set up nationwide by 2010, covering an estimated 100-10,000 hectares. Each base may cover several villages or towns. While certified organic farmers do not currently receive area based or other ‘organic’ subsidies, some local governments subsidise the certification costs for producers and processors. Beijing Municipal Government, for instance, decided in 2006 to cover all the certification fees for producers and processors. Xinjiang Province has a similar policy. There are now examples of counties and provinces formulating strategies to increase organic farming and attract companies to establish processing facilities for export oriented organic products. For instance, since 2004 Zhejiang and Xinjiang Provinces have both formulated provincial strategies for the development of the organic sector that cover farming, processing, and marketing.

Chinese regulatory set up.

The Certification and Accreditation Administration (CNCA) was established in August 2001 with a mandate for national certification and accreditation of different sectors. Since then, China has had a unified regulatory system for organic certification and accreditation activities. Joint implementation is conducted by the relevant ministries and local governments under the overall coordination of the General Administration of Quality Supervision and the Inspection and Quarantine Service of China (AQSIQ) and the CNCA. Certification rules and specific procedures are jointly formulated by the CNCA, AQSIQ and relevant departments of the State Council, such as the Ministry of Agriculture, State Administration of Industry and Commerce, and the State Environmental Protection Administration. The Ministry of Commerce is also consulted. Examples of the rules and procedures produced by the above system include ‘Measures on the Administration of the Certification for Organic Products’ issued by AQSIQ, and the ‘Implementation Rules of the Certification for Organic Products’, and the ‘National Standards on Organic Products’ (GB/T19630.1-GB/T19630.4 2005), both issued by CNCA. 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 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, contact person, etc. 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). The largest certifier of organic products in China, Organic Food Development Centre(s) (OFDCs), was established in 1994, and undertakes research, inspection, and certification of organic foods. OFDCs have more than twenty certified inspectors, of whom at least a dozen have been trained by 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.

There are no public sector policies of 'buying organic', no converting of publicly owned lands to organic management and no nationally or provincially recognised Organic Farm Days. A stakeholder consultation undertaken by the Centre for Chinese Agricultural Policy (CCAP) estimates that less than 20 per cent of Chinese consumers are aware of the organic label and logo. There is, however, e-commerce for organic produce in major cities and, according to a consumer survey in Tianjing, most interviewees know about Green Food and 'non-polluted' food rather than organic food.

Research policy in China.

There is evidence of public sector support for the organic sector in the form of advice, training, research and marketing. Organic Food Development Centres support some of the above policy goals. They supply information materials to retailers (supermarkets) and consumers and since 1997 have been sponsoring the 'Times of Organic Food' which is published quarterly and is the only Chinese publication about organic agriculture and organic food. The journal carries news about the development of organic agriculture at home and abroad, experiences of the production, processing and trade of organic food, and introductions to the technologies involved in organic agriculture (<http://www.ofdc.org.cn/products/products.asp>). China also has initiatives for organic agricultural research. Agricultural universities and colleges have undertaken agricultural research on organic farming since the late 1990s, when research on organic vegetables was initiated at the China Agricultural University (CAU), which now runs an educational programme on organic agriculture and trade, and organic rice developed by the South China Agricultural University is now exported to Hong Kong. Also Zhejiang University does research on organic agriculture. The Chinese Academy of Agricultural Sciences established the Organic Tea Research and Development Centre (OTRDC) in March 1999. Tea is one of China's major organic products - 12,000 tons organic tea was exported from a total certified area of 16,000 ha in 2005 (http://www.tea-trading.com/tea_info/2006_02_20_13_47_15.htm).

Chinese Agency at the Civil Society/private sector level.

