



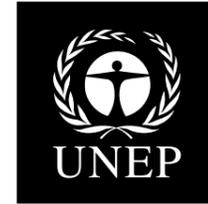
UNEP-UNCTAD Capacity Building Task Force on Trade,
Environment and Development (CBTF)

ORGANIC AGRICULTURE: OPPORTUNITIES FOR PROMOTING TRADE, PROTECTING THE ENVIRONMENT AND REDUCING POVERTY

CASE STUDIES FROM EAST AFRICA

UNITED NATIONS ENVIRONMENT PROGRAMME





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**SYNTHESIS REPORT OF THE UNEP-UNCTAD CBTF
INITIATIVE ON PROMOTING PRODUCTION AND
TRADING OPPORTUNITIES FOR ORGANIC AGRICULTURE
IN EAST AFRICA**

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Foreword

We live in a world of multiple crises. Food, fuel, finance, climate, biodiversity and poverty exigencies challenge the wisdom and the development discourse that humanity adopted in the 20th century. A preliminary analysis of ‘what went wrong’ reveals that we took the industrial production model as an ideal for all types of production processes. We forgot that nature is a biological system, not a mechanical one, and that it is made up of various interdependent ecosystems. It functions in a social context in ways that industry and mechanical manufacturing processes do not. We overlooked the fact that nature has limits both as a source and as a sink of what we consume and waste.

In applying the industrial production model to agriculture and farms, which ideally serve as the source of food, fibre, livelihoods, breeding grounds for biodiversity, and sinks for carbon, humans have become a principal agent of ecosystem destruction, species’ extinction, water contamination and greenhouse gas emissions.

Recognizing this, the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) conveys a clear message that “the way the world grows its food will have to change radically to better serve the poor and hungry if the world is to cope with a growing population and climate change while avoiding social breakdown and environmental collapse”.

We need to do business on planet Earth differently, and to adopt a more sophisticated approach – one that rewards a more creative and intelligent management of natural resources reflecting the realities and knowledge of the 21st century.

Organic agriculture represents one of the more promising options for implementing such an approach. Developing countries have a certain comparative advantage in organic agriculture, as they possess relatively abundant labour and use relatively fewer agrochemicals in production. Organic agriculture provides opportunities for trade promotion. Current trade in organic food, drinks and cotton amounts to US\$ 60 billion a year. In addition, there is a growing demand for cosmetics made from organic ingredients. Major markets for organic products are growing at rates of between 10 and 20 per cent per year, which represent significant potential export opportunities for developing countries.

Organic agriculture also offers an opportunity for environmental protection. Organic agricultural production has been shown to have a positive effect on reducing greenhouse gas emissions, improving soil fertility and biodiversity, and contributing to water conservation. By eschewing the use of synthetic fertilizers and pesticides, organic agriculture has proven to be 20 to 56 per cent more efficient in terms of energy use and 64 per cent more efficient in terms of CO₂ emissions than the chemical-intensive industrial farming model. Organic farms have also been shown to sequester three to eight more tonnes of carbon per hectare than conventional farms. Holistic organic agriculture often makes use of multi-cropping, rather than mono-cropping, which has resulted in higher farm profits and better food security than conventional farms. It is well suited to small-scale farming and can increase the yields and incomes of subsistence farmers in developing countries, thereby contributing to poverty reduction and sustainable rural development.

However, there are many challenges along the supply chain. More resources are needed for research and capacity building to develop, demonstrate and disseminate solutions that respond to concerns about the cost of conversion to organic production, certification costs, and tariff

and non-tariff barriers to lucrative international markets. There is also a need to raise awareness among policymakers and in the private sector about the economic, environmental and social development opportunities offered by organic agriculture and how they can be exploited with the support of economic and policy instruments.

We encourage policymakers and the private sector to look into the unprecedented trade promotion, environmental protection and poverty reduction opportunities presented by the rapidly growing markets for organic products. The UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development stands ready to assist you in making the most of them.



