

# ORGANIC AGRICULTURE

EuropeAid

## Information Note



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## List of Abbreviations

OA	Organic Agriculture
IFOAM	International Federation of Organic Movements
TPC	Third Party Certification
PGS	Participatory Guarantee System
CB	Certification Body
IOAS	International Organic Accreditation Services
ICS	International control system
TBT	Technical barriers to Trade

## 1 Introduction to the Information Note

Organic Agriculture (OA) is a production system based on an agro-ecosystem management approach that utilizes both traditional and scientific knowledge.

OA offers developing countries a wide range of economic, environmental, social and cultural benefits. Global markets for certified organic products have been growing rapidly over the past two decades. OA also brings valuable contributions to society outside the market place, regardless of whether the products are marketed as organic or not.

Third party certification appears to be the most reliable tool for guaranteeing the organic status of a product in the anonymous market, but it has the significant drawback of cost, usually born by the producer. However, this is not the universal tool for organic quality assurance; other systems include participatory guarantee systems – managed at low cost by groups of producers themselves.

## 2 Origins and Principles of Organic Agriculture

The historical evolution of organic agriculture goes back to dates from the beginning of the 20<sup>th</sup> century when improvements in biochemistry and engineering led to intensified conventional farming. This intensification, the use of synthetic fertilizers and chemical pesticides received criticism and triggered the evolution of organic farming movements from the 1920s onwards, major influences stemming mostly from European countries. Rudolf Steiner (1861–1925), Albert Howard (1873-1947) and Lady Eve Balfour (1898-1990) were some of the most influential pioneers.

The first organic agriculture organizations and farmer's associations were established in the 1940s, including the first organic label Bioland, as well as Naturland and Demeter in Germany, Bio Suisse in Switzerland, Nature et Progrès in France and the Soil Association in the UK. In 1972 the International Federation of Organic Agriculture Movements (IFOAM) was created as a forum for different actors engaged in organic farming.

The most simple expression of organic farming is "No chemical pesticides + No chemical fertilizers + Certification = Premium Price". Examples have shown that well-managed organic farming systems can deliver reasonably high yields without depleting natural resources (see 5.1). In some low production context, a low-input-low-effort strategy may be appropriate, but in many situations organic farming means more work-intensive and more productive farming (in the sense of active soil fertility management and pest management, application of manure etc.) than the system it replaces. OA is a **sustainable agricultural production system that builds on ecological processes without using synthetic chemical inputs, in order to obtain food (or other products) meeting certain quality specifications (see also Annex 2)**. For the IFOAM definition see Box:

### ***Definition of Organic Agriculture***

*"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved."*

### ***Principles of Organic Agriculture***

**1. Principle of health:** Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

**2. Principle of ecology:** Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

**3. Principle of fairness:** Organic Agriculture should build on relationships that ensure fairness with regard to common environment and life opportunities.

**4. Principle of care:** Organic Agriculture should be managed in precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

### 3 Organic Production and Market

#### 3.1 Scope of organic production<sup>1</sup>

There are at least (2010 figures) 37 million hectares of agricultural land organically worldwide, managed by 1.6 million certified producers. Non certified producers, for which no data exists, are estimated to be many times this figure.

The highest percentages of organically managed land as percentage of total of area under agriculture are in several Pacific Island countries, and in Timor Leste, Uruguay and Dominican Republic. Argentina, with by far the largest area under organic management (with four million hectares), is ranked seventh in terms of percentage of agricultural land.

According to a survey conducted by the Research Institute of Organic Agriculture in Frick, Switzerland (FiBL) and IFOAM in 2010 a total of 1'6 million organic producers were reported. Most of the organic producers are in developing countries,

**Table 1: World: Organically managed agricultural land and producers by continent in 2010**

	<b>Africa</b>	<b>Asia</b>	<b>Europe</b>
<b>Certified agricultural land</b>	1 mio ha	2.8 mio ha	10 mio ha
<b>% of world's organic agricultural land</b>	3 %	7 %	27 %
<b>Producers</b>	570'000	500'000	280'000
<b>Countries with most organic land</b>	Uganda (0.23 mio ha) Tunisia (0.18 mio ha) Ethiopia (0.14 mio ha)	China (1'4 mio ha) India (10.8 mioha) Timor Leste (24 mio ha)	Spain (1'5 mio ha) Italy (1'1mio ha) Germany (0.9 mio ha)
<b>Countries with highest share of organic land (organic land as % of total agr. land)</b>	Sao Tome and Principe (7.9 %) Sierra Leone (1.9 %) Tunisia (1.8 %)	Timor Leste (7 %)	Liechtenstein (27.8%) Austria (19.7%) Estonia (12.5%) Switzerland (11.4%) Sweden (14.1%)
	<b>Latin America</b>	<b>North America<sup>2</sup></b>	<b>Oceania</b>
<b>Certified agricultural land</b>	8.4 mio ha	2.7 mio ha	12.1 mio ha
<b>% of world's organic agricultural land</b>	23%	0.7%	33%
<b>Producers</b>	270'000	14'062	78.500
<b>Countries with most organic land</b>	Argentina (4.2 mio ha) Brazil (1.8 mio ha) Uruguay (0.9 mio ha)	-	Australia (12' mio ha) New Zealand (124'000 ha) Samoa (9.714 ha)
<b>Countries with highest share of organic land (organic land as % of total agr. land)</b>	Falkland Island /Malvinas (35.9%) Dominican Republic (8.5 %) French Guyana ( 7.8%) Argentina (3 %)	-	Samoa (7.9%) French Polinesia (3.8%), Niue (3.1 %)

<sup>1</sup> The data from this paragraph are from : "The World of Organic Agriculture Summary 2012" downloaded 16-02-2012 at <http://www.organic-world.net/fileadmin/documents/yearbook/2012/fibl-ifoam-2012-summary.pdf>

<sup>2</sup> 2008 data for USA and 2009 data for Canada

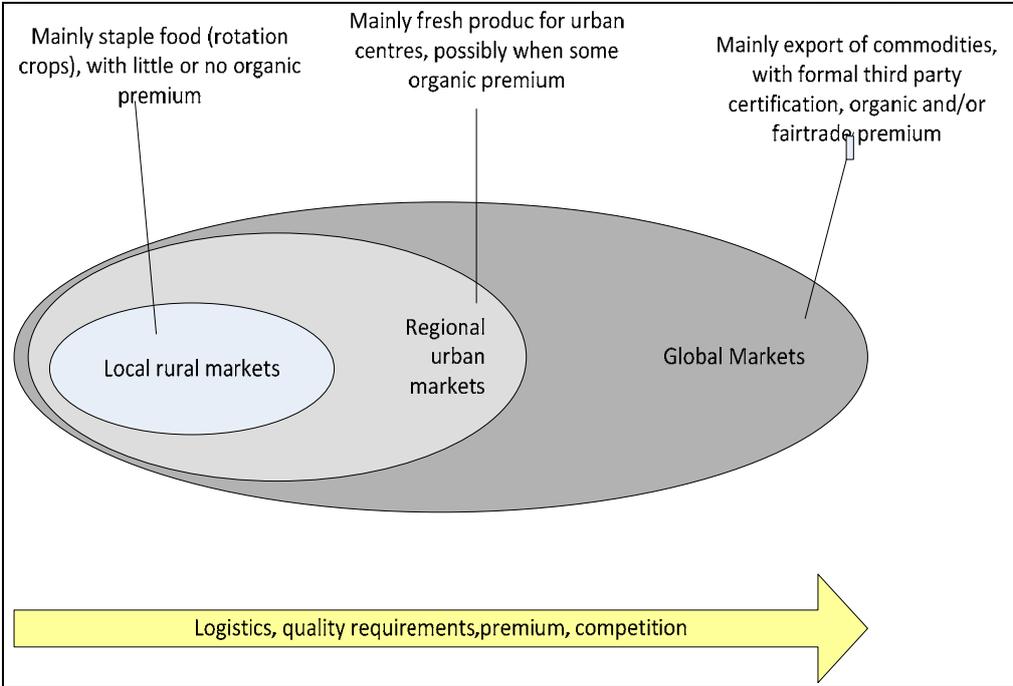
### 3.2 The global organic market and the potential of regional and local markets in developing countries

According to the Organic Monitor<sup>3</sup> estimates, global sales reached USD 50.9 billion in 2008, from USD 25 billion in 2003. The main organic markets are in North America and Europe (sharing approximately 48% of the world market each). The Japanese market is much smaller. Emerging economies like India and China are big exporters, but as yet are small consumers of organic products. Brazil and South Africa have better developed regional and local middle class markets for organic products especially in their cities.