A number of companies in the private sector are active in the production, processing, and trade of organic products. One such company, with about 1,200 employees, Yinxiangweiye in Heze, Shandong Province, produces – among others things - organic dairy and organic feed grass and is supplied by about 1,300 farm households farming about 1,500 ha. The company provides certified organic milk and yoghurt to retail outlets including supermarkets in Jinan, the capital city of Shandong Province. While a large number of private enterprises engage in organic agricultural production and trade, there is as yet no nationwide sub-chamber on organic agriculture. However, there are a number of national and regional workshops about certified organic production, which take place every year, with the participation of several ministries. The OFDC has organised 13 annual national, and a number of regional, workshops on the techniques of organic production and seminars for exchange of organic information since 1994, when the first national conference on organic farming was held in China. China now has a significant number of active international certifiers and also hosts international donors promoting certified agriculture through various projects and programmes. Certification of organic produce for export is done by internationally accredited companies including OCIA (US), ECOCERT (France), BCS (Germany), IMO (Switzerland), Soil Association (UK) and JONA (Japan). Local certification is mainly done by OFDC and OTRDC. A number of organic farms near cities, especially those involved in organic fruit and fish farms generate some income from providing tourists from the cities with a choice of activities such as fruit picking, fishing, and picnics. Tours to ecological farm household have been established close to several large cities, such as Beijing, Shanghai and Guangzhou.

In general, premiums for organic food are in a range up to 50 per cent. For example, organic soybean has a price premium of 10 per cent in the domestic market and 35 per cent in the world market; the price of organic pork (US\$ 6-6.5 per kilogram) is more than double that of conventional pork (US\$ 2.5-3 per kilogram) in Beijing supermarkets. While domestic organic markets do exist, smallholder farmers in many places report difficulties in getting technical assistance and organic inputs, and meeting quality, safety, packaging and labelling standards of traders or supermarkets (Guangming Daily, 29 August 2006).

The Chinese contextual dimension.

There is no fully functioning polluter pay principle in operation to provide incentive for additional conversion to organic agriculture beyond its present market or demand driven niche. There is no tax reduction on inputs for organic agriculture, no support price mechanism for organic products, and organic farming is not yet separately categorised in the otherwise advanced and voluminous body of national statistics. There is no preparation by lawmakers on taxes or tradable quotas for synthetic agricultural inputs and no mechanisms to provide organic farmers with legal redress against contamination by GMO producers or users.

Comparative Discussion of the Cases.

Brazil and China both have national level policies and strategies for COA, but to rather different extents. In Brazil, a federal state law and three ministries, those for Agriculture, the Environment and Agrarian Development, support organic agriculture through a range of policy instruments and development programmes, including some that explicitly favour smallholders. Policy rationales include agrarian reform, environmental objectives, food security and rural development. There are clear differences in the levels of engagement of regional and municipal authorities and civil society in supporting organic production. A range of public sector institutions have either initiated policies of buying organic or converting publicly owned land to organic management. In China, COA was initially supported by the (now) Ministry of Environment (SEPA). The state does not provide any specific financial support to organic farmers and as per today it is unclear to what extent public agencies such as MoA are committed to supporting COA vis-à-vis conventional farming and green foods. However, Chinas National Action Plan for Rural Environment Protection envisages establishing three hundred organic food production bases covering between hundred to ten thousand hectares by 2010. Aside from this strategy, support for COA is evident at the local, where some municipal governments support conversion through reimbursing certification costs and acting as intermediates between the private sector and smallholder farmers. Thus in both countries political leaders and policy documents emphasise the importance of certified organics.

Elaborate certification or conformity assessment regimes exist in both countries. In China, there is a nationally unified system for organic standards, management and accreditation. These include national standards established since 2005, a national seal for COA products, a national accreditation and certification body (CNCA) established in 2001 and thirty one certifiers for COA in 2006. In Brazil, the national regulation has not yet been implemented, but a diversity of certification and conformity assessment schemes co-exist. There is strong tendency in Brazil's domestic market towards accepting alternative conformity assessment procedures rather than adopting certification as per international standards. In both countries, public agencies provide research and education programmes. Brazil launched a research programme and in China, a few university research activities constitute examples that 'organic' research takes place in China. The development of COA in China has mainly been driven by demand from export markets and the engagement of the private sector (including newly privatised former public agri-food-companies) in areas that find it difficult to compete in conventional agriculture products. In Brazil, the opportunity for exporting COA products with a price premium has also been a strong driver for conversion attracting private companies, but this has gone hand-in-hand with a strong involvement from the public sector and civil society. The latter, which is relatively

strong, includes locally organised farmers' groups and NGOs which have helped embed organic farming in many areas of the country.