Achim Steiner
Executive Director of UNEP



Supachai Panitchpakdi
Secretary-General of UNCTAD

Acronyms

ACODE	Advocates Coalition for Development and Environment
BBN	Bureau Burundais de Normalisation et Contrôle de la Qualité (Burundi Bureau of Standardization and Quality Control)
BBS	Burundi Bureau of Standards
BCS	Bureau Certification System
CBI	Centre for the Promotion of Imports from Developing Countries
CBO	Community Based Organisation
CBTF	UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development
CERES	Certification of Environmental Standards
C-MAD	Community Mobilization Against Desertification
EAC	East African Community
EAOA	Ethiopian Association of Organic Agriculture
EPOPA	Export Promotion of Organic Products from Africa
EAOPS	East African Organic Products Standard
FAO	Food and Agriculture Organization of the United Nations
FiBL	Forschungsinstitut für biologischen Landbau (Research Institute of Organic Agriculture)
GHG	Greenhouse gas
GMO	Genetically modified organism
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
Hivos	Humanistisch Instituut voor Ontwikkelingssamenwerking (Humanist Institute for Development Cooperation)
JAS	Japanese Agricultural Standards
IA	Integrated Assessment
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
ICIPE	International Centre for Insect Physiology and Ecology
IFOAM	International Federation of Organic Agriculture Movements
IMO	Institute for Marketecology
ITC	International Trade Centre (WTO/UNCTAD)
ITF	International Task Force on Harmonization and Equivalence in Organic Agriculture
KARI	Kenya Agricultural Research Institute

KBS	Kenya Bureau of Standards
KIOF	Kenya Institute of Organic Farming
KOAN	Kenya Organic Agriculture Network
NEMA	National Environment Management Agency (Kenya)
NGO	Non-governmental organization
NIT	National Implementation Team
NOGAMU	National Organic Agriculture Movement of Uganda
NSC	National Steering Committee
PGS	Participatory Guarantee Systems for Organic Agriculture
RBS	Rwanda Bureau of Standards
RHODA	Rwanda Horticultural Development Authority
ROAM	Rwanda Organic Agricultural Movement
RSTWG	Regional Standards Technical Working Group
Sida	Swedish International Development Cooperation Agency
TanCert	Tanzania Organic Certification Association
TOAM	Tanzania Organic Agriculture Movement
UEPB	Uganda Export Promotion Board
UgoCert	Uganda Organic Certification Company
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

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At the secretariats of UNEP and UNCTAD, the CBTF Initiative on Promoting Production and Trading Opportunities for Organic Agriculture in East Africa was undertaken under the overall supervision of Hussein Abaza (UNEP) and Ulrich Hoffmann (UNCTAD). Sophia Twarog (UNCTAD) and Benjamin Simmons (UNEP) conceptualised the East African Initiative. Asad Naqvi (UNEP-CBTF) managed and coordinated this initiative as well as other activities of the UNEP-UNCTAD CBTF. Fulai Sheng, Benjamin Simmons, and Desta Mebratu provided substantive input and guidance to various aspects of the IA projects, including this report. Andrew Stevenson, Anna Griggs, Annie Haakenstad, Armand Racine, Bente Everts, Edward Naval, and Faiza Kaukab provided assistance to prepare and finalise this report. Desiree Leon facilitated the processing of the report for editing and typesetting. Karim Ouahidi and Rahila Mughal provided administrative support for the initiative. Rafe Dent (UNCTAD) is administrator of the CBTF website (www.unep-unctad.org/cbtf). The UNEP-UNCTAD CBTF's appreciation also goes to Sarah Richardson for editing and 100 Watt for typesetting services.

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The way the world grows its food will have to change radically to better serve the poor and hungry if the world is to cope with a growing population and climate change while avoiding social breakdown and environmental collapse.¹

The International Assessment of Agricultural Knowledge,
Science and Technology for Development, 2009.



¹ International Assessment of Agricultural Knowledge Science and Technology for Development (IAASTD), 2009, 'Global Report,' IAASTD, Beverly D. McIntyre, Hans R. Herren, Judi Wakhungu and Robert T. Watson (eds.), Available at [http://www.agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Global%20Report%20\(English\).pdf](http://www.agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Global%20Report%20(English).pdf)

1. Introduction

“Promoting Production and Trading Opportunities for Organic Agriculture in East Africa” is an initiative that was undertaken by the United Nations Environment Programme (UNEP)-United Nations Conference on Trade and Development (UNCTAD) Capacity Building Task Force on Trade, Environment and Development (CBTF), and implemented in collaboration with the International Trade Centre (ITC), the Food and Agriculture Organization of the United Nations (FAO), the International Federation of Organic Agriculture Movements (IFOAM), and national institutions in the participating countries. The initiative was designed based on the knowledge that organic agriculture offers a range of environmental, social, and economic benefits for developing countries. To take advantage of these opportunities, governments must create an environment that encourages sustainable growth and development in the sector and that helps producers and exporters of organic agricultural products overcome the obstacles they face.