Figure 1 shows distinctions between local rural markets, regional urban markets (in the same or in neighboring countries) and global markets for organic products. In the rural markets of most developing countries, organic products do not fetch a price premium. Urban regional markets in some countries offer the potential of good prices for organic products, particularly for fresh produce of high quality. For many developing countries, however, export markets still provide the most promising opportunity for obtaining a reasonably high price. Requirements in terms of logistics, quality management and formal certification are also the highest here, though.

A pure export focus with only one product is risky, because farmers need to be able to compete with other countries that produce the same product. In many cases a diversification strategy with different products to be sold in different markets (local, regional and global) seems to be an attractive option - also for long term productivity and environmental reasons. The local market can be a promising business option, too: in each country there is a limited number of consumers willing to pay more or choose for organic products. These local markets typically start with products such as fruit and vegetables, and with some promotional activities to raise consumer awareness, it can grow significantly. For an overview of markets in Asia, Latin America and Africa, see Annex 3.

**Figure 1: Characteristics of local, regional and global markets for organic products**



<sup>3</sup> <http://www.organicmonitor.com/>

Source: adapted from: Van Elzakker, B. and Eyhorn, F. (2010): The Organic Business Guide: Developing Sustainable Value Chains with Smallholders. Bonn: IFOAM and collaborating organisations

## 4 Quality Assurance of Organic Agriculture

### 4.1 Organic standards

At the international level the FAO/WHO **Codex Alimentarius<sup>4</sup> Commission (CAC)** has produced international guidelines for Production, Processing, Labelling and Marketing of Organically Produced Foods to guide producers and to protect consumers against deception and fraud. These guidelines have been agreed upon by all member states of the CAC and are regularly updated. The CAC approved plant production guidelines in June 1999, and animal production guidelines in July 2001.

*Codex Alimentarius Commission* guidelines include accepted management principles for the production of plants, livestock, bees and their products; for handling, storage, processing, packaging and transportation of products, and a list of substances permitted in the production and processing of organic foods. These guidelines are regularly reviewed within CODEX, particularly the criteria for permitted substances and the process by which inspection is carried out and certification held.

The CODEX Organic Guidelines officially have the status of recommendations but carry a certain legal value as the official international standard and as such is significant in the frame of the WTO/TBT agreement. In developing national standards developing country governments should always be encouraged to follow and/or ensure compatibility with the CODEX Guideline.

- The Codex Alimentarius Commission and the FAO/WHO Food Standard Programme: Organically Produced Foods, Rome 2007  
[www.codexalimentarius.net/download/standards/360/cxg\\_032e.pdf](http://www.codexalimentarius.net/download/standards/360/cxg_032e.pdf)

The private sector's guideline is the **International Basic Standards for Organic Production and Processing, created by IFOAM**. The IFOAM Basic Standards define how organic products are grown, produced, processed and handled. They reflect the current state of organic production and processing methods and include a list of substances permitted in the production. IFOAM Basic Standards – together with the IFOAM Accreditation Criteria – constitute the IFOAM Norms, which provide a framework for certification bodies and standard-setting organizations world-wide to develop their own certification standards.

- IFOAM Guarantee system [www.ifoam.org/about\\_ifoam/standards/index.html](http://www.ifoam.org/about_ifoam/standards/index.html)

The number of countries with an organic technical regulation has already reached 73. There are 16 countries that are in the process of drafting legislation on organic production. For the list of countries with regulations or in the process of drafting regulations on organic agriculture and some of the leading standards, see Annex 1.

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<sup>4</sup> The Codex Alimentarius is an inter-governmental body that sets standards for all foods. It forms together with the International Office of Epizootics (OIE) and the International Plant Protection Convention (IPPC) the three standard-setting organization of the WTO SPS-Agreement.

The first **EU regulation on organic farming** was adopted in 1991 and years that followed saw impressive growth in the production and consumption of organic products across many Member States. The first regulation was frequently amended in the face of such a fast growing sector. One important benchmark was in 1999, when supplementary rules on animal husbandry were adopted. A total revision of the European regulatory framework for organic food and farming resulted in the Council Regulation (EC) 834/2007 on organic production and labelling repealing Regulation (EEC) 2092/91. The new Council Regulation introduces a range of simplified and improved rules on the production, labelling, and importing of organic products.

**Private standards of organic farming:** Today, standards on organic farming encompass hundreds of private voluntary standards. These standards often have additional and more stringent requirements than public mandatory regulations (as for example on animal welfare or certain compost preparation recipes).

## **4.2 Inspection, Certification and Accreditation**

Organic certification ensures that the product is truly produced in compliance with organic standards. It builds trust between the buyer and the producer, and also protects the genuine producer from unfair competition. Certification gives organic farming a distinct identity and credibility and makes market access easier.

For farmers wanting to demonstrate the organic quality of their production to their buyers, there are several options.

### **1. Third Party Certification (TPC):**

The most widely used model is Third Party Certification (TPC) carried out by **an independent body**. This type of certification is often a precondition for gaining access to larger markets for organic products. In Europe, North America, Japan, Brazil, South Africa, China, India – labelling agricultural products as "organic" requires inspection and certification from an accredited certification body (CB).

### **2. Smallholder Group Certification based on Internal Control System (ICS) (a special type of third party certification)**

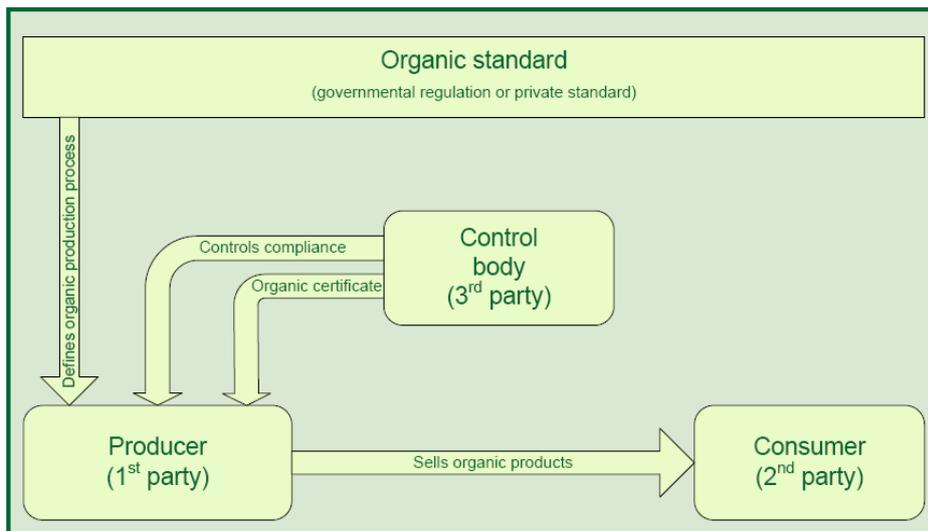
A TPC version adapted to the local conditions of developing countries is the Smallholder Group Certification. Here several small scale farmers with similar farming practices who market collectively can be **certified together, with internal "inspectors"** inspecting every farm, and an **accredited certification body auditing the group's Internal Control System**.

### **3. Participatory Guarantee System (PGS):**

Participatory Guarantee Systems are locally focused quality assurance systems. They certify producers based on **active participation of stakeholders** and are built on a foundation of trust, social networks and knowledge exchange.

#### **4.2.1 Third party certification**

Third party certification is in contrast to first party (self-certification) and second party certification (carried out by a body closely related to the supply chain). TPC is viewed as more reliable and credible than first and second-party certification, because credibility of the Third Party certifier itself is backed up by accreditation. Accreditation is either provided by private or public sector often by (or with the consent of) public authorities. Requirements for accreditation are laid down in ISO 65 which is endorsed by the European Union as EN 45011. Since 2008 a common framework of the European policy of accreditation is specified in Regulation EC 765/2008 which is effective from 1 Jan 2010.