Both Brazil and China have e-commerce of organic produce in major cities, where knowledge about certified organic farming and labels is restricted to educated segments. Public sector support for the organic sector through advice, training, research and marketing is probably stronger in Brazil, but is also evident in China. In addition the estimated numbers of professional 'organic' agricultural advisors in the national extension service and private sector, and also the promotion for Organic Farm Days, indicate a somehow stronger institutional environment for organic agriculture in Brazil. Independent farmers' organizations have played a strong role in the development of organic agriculture and CSOs are more involved in organic activities and exert a stronger policy influence in Brazil. China has no real equivalent of these organizations, but national, regional and local workshops relating to certified organic production, and involving multi-stakeholder participation, have been and continue to be organised in both countries. Both countries feature a significant number of active international certifiers and both host activities by international donors promoting certified and de facto organic agriculture through projects and programmes. In both countries, smallholder farmers report significant difficulties in meeting quality, safety, packaging and labelling standards. Organic farming still exists in a 'policy ghetto' vis-à-vis conventional Chinese and Brazilian farming, but to a varying degree. Brazilian policies on organic agriculture do play out in a broader context of rural development, food security and health (children's meals). Yet, COA remains poorly integrated with other policy areas such as tax, rural development, and health. Neither country seems to have operationalized the polluter pay principle – in the form of for example fertiliser or pesticides taxes - as an incentive for promoting organic agriculture beyond its current largely market-led niche. In both countries it makes sense to think the level of embeddedness of organic farming as being regionally differentiated, following patterns of regional and regionally targeted support and responses to agricultural constraints and marketing opportunities.

Our analytical framework probed change in five dimensions and at various levels including state, market, regional and local and civil society and analysis confirmed institutional change is evident at these levels in both China and Brazil, in different forms and to varying degrees. Indeed, the institutional environments for organic agriculture in China and Brazil presently offer the formal support needed to accredit and certify COA production and thus market COA products in a way that involves a price premium, especially for export. In Brazil, agrarian reform or rural development programmes and civil society might be seen as driving organics deeper into agrarian and rural development policy discourses and measures than in China. But in China large areas are planned to be converted to organic agriculture over the next three-five years as part of (local) public strategies. What neither of the two nations have in the making any convergence between COA and Sustainable Rural Development, nor a multi-dimensional institutional environment sufficiently conducive and embedded to strongly accelerate conversion from conventional to COA, beyond its present niches and towards embracing the two national agricultural sectors as a whole.

Conclusion – GGND, COA and institutional environments for sustainable agriculture.

The critical limits to our findings in the case studies above is that while we believe to have demonstrated that institutional environments of COA is globally improving, the question remains whether these changes will eventually bring, in casu China and Brazil, environmentally sustainable development involving improved environmental outcomes. While GLOBALORG has started providing some answers to this question, the "green economy" envisioned by the UNEP GGND will need more studies of this kind – and then operational and verifiable indicators as a basis for nations "taxing the bads" and facilitating a realization of the polluters pay principle. The new institutional regime(s) in the making will have to rely on criteria of eco-efficiency, emergy (i.e. embodied energy), global warming potential (GWP) and other increasingly operational sustainability indicators representing a potential to help transform the old fashioned energy intense food, fibre- and farming systems towards sustainability. To date, hardly any legislation

seems to provide incentives for tropical agriculture to maintain low emissions of GHG, for instance. Thus, for the GGND an institutional design challenge - in aiming for, in this case poor farmers in the tropics to continue being part of climate change mitigation - may thus be that they already farm low carbon and sequester green house gases. Similarly, in 2005 Ghana and Kenya had ecological footprints per capita below the 2 global hectare mark [Acuerdo Ecuador 2009, our emphasis]. As a possible part of a new global institutional regime for a GGND, the ecological footprint can therefore serve to illustrate how – with the GGND - new institutional instruments may need to bring about changes in measures and perceptions of country performances, from depicting poor countries with low agricultural productivity and facing adaptation challenges [AR4 2007, Dinar 2008] to show countries rich in natural capital, governing agro-ecosystem fluxes of nutrients and energy to produce livelihoods with low per capita CO₂ and eco-footprints. The agricultural food system relevance of this is that the nitrous oxide emission of much (more or less de-facto organic) southern/tropical agriculture is low because of limited use of nitrogen fertilizers. Reduced tilling & returning residues also help turn carbon loss to carbon sink. Soil fertility/restoration of degraded soils through crop rotation, intercropping, polyculture, cover crops and mulching are all low input agriculture methods used in many southern nations. As southern agriculture industrialize and intensify energy use, oxidation and erosion will intensify too and release carbon to the air.