The overarching objective of the CBTF initiative was to contribute to sustainable development, environmental protection, food security, and poverty reduction in three East African countries—Kenya, Tanzania and Uganda—by promoting the production and export of organic agricultural products.

The initiative aimed to achieve the following specific objectives:

- To facilitate vibrant and continuous national and regional multi-stakeholder dialogue among all relevant parties, including representatives from the ministries of agriculture, environment and trade, farmers, exporters, non-governmental organizations (NGOs), research institutions and academics;
- To review the current practices, policies and state of affairs in the organic

agriculture sector, including existing levels of production, national legislation and policies, and main production and marketing constraints;

- To encourage the development of policy options that promote organic agriculture and assess the potential impact of implementing these policies;
- To identify additional capacity-building or technical cooperation opportunities and ways to facilitate cooperation; and
- To explore and facilitate the potential development of an East African organic standard tailored to local ecological and socio-economic conditions but also designed to promote exports to major markets.

To ensure that the design and activities of this initiative were rooted in the actual needs of the organic sector in East Africa, the UNEP-UNCTAD CBTF organized three consultations with a broad range of stakeholders. Participants at the following consultations included experts on organic agriculture from developing countries as well as delegations to the United Nations and the World Trade Organization:

- Policy dialogue on Promoting Production and Trading Opportunities for Organic Agricultural Products (Brussels, February 2002);
- Workshop on Trade and Environment for Anglophone African Countries (Cape Town, May 2003); and
- National multi-stakeholder consultations in Kenya, Tanzania and Uganda (September and October 2004).

In addition to recommendations coming out of consultations, the CBTF took into consideration the history of a friendly relationship among Kenya, Tanzania, and Uganda demonstrated by the creation, in 1999, of the East African Community (EAC).¹ Successful cooperation

¹ Until 2006, Kenya, Tanzania and Uganda were the only three members of the EAC. Burundi and Rwanda joined in 2007.

under the broad-based mandate of the EAC that covers issues of trade, agriculture, food security, environment, and natural resource management, had demonstrated their capacity for regional integration. The CBTF was convinced that an initiative focused on organic agriculture would complement the overall move towards cooperation, harmonization and integration in the region.

The initiative was designed along three complementary tracks. To fill the knowledge gap and address some key questions capacity-building studies were commissioned, which were prepared by national and international experts. The studies aimed to provide essential information and analysis needed for advocacy, and lobbying for the creation of a policy and institutional environment that was conducive for promoting production of, and trade in, organic agriculture. The following three thematic studies were completed and launched between 2005 and 2007 and are available at www.unep-unctad.org/cbtf:

- *Overview of the current state of organic agriculture in Kenya, Uganda and the United Republic of Tanzania and the opportunities for regional harmonization; (Summary in Annex 1);²*
- *Organic agriculture and food security in Africa (Summary in Annex 2); and*
- *Best practices for organic policy: What developing country governments can do*

to promote the organic agriculture sector (Summary in Annex 3).

The findings from the thematic studies were presented to, and discussed by, a broad range of stakeholders involved in the CBTF initiative. The background papers and case studies prepared by authors from countries in Africa and elsewhere were essential elements of these studies.

When the initiative was being planned (2003-2005), there were five public and private organic agriculture standards in the three countries. It was evident from the outset, that there was a need for one harmonized organic agriculture production standard tailored to local environmental and socio-economic conditions. Stakeholders had recently created organic agriculture networks at the national level in the three countries and were in the process of developing private organic standards to guide local producers. In assessing these competing standards, it became clear that a common regional standard and pooled resources for lobbying could increase the likelihood of success in negotiations with the European Union (EU) on issues associated with equivalence or mutual recognition, which could result in improved market access for East African organic agricultural products.

The CBTF established a Regional Standards Technical Working Group (RSTWG) with a

mandate to develop an East African organic standard. Apart from the participating countries, a representative of the Secretariat of the EAC was invited to join the RSTWG to ensure its representation in the process from the beginning. The IFOAM, which has been working in the region, (mainly through the Export Promotion of Organic Products from Africa (EPOPA) project), joined this effort and contributed knowledge and expertise. The process of developing the East African Organic Products Standard (EAOPS) is attached as Annex 4, and full text of the EAOPS is reproduced in Annex 5. Once it had been adopted by the EAC as its official voluntary standard, the EAOPS was only the second regional standard in the world, after the EU organic standard. It is the first regional standard in the developing world, and the first to be developed through such a participatory and multi-stakeholder process.