**Figure 2: Third Party Certification schemes**

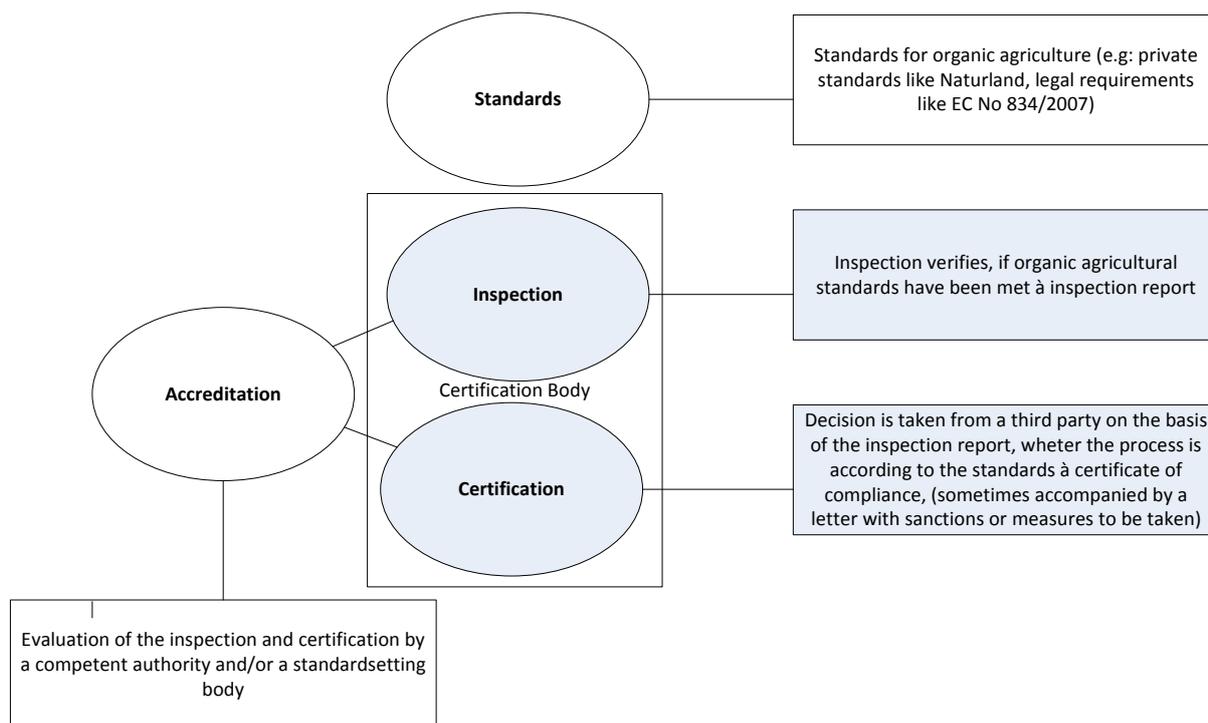
Typically, the process of obtaining TPC operates in the following way. First, an operator (e.g. producer, importer, supplier) applies to a particular third-party certifier body for certification. Second, the third-party certification body conducts a pre-assessment and a documentation review of the operator's facilities and production operations. Third the CB conducts field audits (inspection) and the inspector fills out the inspection report. Fourth, when conformity is verified, the certifier issues a certificate and allows the supplier to label its products as certified. In general, suppliers are responsible for meeting the costs of the audit, however, subsidies are paid to some farmers of developing countries.

It is important that every farmer, processor and importer in the organic farming supply chain is inspected at least once a year to ensure their compliance with the regulation. Certification needs to be renewed on an annual basis and needs to also cover all processing and trading steps involved up to the sale of the product.

In the EU ,this process is supervised by each EU Member State, which is responsible for establishing an inspection system with competent authorities to ensure adherence to the obligations established in the organic Regulation.

Most national and supranational regulations require producers to be certified by an approved and independent certification body.

Certifications bodies, being private or public organizations, can be accredited by independent third-party accreditation bodies. At the international level, the EA (European Accreditation) or IAF (International Accreditation Forum) are the accepted organisations to which accreditation authorities must belong. The International Organic Accreditation Service (IOAS) is the major accreditation body accrediting certification bodies according to IFOAM criteria. At the national level, governments or national accreditation bodies which are recognized by the respective government, accredit certification bodies.



**Figure 3: Accreditation and Certification**

### Inspection bodies

In this capacity, each EU Member State has designated a number of public authorities and/or approved private inspection bodies to carry out the inspections. All inspection bodies or inspection authorities act under the supervision or in close cooperation with the central competent authorities of the Member States. Each year the Member States report on this supervision or cooperation to the EU Commission.

Private inspection bodies must satisfy certain conditions, most important being the following:

- They have to be accredited under the EU's General requirements for bodies operating product certification systems
- They have to be approved by the Member States' competent authority
- They have to be objective vis-à-vis the operators subject to their inspections

### Certification

"Procedure by which a certification or control authority or body (a third party) gives written assurance that a product, process or service is in conformity with certain standards. Certification of food may be, as appropriate, based on a range of inspection activities which may include continuous on-line inspection, auditing of quality assurance systems and examination of finished products" (Art. 2.2 of CAC/GL 20- 1995). The equivalent term in the context of the Regulation (EC) 834/2007 for organic products is "Control".

### Control/Inspection/Audit

"Examination of food or systems for control of food, raw materials, processing, and distribution including in-process and finished product, in order to verify that they conform to requirements. For organic food, inspection includes the examination of the production and processing system" (Art. 2.2 of CAC/GL 20- 1995).

### Accreditation

"Procedure by which a government agency having jurisdiction formally recognizes the competence of an inspection and/or certification body to provide inspection and certification services. For organic production the competent authority may delegate the accreditation function to private body" (Art. 2.2 of CAC/GL 20- 1995).

In the European Union, organic control bodies have be accredited to European Standard En 45011 or ISO Guide 65.

### Further Reading

- Internet: [http://www.unctad.org/trade\\_env/itf-organic/meetings/itf8/IROCB\\_0809%20.pdf](http://www.unctad.org/trade_env/itf-organic/meetings/itf8/IROCB_0809%20.pdf)

### 4.2.2 Smallholder Group Certification based on Internal Control System (ICS)

The majority of agriculture practitioners worldwide are smallholders. Their adoption of organic agriculture and certification as OA producers open to an interesting market locally, and for those with access to the export chain, to the EU, the U.S and Japan. However, there is no doubt that yearly or two-yearly conventional third party certification is costly. Therefore, an alternative to the conventional third party certification, the smallholder group certification based on ICS, was developed in order not to marginalize smallholder and unduly exclude them from the organic sector.

IFOAM defines ICS based smallholder group certification as being based on a documented quality assurance system that allows an external certification body to delegate the periodic inspection of individual group members to an identified body or unit within the certified operator. This means that the third party certification bodies only have to inspect the proper functioning of the system, as well as perform a few spot-check re-inspections of individual smallholders.

The rational behind ICS based smallholder group certification is two-fold:

- 1) Facilitate smallholder certification i.e. simplify certification and reduce its cost for smallholders through coordinated documentation and
- 2) Implement and maintain a high quality assurance system for organic standards in smallholder production.

Rules on the type and extent of inspections of smallholder organization in third countries must be equivalent (rather than identical) to the provisions of EU Regulation on Organic Farming. The regulation requires an annual inspection of every organic farm; however, the majority of agricultural products are produced in countries of the third world, mostly by small growers in remote regions, who do not have access to adequate roads and infrastructure. In order to clarify procedures for group inspection in third countries, EU Commission has issued a Guidance Document in 2003 (Guidance document for the evaluation of the equivalence of organic producer group certification schemes applied in developing countries). This document defines requirements for inspection and certification of small holder organizations. Each smallholder group who wishes to be certified has to establish an Internal Control System (ICS). This system has to assure that all farmers who shall be certified are internally inspected once a year by authorized internal inspectors. The ICS is assessed by the certifier during an external inspection. During inspection, ICS procedures and documents are verified and a certain number of farmers are selected for re-inspection.

Operators in third countries who wish to be certified as a group have to fulfil the following requirements:

- In principle only small farmers can be members of the group covered by group certification. Larger farms (i.e. farms bearing an external certification cost that is lower than 2 % of their turnover) can also belong to the group but have to be inspected annually by the external inspection body. Processors and exporters can be part of the structure of the group, but have to be inspected annually by the external inspection body.
- The farmers of the group must apply similar production systems and the farms should be in geographical proximity.
- A group may be organized on itself, i.e. as a co-operative, or as a structured group of producers affiliated to a processor or an exporter.
- The group must be established formally, based on written agreements with its members. It shall have central management, established decision procedures and legal capacity.
- When intended for export, the marketing of the products must be carried out as a group.

Key features of an accepted Internal Control System (ICS) in the context of group certification are that there is a documented internal quality system that includes a contractual arrangement with each individual member of the group. The group designates internal inspectors to carry out internal controls who must receive suitable training. The internal quality system sets out rules to avoid or limit potential conflicts of interest of the internal inspectors. The internal inspectors carry out at least one annual inspection visit to each individual operator including visits to fields and facilities.

The internal control system keeps appropriate documentation including at least a description of the farms and the facilities, the production plans, the products harvested, the contractual arrangement with each individual member and internal inspection reports

The internal control system includes the application of sanctions to individual members who do not comply with the production standards. It shall inform the external inspection body of the irregularities and non-compliances found, as well as of the corrective actions imposed with the agreed time for completion.