Ecological economist, of course, already play important roles investigating institutional factors impacting social valuation, if not capitalisation, of natural capital stocks and non-commodity outputs of multifunctional agriculture. We believe to have demonstrated that in the course of implementing any GGND and strengthening the odds for the food and agricultural sector to become part of any GGND “solution”, further research is needed on institutional designs as well as environmental accounts and impact pathways. Through the two case studies we have demonstrated that while certification (as “organic”) is increasingly and globally perceived as an institutional vehicle to “green” our food system, the institutional challenge of providing global and national governance regime(s) generally favouring sustainable agriculture is a broader one. As an economics of eco-efficiency and multifunctionality, ecological economics is destined to have to provide even more data and insights in this field of greening the global food system.

REFERENCES

- Acuerdo Ecuador. 2009. *The Ecological Power of Nations – The Earths Biocapacity as a new framework for international cooperation*. Imprenta Mariscal, Quito, Ecuador. (p34-35, Table 1).
- AR4 2007. Chapter 9. Africa. *Fourth Assessment Report of the IPCC*. Cambridge University Press. Cambridge. UK.
- Barbier, E.B. 2009. *Rethinking the Economic Recovery: A Global Green New Deal*. Report prepared for UNEP. Wyoming, USA.
- Dabbert, S., Häring, A.M., Zanolli, R. 2004. *Organic Farming: Policies and Prospects*. Zed Books, London and New York.
- Darolt, M.R. 2004. 'Desenvolvimento rural e consumo de produtos orgânicos', in Araujo, J.B.S. and M.F. Fonseca, (orgs.). *Agroecologia e agricultura orgânica: cenários, atores, limites e desafios*. Uma contribuição do Consepa. Campinas: Consepa, pp 11-33.
- Dinar, Ariel., Rashid Hassan, Robert Mendelsohn and James Benhin (eds). 2008. *Climate Change and Agriculture in Africa: Impact Assessment and Adaption Strategies*. Earthscan. London.
- Douguet, Jean-Marc and Martin O'Connor. 2003. *Maintaining the integrity of the French terroir: A study of critical natural capital in its cultural context*. *Ecological Economics*. 44 (2003) 233-254.
- Eardley, C. D. Roth, J. Clarke, S. Buchmann and B. Gemmill. 2006. *Pollinators and Pollination*. African Pollinator Initiative (API). ISBN: 1-86849-310-5.
- Egelyng, H. 2008. *Alternative Markets as Proxy's for Global Governance of the World Food System: the case of strengths and weaknesses of certified organics as institutional vehicle for sustainable development*. Peer reviewed

conference Paper (Internet Publication and CD Rom), 2008 Global Governance for Sustainable Development: The Need for Policy Coherence and New Partnerships. EADI, Geneva.

Egelyng, H. and H. Høgh-Jensen. 2006. Towards a global research programme for organic farming. In Halberg, N. H.F. Alrøe, M.T. Knudsen, and E.S. Kristensen (Eds), 2006, Global Development of Organic Agriculture: Challenges and

Egelyng, Henrik. 2009. Certified Organic Agriculture: a new field of policy for international organizations. ICROFS news. 3/2009. International Centre for Research in Organic Food Systems. Denmark. P. 7-9.

Fonseca, M.F. de A.C., Wilkinson, J. Egelyng, H. and Mascarenhas, G.C.C. 2008. The Institutionalization of Participatory Guarantee Systems (PGS) in Brazil: organic and fair trade initiatives. In: Proceedings of the Second Scientific Conference of the International Society of Organic Agriculture Research (ISOFAR): p. 368-371. ISBN 978-3-03736-024-8

Gallai, N., J-M Salles, J. Settele and B. E. Vaissière. 2009. Economic Valuation of the vulnerability of World Agriculture confronted with pollinator decline. *EE 68* (2009) 810-821.

Groenfeldt, David. 2006. How the Multifunctionality concept can restore meaning to agri-culture. Leusden 2006, ISBN-10: 90-77347-09-7.