#### Further Information:

- CERES, Certification of Environmental Standards GMBH.  
Internet: <http://www.ceres-cert.com/portal/index.php?id=54>
- Padel, S. (2010): The European Regulatory Framework and its Implementation in Influencing Organic Inspection and Certification Systems in the EU. Part of the CERTCOST Project agreement no. 207727, with financial support from the European Community under the 7th Framework Programme.  
Internet: [http://certcost.org/Lib/CERTCOST/Deliverable/D14\\_D11.pdf](http://certcost.org/Lib/CERTCOST/Deliverable/D14_D11.pdf)

### 4.2.3 Participatory Guarantee Systems

Through the important development and professionalization of the organic sector, accompanied by increased international trade third party certification has become the norm in most developed organic markets. However, critics of this organic certification system argue that the mounting costs and inflexibility of this certification process create serious barriers to small-holder and family farmers being able to be certified as organic. These costs reduce the potential for growth in developing countries; both of production and consumption of organic products, and their access to international markets. Participatory Guarantee Systems (PGS) represent an alternative to third party certification

especially adapted to local markets and short supply chains. They have developed in accordance with the needs of the main users of certification: The farmers and the consumers.

*“Participatory Guarantee Systems are locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange”* <sup>[1]</sup> (IFOAM definition, 2008).

### **What are participatory guarantee systems?**

Participatory Guarantee Systems share a common goal with third-party certification systems in providing a credible guarantee for consumers seeking organic produce. The difference is in approach. As the name suggests, direct participation of farmers and even consumers in the guarantee process, is not only encouraged but may be required. In stark contrast to existing certification programs that start with the idea that farmers must prove they are in compliance to be certified, PGS programs use an integrity based approach that starts with the foundation of trust. It builds from there with an unparalleled transparency and openness, maintained in an environment that minimizes hierarchies and administrative levels.

The Idea of PGS is that instead of having an external certifier and therefore high and additional cost, a network of groups of farmers organizes itself to define the organic standards and practices, inspect each other and verify compliance with the organic principles. The system requires a great amount of coordination and time; however the important aspect is that small farmers are able to become certified because the financial costs are lower, In fact, certification often becomes a benefit as farmers receive training and capacity building from the inspection process.

### **Key Features of PGSs**

- **Norms conceived and adopted by the stakeholders** through a democratic and participatory process, but always in accordance with the commonly understood sense of what constitutes an organic product.
- **Grassroots Organization:** The participatory certification should be perceived as a result of a social dynamic, based on an active organization of all stakeholders. The participatory nature and horizontal structure of PGS programs allow for more appropriate mechanisms of certification making it very suitable to small-scale producers. Organizations are driven by principles and values that enhance the livelihoods and well being of farming families and promote organic agriculture.
- **Documented management systems and procedures** to demonstrate the producers' organic commitment and integrity. This includes farmer pledges and mechanisms to verify farmer's compliance to the established norms, while stimulate participation, organization and learning opportunities for all the stakeholders.
- **Seals or labels** providing evidence that the farm has followed organic practices.
- **Clear and previously defined consequences** for farmers not complying with standards, actions recorded in a data base or made public in some way.

IFOAM (2008): PGS Guidelines – How participatory Guarantee System Can Develop and Function"

The term Participatory Guarantee System is relatively new – coined after the joint IFOAM-MAELA Alternative Certification workshop in Torres Brazil in 2004. Over 40 participants representing programs from 20 countries attended and many of these programs from 20 countries were well established by that time. For example some programs like the PGS in France have been around since the 1980's. During the past few years the PGS concept has gained recognition and is now viewed by many as one of the most promising tools to develop local organic markets. More than 20 functional

PGS initiatives exist, spread out over all five continents some of these initiatives are very local (i.e. groups of a few dozen farmers, operating at the village or district level), while others have scaled-up into national PGS systems, involving hundreds to thousand of farmers. It is estimated that around 10'000 small operators are involved in PGS world-wide. This includes mostly small farmers and a very small number of small processors.

## 5 The potential and the challenges for developing countries

### 5.1 Food security and sustainability

Organic agriculture is a production system that sustains health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than on the use of inputs with adverse effect. It has the potential to produce enough food on a global per capita basis to sustain the total human population without increasing the agricultural land base:

- Organic systems are **diverse** and evaluated on the basis of total farm productivity. They produce more than just one single crop. Moreover, organic systems provide environmental services, for example in the form of nitrogen-fixing in plants, increased pollination and pest control, bringing cleaner water and increased biodiversity.
- OA uses **green manure** (leguminous plants), compost, mulch, and seaweed for fertilization. It is estimated that nitrogen fixation from leguminous cover crops are sufficient to replace the global amount of synthetic fertilizer currently in use. Green manure can easily be applied by poor smallholders.
- Many studies have demonstrated the **positive impact** of OA **on soil fertility**, showing increase in soil organic matter and available nutrients. Increased soil fertility contributes in long-term to higher and more stable yields.
- OA systems have **great resilience** which is helpful as climatic conditions become more extreme. This again improves the stability of food access.
- Organic systems rely on **local ecosystems**; they increase food availability and access exactly in those locations where poverty and hunger are more severe.
- OA recognizes the value of traditional and indigenous knowledge.

See Annex 4 for more information on sustainability and climate change and OA.

### 5.2 Organic agriculture – some frequent perceived drawbacks

There is a growing body of research indicating that also in developing countries urban and informed consumers are interested in organic agriculture, often for health and food safety reasons. In addition the impact of O.A on Farmers health is being recognised.

For example in one study in Brazil farmers ranked better health as the most important benefit from converting to O.A. well above improved market access <sup>5</sup>

There are still reticence from the farmers and policy makers in developing world to O.A.

Some perceived drawbacks are

- The long term perspective: Chemical fertilisers might give rapid return in the short term, while, on the contrary the first years of an O. farm will not bring yields as high as if chemical fertilisers has been used. OA needs a long term perspective. Many governments set up systems to support farmers during the "conversion phase"

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<sup>5</sup> Certified organic agriculture in China and Brazil: Market accessibility and outcomes following adoption Myles Oelofse a, Henning Høgh-Jensen b, Lucimar S. Abreu c, Gustavo F. Almeida d, Qiao Yu Hui e, Tursinbek Sultan f, Andreas de Neergaard. Ecological Economics 68(2009) 3018-3025

- The idea that yields are much lower in O.A., and that widespread adoption of organic agriculture would require farmers to expand farming into marginal and natural areas to grow the same amount of food, thus destroying more fragile ecosystems and reducing biodiversity. On the contrary, O.A. yields are only slightly lower than conventional yields in developed countries and actually typically much higher than conventional yields in tropical countries where areas with the highest biodiversity are located, so a worldwide adoption of Organic Agriculture would, overall, benefit wild areas.- Concerning biodiversity, conventional agriculture damages immediate surrounding wild areas as well as ecologically-connected wild areas further away and decreases agro-biodiversity (see DEVCO E6 Technical note on Agro biodiversity).
- From the consumer perspective it is often claimed that organic food is too expensive and that people can't afford organic products, so promoting them will reduce fruit and vegetable consumption, which are healthy, but expensive when organic. Actually the main reason why O.A. produces are more expensive is that negative externalities are never accounted for. Conventional agriculture carries many hidden costs, such as the external environmental and social costs that such production systems create. These external costs are not included in the cost of production and in the final price because they remain externalities to the farm production system. One example of such an externality is the need for, and cost of, water treatment and environmental protection measures due to pesticide use in conventional farming, not to speak of reduction of health risks to farmers due to inappropriate handling of pesticides and to consumers due to a healthier food and water supply (and avoidance of future medical expenses). Concerning the additional cost due to the certification process, for northern consumers, the organic premium is declining due to increasing economies of scale in processing and commercialization of organic products as the sector develops. Nevertheless, it is likely that a premium will remain due to additional certification costs, higher purchasing power in consumer demand, and more demanding production standards.

### **5.3 Organic Agriculture from a Donors' Point of View**

Supporting organic initiatives addresses **agriculture, environment, climate change and biodiversity, economic development and trade in one.**

Organic farming seems to be particularly suitable for smallholders. There are some aspects that should be of particular interest for donors and development agencies:

- OA contributes to **poverty reduction and food security** by increasing yields over time in low-input areas; increasing net income and/or reducing costs of externally purchased inputs, producing safe and varied food.
- **Organic markets** not only offer a better price; they are usually a **safer place for smallholders** to be in than anonymous bulk markets where they have to compete with large-scale mechanised producers. In addition, if the production targets the special international market for **certified organic products**, there are **premium prices** to earn.
- OA **conserves biodiversity and nature resources** on the farm and in the surrounding area.
- As organic farming usually requires more labour, and people are needed in extension, internal control and value addition, organic initiatives offer an opportunity to **create employment** in rural areas. Moreover, it has also been observed to strengthen communities and give **youth an incentive to keep farming**, thus **reducing rural-urban migration**.
- The fact that organic farming does not need much money for inputs makes it easier for women to produce cash-crops and thus to earn some extra income. If organic initiatives take gender aspect into consideration from the beginning, **women can really benefit**.
- OA produces **safer food** and a **more varied and nutritious diet**.
- Organic-with-Fair Trade certification require that farmers are **organised in groups**. This helps strengthen their position within the **value chain (negotiation power!)** and makes it easier to

address social and environmental issues. The farmer organisations can facilitate access to know-how, credit and political influence.

- Moreover, OA in developing countries builds on and keeps alive farmers' rich heritage of **traditional knowledge and traditional agricultural varieties**.

Because of the traceability requirement in organic supply chains, it is easier to measure the impact of intervention. From the ICS documents one can learn how many farms produced how much, and can calculate the income generated.

Each of these problems alone could also be accomplished by means other than organic farming. However, the strength of OA is that it combines and integrates solutions to so many of the pressing problems of agriculture. Nevertheless, the success of an organic initiative depends to a considerable extent on the business environment and the general framework, in which it operates. Some questions, which could help to identify the potential and obstacles of an organic project (including a value chain), are:

- Do **government policies** (at national and regional level) further or hinder organic production? (E.g.: Is the government supporting pesticide application schemes, compulsory fumigation of agricultural goods for export or promote the use of fertilisers and GMOs through subsidies?)
- Are there **national or international schemes to support the development of agri-businesses**? (E.g.: Are there cost sharing arrangements for setting up processing or storage facilities, or export promotion programmes?)
- How is the **state of the transport infrastructure, financial services and legal system**? (E.g.: Are legal provisions in place that will enable private business to enforce contracts and prosecute fraudulent practices? Can agricultural-businesses get access to credit?)
- Do **agricultural research and extension services** cater to the needs of organic farmers? Is there already an organic agriculture movement in the country or region, which informs the organic farmers transparently and proactively?

#### Further Information:

- IFOAM (2008): *Criticisms and Frequent Misconceptions about Organic Agriculture: The Counter-Arguments*. Free Download Available on: [www.ifoam.org](http://www.ifoam.org)
- IFOAM (2007): *Organic Agriculture and the Millennium Development Goals - Dossier*. Bonn: IFOAM. Available on: [http://shop.ifoam.org/bookstore/product\\_info.php?products\\_id=514](http://shop.ifoam.org/bookstore/product_info.php?products_id=514)
- Kilcher, L. (2007): *How Organic Agriculture Contributes to Sustainable Development*. Archived at: <http://orgprints.org/10680/>

## Annex 1

### Organic public legislation

Table: Countries with regulations or in the process of drafting regulations on organic agriculture

Region	Country	Regulation
<b>Africa</b>	Egypt	In process of drafting regulations
	Morocco	In process of drafting regulations
	South Africa	In process of drafting regulations
	EAC (Burundi, Kenya, Rwanda, Tanzania, Uganda)	Fully implemented
	Tunisia	Fully implemented
	Zambia	In process of drafting regulations
<b>The Americas and Caribbean</b>	Zimbabwe	In process of drafting regulations
	Argentina	Fully implemented
	Bolivia	Fully implemented
	Brazil	Fully implemented
	Canada	Fully implemented
	Chile	Fully implemented
	Costa Rica	Fully implemented
	Colombia	Fully implemented
	Cuba	In process of drafting regulations
	Dominican Republic	Fully implemented
	Ecuador	Fully implemented
	El Salvador	Not fully implemented
	Guatemala	Not fully implemented
	Honduras	Fully implemented
	Mexico	Not fully implemented
	Nicaragua	In process of drafting regulations
	Paraguay	Not fully implemented
	Peru	Fully implemented
	St. Lucia	In process of drafting regulations
	Uruguay	Not fully implemented
USA	Fully implemented	
Venezuela	Not fully implemented	
<b>Asia and Pacific Region</b>	Armenia	In process of drafting regulations
	Azerbaijan	Not fully implemented
	Australia	Fully implemented
	Bhutan	Not fully implemented
	China	Fully implemented
	Georgia	Fully implemented
	Hong Kong	In process of drafting regulations
	India	Fully implemented
	Indonesia	Fully implemented
	Israel	Fully implemented
	Japan	Fully implemented
	New Zealand	Fully implemented

	Lebanon	In process of drafting regulations
	Phillippines	Fully implemented
	Korea South	Fully implemented
	Saudi Arabia	Not fully implemented
	Sri Lanka	In process of drafting regulations
	Syria	In process of drafting regulations
	Taiwan	Fully implemented
	Thailand	Fully implemented
	United Arab Emirates	Not fully implemented
<b>European Union</b>	All 27 Member states	Fully implemented
<b>Non- EU Europe</b>	Albania	Fully implemented
	Croatia	Fully implemented
	Iceland	Fully implemented
	Kosovo	Fully implemented
	Macedonia	Fully implemented
	Moldova	Fully implemented
	Montenegro	Fully implemented
	Norway	Fully implemented
	Serbia	Fully implemented
	Switzerland	Fully implemented
	Turkey	Fully implemented

Source: Willer, The World of Organic Agriculture 2010

**Annex 2**  
**EU Organic logo and import procedures**

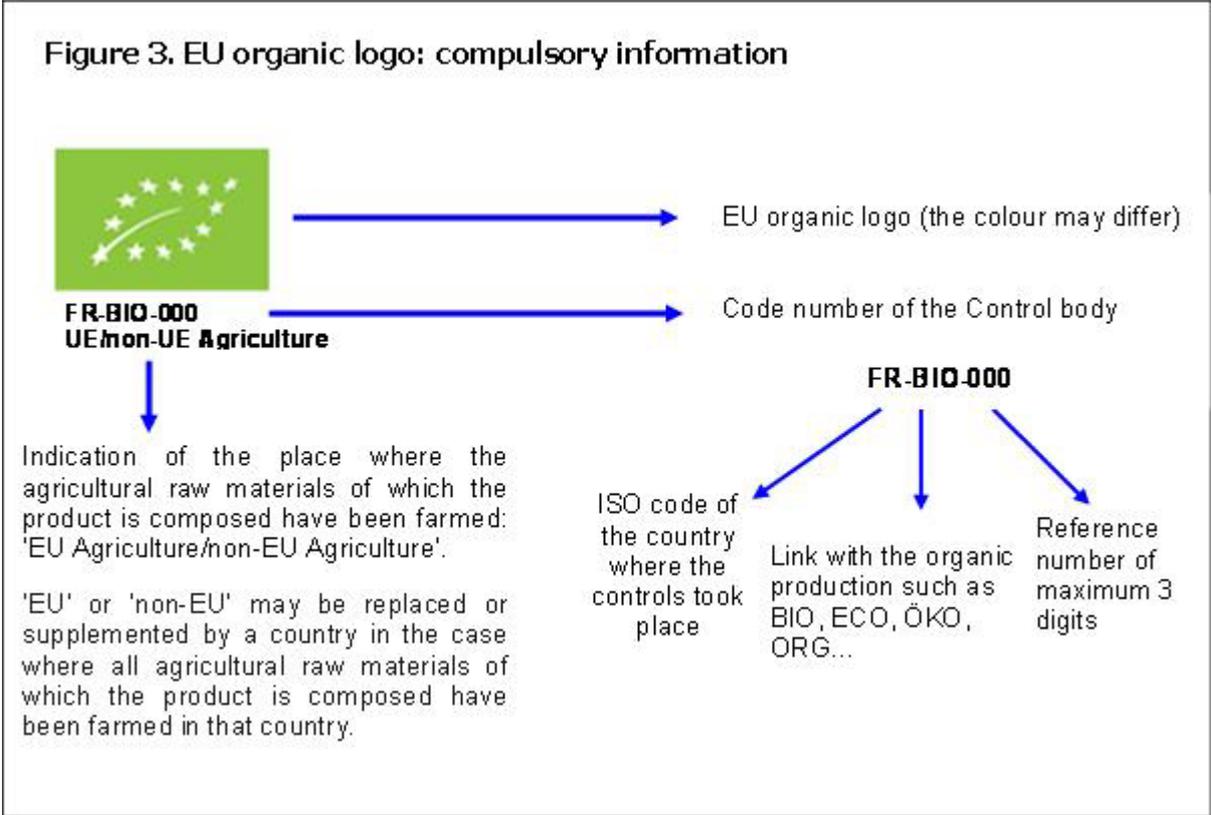


**Figure 4: The EU organic Logo**

As far as food is concerned, one of the important changes is the mandatory use of the EU organic logo on all pre-packed organic-labelled food produced in the EU (fully applicable as from 1 July 2012, after a 2 year transition period). The use of the EU logo will remain voluntary for imported and non pre-packed food products after this date.

Although compulsory, the EU organic logo does not exclude other standards and consequently other organic logos can be included on product labels. Examples include national logos like the AB in France, Bio-Siegel in Germany and Soil Association Certification in the UK.