IFAD. 2005. 'Organic Agriculture and Poverty Reduction in Asia: China and India Focus', International Fund for Agricultural Development (IFAD) Report No. 1664. Rome: IFAD.

IGES 2008. Climate Change Policies in the Asia-Pacific: Re-Uniting Climate Change and Sustainable Development. Institute for Global Environmental Strategies. Japan.

Izac, Anne-Marie, H. Egelyng, G. Ferreira, D. Duthie, B. Hubert, N. Louwaars, E. Rosenthal, S. Suppan, M. Wierup, M. McLean, E. Acheampong, P. Avato, D. de la Torre, S. Ferris, E. Gyasi, N. Koning, D. Murray, L. T. Reynolds, P. Robbins, N. Röling. (2009). Options for Enabling Policies and Regulatory Environments. in McIntyre, B.D.; Herren, H. and Watson, R.T., Eds. Agriculture at a Crossroads - Volume I: The Global Report - International Assessment of Agricultural Knowledge Science and Technology for Development, chapter 7. ISBN 978-1-59726-539-3 (paperback) and 978-1-59726-538-6 (hardback). Island Press.

Johnston, R.J. and D.J. Joshua. 2009. Informing Preservation of Multifunctional agriculture when Primary Research is Unavailable: an application of Meta-Analysis. *American Journal of Agricultural Economics*. , Vol. 91, issue 5; 1353.

Jones, A and J. Clark. 2004. The Modalities of European Union Governance: New Institutional Explanations of Agri-Environment Policy. Oxford University Press.

Knudsen, M.T., Q. Yu_Hui., L. Yan and N. Halberg. 2010. Environmental assessment of organic soybean (*Glycine max.*) imported from China to Denmark: a case study. *Journal of Cleaner Production*, doi:10.1016/j.jclepro.2010.05.022.

Kyosti, A. and K. Jukka 2005. Multifunctional Policy Measures for Multifunctional agriculture. Paper presented to EAAE.

Liu, Y., Langer, V., Høgh-Jensen, H., Egelyng, H. 2010. Energy efficiency of organic pear production in greenhouses in China. *Journal of Renewable Agriculture and Food Systems*. Cambridge University Press.

McIntyre, B.D.; Herren, H. and Watson, R.T. (Eds.) 2009. Agriculture at a Crossroads - Volume I: The Global Report - International Assessment of Agricultural Knowledge Science and Technology for Development, Island Press.

MEA. 2005. Cultivated systems: Current state and trends assessment. Millennium Ecosystem Assessment, Island Press, Washington DC.

Medaets, J-P and M. F. Fonseca de A. C. Produção orgânica: regulamentação nacional e internacional. Brasília, NEAD. 2005.' NEAD. Estudos No. 9. Disponível em: <http://www.nead.gov.br/index.php?acao=biblioteca&publicacaoID=314>. Acesso em: 17 ago.

Meirelles, L. 2004. Centro Ecológico, Rio Grande do Sul, Brasil, in: Lernoud, A. P. (Ed) Taller de certificación alternativa. 13 a 17 de abril 2004. Torres-RS-Brasil. Guia del taller.. pp 27-33

Meléndez-Ortiz, R., C. Bellmann, and J. Hepburn. 2009. Agricultural Subsidies in the WTO Green Box: Ensuring Coherence with Sustainable Development Goals. ISBN-13: 9780521519694

North, Douglass C. 2005. Understanding the Process of Economic Change. New Jersey (USA) and Oxfordshire (UK): Princeton University Press.

Sanders, Richard. 2006. 'A Market Road to Sustainable Agriculture? Ecological Agriculture, Green Food and Organic Agriculture', *Development and Change* 37(1): 201-226.

UNEP. 2009a. Global Green New Deal. Policy Brief.
http://www.unep.org/pdf/A_Global_Green_New_Deal_Policy_Brief.pdf

Vries, de Brad. 2000. Multifunctional agriculture in the International Context: a review.

Willer and Yusefi (eds). *The World of Organic Agriculture. Statistics and Emerging Trends 2008*, Germany, IFOAM. FIBL.

World Bank (2007): *World Development Report 2008*. Washington DC. USA.

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