From 1 July 2010, where the Community logo is used, a code number of the control body. An indication of the place where the agricultural raw materials were farmed should accompany it. It should be indicated that the raw materials originate from 'EU Agriculture', 'non-EU Agriculture' or 'EU/non-EU Agriculture'. If all raw materials have been farmed in only one country, the name of this specific country, in or outside the EU, can be indicated instead.



**Revised import procedures**

At the end of December 2008, the European Union published new regulation concerning the importation of organic products. The revised import procedures will gradually replace the current (temporary) system of import authorizations granted by Member States by an approval system for control bodies operating in countries outside of the European Union. The list of third countries which have been recognized by the European Commission as equivalent has been maintained and is gradually expanding.

In future, products produced in third countries which are not on the EU equivalency list will only be granted import into the EU if they are controlled and certified by a control body that has been approved by the European Commission. Therefore control bodies that intend to undertake such controls must apply to the European Commission and be approved by the Commission in cooperation with the Member States for this purpose. The first deadline for control bodies applying for recognition of their activities in Third Countries, i.e. countries outside the European Union, expired on October 31, 2009. The deadline of 31 October is an annual deadline that repeats each year. Until 2011 the European Commission received 90 applications from control bodies of all over the world. The first list of control bodies approved under the new import scheme will be published by end of 2011 and it will start to apply as from 1 July 2012. Import authorizations will be gradually phased out.

In the future, in addition to the existing list of equivalent third countries, the European Commission will publish lists of recognized control bodies and authorities. Once the new import system is fully implemented, there will be three different lists:

- 1) List of control bodies that apply a control system and certify to productions standards equivalent to the EU regulation on organic production.
- 2) List of control bodies that have been accredited according to EN45011/ISO 65 and that apply a control system and certify to the production rules compliant with the EU regulation on organic production. The provision on compliance with EU regulation on organic production is new and its application has been postponed until the year 2014.
- 3) The already existing list of countries whose system of production and control is equivalent to the EU's production and control provisions.

Compliance requires a full application of the EU Regulation, e.g. a seed database, and does not accept producer groups with internal control systems, whereas equivalence allows a locally adapted approach.

The new import regulation allows a more consistent, harmonized and effective control system for imported products and improves the possibilities for supervision of control bodies operating in Third Countries. It further increases transparency by publishing lists of recognized control bodies. In the old system, it was difficult for control bodies outside the European Union to prove the acceptance of their certification in the European Union. They were dependent on European importers' willingness to apply for an import authorization with a new or unknown control body – which mean confronting a significant hurdle. The new system allows control bodies operating in non-EU-countries to apply for recognition on their own initiatives, enabling them to prove they are recognized prior to the start of trade relationships. This also reduces the risk to importers who import products certified by non-European and/or lesser-known inspection bodies.

More information:

Import regulation: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:334:0025:0052:EN:PDF>

#### Further reading:

- The EU commission organic website  
[http://ec.europa.eu/agriculture/organic/splash\\_en](http://ec.europa.eu/agriculture/organic/splash_en)
- European Union Law

<http://eur-lex.europa.eu/>

### **JAS - Japanese Agricultural Organic Standard**

The JAS Standards for organic plants and organic processed foods of plant origin were established in 2000 on the basis of CODEX the Guidelines for the Production, Processing, Labelling and Marketing of Organically Produced Foods.



**Figure 5: The JAS Logo**

The organic JAS system has been further developed with the addition of the JAS Standards for organic livestock products, organic processed foods of animal origin and organic feeds which took effect in November 2005. Operators certified by registered Japanese or overseas certifying bodies are able to attach the organic JAS logo to products that were produced or manufactured in accordance with relevant organic JAS Standards.

#### **Further reading:**

- The Japanese Agricultural Organic Standard website  
<http://www.maff.go.jp/e/jas/specific/organic.html>

### **USDA Organic**



**Figure 6: The NOP (National Organic Programme) Logo**

The U.S. Department of Agriculture has put in place a set of national standards that food labelled "organic" must meet, whether it is grown in the United States or imported from other countries. Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones.

Organic food is produced without using most conventional pesticides; fertilizers made with synthetic ingredients or sewage sludge; bioengineering; or ionizing radiation.

#### **Further reading:**

- The United States Department of Agriculture (USDA) website  
<http://www.ams.usda.gov/AMSV1.0/NOP>

## Annex 3

### Sustainability and industry standards that can be combined with organics

Standards/Labels	Comments	Further Information
Fair Trade	Food, wine, flowers, sport balls	<a href="http://www.fairtrade.net">www.fairtrade.net</a>
Fair Wild	Standard for wild-collected natural ingredients	<a href="http://www.fairwild.org">www.fairwild.org</a>
FairForLife	Combination of social and fair-trade standards for agricultural, manufacturing and trade operations	<a href="http://www.fairforlife.net">www.fairforlife.net</a>
Rainforest Alliance	Conserving biodiversity, standard for agricultural forest as well tourism	<a href="http://www.rainforest-alliance.org">www.rainforest-alliance.org</a>
Utz Certified	Coffee, cocoa and tea certification programs	<a href="http://www.utzcertified.org/">www.utzcertified.org/</a>
CmiA – Cotton made in Africa	Enhancing competitiveness of African cotton	<a href="http://www.cotton-made-in-africa.com">www.cotton-made-in-africa.com</a>
BCI	Approach to minimize harmful impacts in cotton production, no formal certification but self assessment and learning exercise	<a href="http://www.bettercotton.org">www.bettercotton.org</a>
4C	Producers, trade, industry and civil society work together for more sustainability in the coffee sector	<a href="http://www.4c-coffeeassociation.org">www.4c-coffeeassociation.org</a>
GLOBALGAP	Key reference for Good Agricultural Practices (G.A.P.), is a single integrated supermarket standard with modular applications for different product groups, mainly known in the fruit and vegetable sector	<a href="http://www.globalgap.org">www.globalgap.org</a>
SA 8000	Standard for improving working conditions, based on international human rights conventions. It was the first auditable standard.	<a href="http://www.sa-intl.org">www.sa-intl.org</a>
Child labour	Certification showing that agricultural products are not produced by forced labour or child labour.	<a href="http://www.laborrights.org/stop-child-labor/child-labor-free-certification-initiative">www.laborrights.org/stop-child-labor/child-labor-free-certification-initiative</a>
International Food Standard	Food safety standard used by many supermarkets in Germany and France.	<a href="http://www.food-care.info">www.food-care.info</a>
BRC Food Standard	Food safety standard of the British Retail Consortium.	<a href="http://www.brcglobalstandards.com/standards/food">www.brcglobalstandards.com/standards/food</a>
ISO 9000	Quality management standard.	<a href="http://www.iso.org/iso_catalogue/management_standards/iso_9000_iso_14000.htm">www.iso.org/iso_catalogue/management_standards/iso_9000_iso_14000.htm</a>
HACCP	Hazard Analysis & Critical Control Point, a systematic preventive approach used in the food industry.	

**Source:** Van Elzakker, B. and Eyhorn, F. (2010): The Organic Business Guide: Developing Sustainable Value Chains with Smallholders. Bonn: IFOAM and collaborating organisations.

## Annex 4

### Overview of markets in developing countries

Most organic products from **Latin American** countries (90 percent) are sold to the European Union, to North America or to Japan.

Popular goods are especially those that cannot be produced in these regions, as well as off-season products. Thus, the development of robust local markets is still a major challenge, without which the sustainability of organic production cannot be achieved. Important organic crops for the domestic markets for which there is a growing local demand are tropical fruits, grains and cereals, coffee, cocoa, sugar, and meat. Most organic food sales occur in major cities, such as Buenos Aires and Sao Paulo. Eighteen countries have legislation on organic farming, and three additional countries are currently developing organic regulations. Costa Rica and Argentina have both attained Third Country<sup>6</sup> equivalency listing under the EU regulation on organic farming and several other Latin American countries are currently going through the recognition process.

In **Asia** most of the production is for export, however, domestic market growth can be observed. Voluntary organic standards by government standard-setting bodies have been set in Laos, Malaysia, Nepal, Thailand, the United Arab Emirates, and Vietnam. Standards are being drafted in Bhutan and Sri Lanka. Mandatory certification for organic labeling on the domestic market is required for China, Japan, Philippines, South Korea, and Taiwan.

**Africa** is the continent with the smallest share of certified organic production. The majority of the certified organic produce in Africa is destined for export markets. The European Union, as the major recipient of these exports, is Africa's largest market for agricultural produce. Tunisia, which attained the EU's Third Country equivalency listing in 2009, has an organic regulation. The 5-member East African Community (Burundi, Kenya, Rwanda, Tanzania and Uganda) has adopted a legally binding organic standard, applicable throughout the region. The first African Organic Conference, held in Kampala, Uganda, in May 2009, had a number of important outcomes: The Network for Organic Agriculture Research in Africa (NORA) was launched, and plans for forming an African Network (AFRONET) were further developed. The Second All Africa Organic Conference will be held in Lusaka, Zambia on 1-3 May 2012.

#### Examples of local markets

*In India, for example, organic pulses and cereals fetch a better price in local markets because consumers value the quality and taste. In Laos, a traditional aromatic rice variety produced by the organic farmers of a specific region has successfully been introduced in urban markets. In Zambia, organic farmers sell part of their produce in local farmers' markets or to urban supermarkets, while in Uganda box schemes have been organized that supply individual households. In many cities in low and middle income countries, organic farmers' markets have been established. Typical examples are the "Eco Ferias in Latin America. Different producers come together to market their (organic) produce directly to consumers. This is especially suitable if you have a variety of products, but of smaller volumes.*

**Source:** Van Elzakker, B. and Eyhorn, F. (2010): The Organic Business Guide: Developing Sustainable Value Chains with Smallholders. Bonn: IFOAM and collaborating organisations.

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<sup>6</sup> The import and placing on the EU market of organic products is only permitted when these products are obtained and controlled under the same or equivalent conditions as the EU produced ones. A list of recognised third countries can be found in Annex III of the Import Regulation (EC) No 1235/2008.

## Annex 5

### Organic farming, food security and climate change

#### Organic Agriculture and Food Security

##### Organic Agriculture and the Global Food Supply

We compared yields of organic versus conventional food production for a global dataset of almost 300 examples and estimated the average yield ratio in 10 food categories for the developed and the developing world. We also estimated the amount of nitrogen potentially available from fixation by leguminous cover crops used as fertilizer from studies in tropical and temperate regions. For most food categories, the average yield ratio was slightly <1.0 for studies in the developed world and >1.0 for studies in the developing world. With the average yield ratios, we modelled the global food supply that could be grown organically on the current agricultural land base. **Our estimates indicate that organic agriculture has the potential to produce enough food on a global per capita basis to sustain the current human population without increasing the agricultural land base.** In addition, estimates of nitrogen fixation from leguminous cover are sufficient to replace the amount of synthetic fertilizer currently in use. These results indicate that organic agriculture could contribute quite substantially to the global food supply, thereby reducing the detrimental environmental impacts of conventional agriculture.

Badgley, C.; Moghtader, J.; Quintero, E.; Zakern, E.; Chappell, M.; Avilés-Vazquez, K., Samulon, A. and Perfecto, I. (2006); Organic Agriculture and the Global Food Supply. In: Renewable Agriculture and Food Systems; Vol 22 (2); pp. 86-108.

##### Organic agriculture and food security in Africa

The UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) examined the relationship between OA and food security in Africa. They analysed the impact of OA on food availability as well as natural, social, human, physical and financial capital in the region. The conclusions are relevant for all African countries as well as many other developing countries around the world.

<b>Improvement to</b>	<b>Mechanism:</b>
<b>Amount of available food</b>	<ul style="list-style-type: none"><li>• Increase in food produced</li><li>• Increase in yields of food crops/livestock</li></ul>
<b>Natural capital</b>	<ul style="list-style-type: none"><li>• Benefits to natural environment – soils, water, fertility etc</li></ul>
<b>Social capital</b>	<ul style="list-style-type: none"><li>• Builds partnership between groups</li><li>• Increase community cohesion and cooperation</li></ul>
<b>Human capital</b>	<ul style="list-style-type: none"><li>• Increase in knowledge and skills of farmers</li><li>• Health and education benefits to farmers, households and community</li></ul>
<b>Physical capital</b>	<ul style="list-style-type: none"><li>• Improvements to infrastructure and markets</li></ul>
<b>Financial capital</b>	<ul style="list-style-type: none"><li>• Increased incomes to farmers</li></ul>

UNEP-UNCTAD Capacity-building Task Force on Trade, Environment and Development 2008: Organic Agriculture and Food Security in Africa. United Nations: Geneva and New York. [http://unctad.org/en/docs/ditcted200715\\_en.pdf](http://unctad.org/en/docs/ditcted200715_en.pdf)

##### Further reading:

- Badgley, C.; Moghtader, J.; Quintero, E.; Zakern, E.; Chappell, M.; Avilés-Vazquez, K., Samulon, A. and Perfecto, I. (2006); Organic Agriculture and the Global Food Supply. In: Renewable Agriculture and Food Systems; Vol 22 (2); pp. 86-108.
- FAO (2009): Project "Increasing incomes and food security of small farmers in West and Central Africa through exports of organic and fair-trade tropical products". Assessment of the

impact of the project in Burkina Faso, Cameroon, Ghana, Senegal and Sierra Leone. In Internet: <ftp://ftp.fao.org/docrep/fao/field/009/ak800e/ak800e00.pdf>

- Halberg, N., Peramaiyan, P. and Walaga, Ch. (2009): Is Organic Farming an Unjustified Luxury in a World with too many Hungry People? Archived at: <http://orgprints.org/15572>
- IFOAM (2006): Organic Agriculture and Food Security – Dossier. Boon: IFOAM
- UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) (2008): Organic Agriculture and Food Security in Africa. Internet: [http://www.unep-unctad.org/cbtf/publications/UNCTAD\\_DITC\\_TED\\_2007\\_15.pdf](http://www.unep-unctad.org/cbtf/publications/UNCTAD_DITC_TED_2007_15.pdf)
- Proceedinf of the International Conference on Organic Agriculture and Food Security 3-5 may 2007 FAO Italy : [http://www.fao.org/organicag/ofs/docs\\_en.htm](http://www.fao.org/organicag/ofs/docs_en.htm)

## Organic Agriculture and Climate Change

### Can Organic Agriculture be a Climate Change Adaptation and Mitigation Strategy for Developing Countries?

Climate change will dramatically effect agricultural communities and alter international food supplies. Five factors expected with climate change – rise in temperature, changes in precipitation patterns, rise of sea levels, higher incidence of extreme weather events (droughts, storms, floods) will all influence food production. They will as well have negative health effects like e.g. increased spread of diarrhoeal and infectious diseases, such as malaria. Combating such changes requires mitigation and adaptation strategies. The following section outlines how OA, used as a mitigation and adaptation strategy, has the potential to address the threats of climate change.

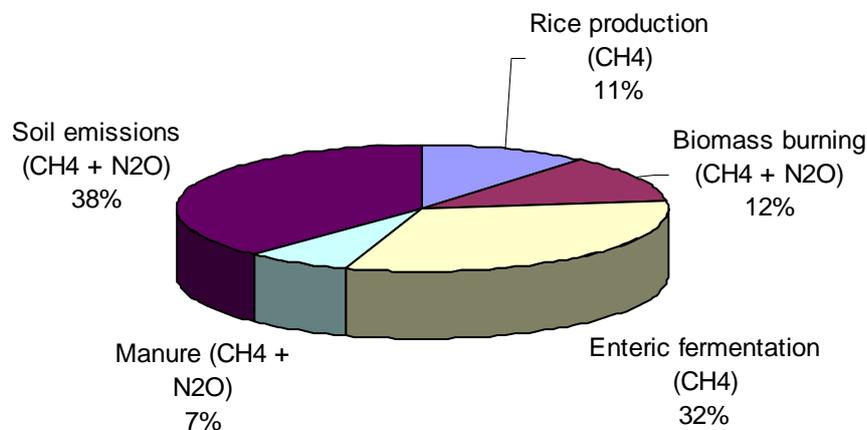


Figure 7: Main sources of "direct" GHG emissions in the agricultural sector in 2005

### Potential of Organic Agriculture for Mitigation

In agriculture there are two objectives which are followed by the climate change mitigation strategy. On the one hand, farming systems which contribute to the reduction of soil carbon losses caused by agriculture, need to be supported. And on the other hand, the greenhouse gasses (GHG) emitted by the agricultural sector have to be minimized.

According to the Inter-governmental Panel on Climate Change (IPCC) **agriculture currently accounts for 10-12% of global greenhouse gas (GHG) emissions** and this figure is expected to rise further. GHGs attributed to agriculture by the IPCC include emissions from soils, enteric fermentation (GHG emissions from the digestion process of ruminant animals), rice production, biomass burning and

manure management. However, there are **other indirect sources of GHG emissions that are not accounted for by the IPCC under agriculture** such as those generated from land-use changes, use of fossil fuels for mechanization, transport and agro-chemical and fertilizer production. The most significant indirect emissions are changes in natural vegetation and traditional land use, including deforestation and soil degradation. Soil carbon losses caused by agriculture account for one tenth of total CO<sub>2</sub> emissions attributable to human activity since 1850. Deforestation is a common land-preparing practice in many agricultural regions that lead to massive loss of carbon stocks and massive CO<sub>2</sub> emissions.

The concepts and science underlining the main Organic Agriculture practices that reduce greenhouse gas (GHG) emissions and sequester CO<sub>2</sub> are outlined in this section. These practices are often relatively easy to implement and deliver good results. Mitigation is primarily achieved thorough long established and optimized organic farming practices. Many of the practices below fulfil the requirements identified by the Intergovernmental Panel on Climate Change (IPCC)<sup>7</sup> for mitigation in agriculture. These practices include:

- **Avoidance of chemical fertilizers and herbicides**
- **Building soil carbon and soil fertility**
- **Avoiding bare soil**  
Ensuring the soil is always covered with vegetation prevents the soil from being exposed to processes that accelerate GHG emissions from stored soil carbon. Moreover, through the inclusion of catch crops and green manure within organic farming systems the emissions associated with additional nitrogen inputs is avoided.
- **Appropriate tillage**
- **Combining perennial and annual crops**
- **Sustainable livestock management**
- **Optimal manure management**  
Improved manure management including distribution systems, such as slurry injections into soils or drag hoses, reduce nutrients losses considerably.
- **Improved grass land management**  
Perennial grasslands are very effective sequestering carbon in the soil especially by building up carbon in their root systems. OA optimizes the huge soil sequestration capacity of grasslands through different measures.
- **System of Rice Intensification**  
Rice production is a key agricultural emitter of greenhouse gases. Innovative rice production systems based on organic principles of increased root development and increased soil organic matter through decreased flooding offers potential to significantly decrease agricultural CH<sub>4</sub> emissions. (There are around 160 millions hectares of rice, of which half are grown under irrigated areas)

#### **CO<sub>2</sub> emissions**

*Agriculture is an undervalued and underestimated climate change tool that could be one of the most powerful strategies in the fight against global warming. Nearly 30 years of Rodale Institute soil carbon data show conclusively that improved global terrestrial stewardship – specifically including regenerative organic agricultural practice – can be the most effective currently available strategy for mitigating CO<sub>2</sub> emissions.*

2008 Rodale Institute [http://www.rodaleinstitute.org/files/Rodale\\_Research\\_Paper-07\\_30\\_08.pdf](http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf)

#### **Potential of Organic Farming for Adaptation**

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<sup>7</sup> <http://www.ipcc.ch/>

Adaptation entered the agenda more prominently only recently, while mitigation has been a topic for long time. This is also reflected in the fact that there is more research available on OA as a mitigation than as an adaptation strategy. OA as a mitigation strategy faces many technical complexities (carbon sequestration and greenhouse gas emissions avoidance measurement and accounting, assessment of differences in crop rotations and practices, etc.), while the biggest challenges for OA as an adaptation strategy are more of a socio-cultural matter. Potential synergies between adaptation and mitigation strategies in agriculture do, however, exist.

OA fulfils many of the requirements identified for successful adaptation strategies. The key principles, that help farmers and communities adapt to climate change are described as followed:

- **Preventing and reversing soil erosion and restoring degraded land**  
Organic practices like using cover crops, catch crops, green manure, composting, appropriate tillage and the integration of perennials and trees into the farming system increase soil health. Healthy soils have higher organic matter contents and greater biological activity which improves soil structure and stability.
- **Drought and flooding resilience and water use efficiency**  
OA systems capture, store and use water more efficiently due to better soil structure and higher levels of humus and other organic matter compounds with sponge-like properties. Organic matter also enhances drainage in soils significantly reducing the risks from water-logging and surface-water flooding.  
Practices like crop residue retention, mulching and agro-forestry, conserve soil moisture and protect crops against microclimate extremes.
- **Resilient crops**  
Plants that obtain their nutrients through natural biological processes are more resilient to environmental stress than crops that obtain their primary nutrition artificially through highly soluble chemical fertilizers. This is mainly achieved through optimal soil and water management, the building of soil structure and fertility and the choice of locally adapted robust crop varieties. In addition, organic crops tend to have longer and denser roots that are able to seek out water reserves deeper in the soil profile and which are also more resilient to desiccation.
- **Agro-genetic biodiversity**  
OA encourages the use of locally adapted varieties and decentralised participatory breeding programs especially in-situ (on-farm) based conservation, breeding and production. In-situ approaches maintain varieties for future needs while allowing them to continuously adapt to environmental pressures such as climate change.
- **Diversification**  
Biologically diverse organic farms that optimize ecological functionality avoid the build-up of disease and pest levels and are more resilient to other environmental pressures. Crop diversity (both temporal and spatial) provides a variety of rooting depths that enhance soil stability and structure, improves nutrient and water use and contributes to a stabilized microclimate.
- **Local farmer knowledge**  
Indigenous and traditional knowledge are key sources of information on adaptive capacity, centred on the selective, experimental and resilient capabilities of farmers.

A recent study by the Asian Development Bank Institute<sup>8</sup> recommended Organic Agriculture for its climate-friendly and resilient farming practices. FAO has specified Organic Agriculture as a promising

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<sup>8</sup> International Food Policy Research Institute/ Asian Development Bank 2009: Building Climate Resilience in the Agriculture Sector of Asia and the Pacific.

way for agriculture to mitigate and adapt to climate change<sup>9</sup> and the IPPC's Fourth Assessment Report – without mentioning Organic Agriculture explicitly – recommended many practices for reducing agricultural emissions already common practice in Organic Agriculture such as recycling biomass waste as a nutrient source and, integrating crops and animals into single farm production system.

Further Information:

- IFOAM and IFOAM EU Group (2009): Organic Agriculture – a Guide to Climate Change & Food Security; High Sequestration, Low Emission, Food Secure Farming. Bonn: IFOAM.
- Müller, A. (2009): Benefits of Organic Agriculture as a Climate Change Adaptation and Mitigation Strategy for Developing Countries. Archived at: <http://orgprints.org/16506/>
- Van Elzakker, B. and Eyhorn, F. (2010): The Organic Business Guide: Developing Sustainable Value Chains with Smallholders. Bonn: IFOAM and collaborating organisations.

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<sup>9</sup> Niggli, U., Fliessbach, A., Hepperly, P. and Scialabba, N. 2009: Low Greenhouse Gas Agriculture; Mitigation and Adaptation Potential of Sustainable Farming Systems. FAO, April 2009.  
<ftp://ftp.fao.org/docrep/fao/010/ai781e/ai781e00.pdf>

## Annex 6

### Useful websites and information

#### Intergovernmental organisations

- Organics at **FAO**- Food and Agriculture Organisation: Publications, country data, glossary, bibliographic references, web links, link to research institutions, events etc.  
[www.fao.org/organicag](http://www.fao.org/organicag)
- Organics at **ITC**- International Trade Center: Business directories, news, publications  
[www.intracen.org/organics](http://www.intracen.org/organics)
- **UNEP-UNCTAD**- United Nations Environment Programme – United Nations Conference on Trade and Development - Capacity Building on organic agriculture  
[www.unep-unctad.org/cbtf](http://www.unep-unctad.org/cbtf)

#### Non-governmental organisation

- **IFOAM**- International Federation of Organic Agriculture Movements: Comprehensive information, principles and standards, member directory, list of professionals, publications, media, training platform etc.  
[www.ifoam.org](http://www.ifoam.org)

#### Research and advice on organic agriculture

- **Agro Eco Louise Bolk Institute** – Institute for international advice and research on sustainable agriculture nutrition and health care.  
[www.agroeco.nl](http://www.agroeco.nl)
- **Grolink** – Private company providing consultancy services on production, quality assurance, and marketing of organic products, quality assurance, and marketing of organic products.  
[www.grolink.se](http://www.grolink.se)
- **ICROF** – International Centre for Research in Organic Food Systems  
<http://www.icrofs.org/>
- **ISOFAR** – International Society of Organic Agriculture Research: Research publications and events.  
[www.isofar.org](http://www.isofar.org)
- **OCRAF**- Organic Research Centre Alliance: Organic research platform and network  
<http://orca.fiblgate.org/228.html>
- **The Organic & Fairtrade Competence Center** – The competence center belongs to Helvetas, a Swiss NGO, which implements organic and fair-trade projects in Africa, Asia and Latin America.  
[www.organicandfair.org](http://www.organicandfair.org)

#### Markets and Marketing of organic agriculture

- **Greentrade**: Organic market place and exchange platform  
<http://www.greentrade.net/>
- **Organic Monitor**: Organic market information  
<http://www.organicmonitor.com/>
- **Organic Market Place at ITC**: Importers, exporters and fairs  
[www.intracen.or/organics/market-place.htm](http://www.intracen.or/organics/market-place.htm)
- **Ecomercados**: Organic marketing initiative in Central America; business directory and market information  
<http://www.ecomercados.org/>