In 2005, when the initiative was launched, Kenya, Tanzania and Uganda all had growing

organic production and export sectors but, in most cases, producers lacked government support and a comprehensive national plan for the future of organic agriculture. In addition, limited coordination and cooperation existed among key stakeholders in the sector (such as policymakers, civil society organizations, farmers' cooperatives, academic institutions, trade and exporter groups, and local organic movements). To address these issues, three integrated assessment (IA) country projects were designed. Implementation of these projects resulted in the following reports:

- *Organic agriculture in Kenya: An integrated assessment for policy advocacy;*
- *The integrated assessment of organic agriculture in Tanzania: Policy options for promoting production and trading opportunities for organic agriculture; and*
- *Integrated assessment of Uganda's organic agriculture sub-sector: Economic opportunities and policy options.*

The Governments of the region [Asia-Pacific] stand at a crossroads: business as usual, continuing with short-term profits for the few through chemically cultivated, irrigation- and energy-intensive monoculture, with the burden of long-term costs shouldered by the many; or, a new, long-term commitment to ecologically balanced, socially just and economically equitable agriculture to ensure food security for all.ⁱⁱ

UN Economic and Social Commission for Asia and Pacific: 2009.

² To provide information about the organic sector in Burundi and Rwanda, an update of this study was commissioned in early 2009. That study, which is entitled *Overview of the organic development status in Burundi, Ethiopia, Kenya, Rwanda, Uganda, and the United Republic of Tanzania*, is unpublished, but it has been summarized in Annex 1. The overview study, which was published in 2007, is available on the CBTF website.

ⁱⁱ UN Economic and Social Commission for Asia and Pacific (ESCAP), 2009, 'Sustainable Agriculture and Food Security in Asia and the Pacific,' ESCAP, p. 15. Available at <http://www.unhcr.org/refworld/pdfid/49f589db2.pdf>

About 57 per cent of the potential edible crop harvest is lost during different stages of conversion from crop to food or as food waste.ⁱⁱⁱ



ⁱⁱⁱ Lundqvist et al., 2008, 'Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain,' SIWI Policy Brief, Available at http://www.siwi.org/documents/Resources/Policy_Briefs/PB_From_Filed_to_fork_2008.pdf

2. The IA country projects

2.1 Background

The Integrated Assessment (IA) methodology has evolved from several rounds of assessment projects initiated by UNEP, beginning in 1997. The IA projects are intended to assist countries seeking to apply an integrated approach to public policies (plans, programmes and projects) and the policymaking process. IA is a planning tool that helps balance environmental, social and economic considerations. Through these projects, UNEP encourages innovation and experimentation in policymaking and

developing replicable models of policymaking that are adaptable to different needs and circumstances. Significant challenges exist, however, because policymaking is influenced by social structures, culture, and political, legal and administrative systems, all factors that defy simple treatment. Based on lessons learned from different rounds of country projects, UNEP has developed a *Reference manual for integrated policymaking for sustainable development*, which is available on its website.³

2.2 The IA process: general description

A framework for IA was developed in 2004, shortly before the launch of this CBTF initiative. The framework established the following three steps for designing and implementing IA projects:

1. Define the target of the IA:
 - define an overall purpose;
 - identify participants and stakeholders;
 - review the structure of the planning process;
 - review available information.
2. Conduct the assessment:
 - identify criteria relevant to the main issue;
 - analyse impacts using appropriate tools and techniques.
3. Develop policy recommendations:
 - develop policy options;
 - select policy recommendations;
 - evaluate lessons learned.

Each step should be assessed with respect to the following cross-cutting elements:

- environmental, social and economic issues and impacts;

- sustainability goals, principles, standards and indicators; and
- participation, transparency, accountability and ownership.

This approach emphasizes the importance of both procedure and substance and addresses issues related to capacity building and good governance. The following three levels of integration are involved in the IA process:

1. substantive integration: the conflicts and correlations among the environmental, social and economic aspects of the sector, policy, plan or project;
2. analytical integration: the incorporation of the different methods and tools used in the assessment; and
3. procedural integration: participation, inter-ministerial coordination, access to information, transparency and accountability.

In IA projects, in addition to multidisciplinary research, the participatory process is as important as the final product. The

³ <http://www.unep.ch/etb/publications/publications/IPSD%20manual/UNEP%20IPSD%20final.pdf>.

participation of stakeholders in setting the research agenda, discussing the findings, and validating the recommendations encourages a sense of ownership of the final product, including the policy recommendations.

IA projects, are multi-faceted (covering the economic, environmental and social realms) and therefore rely on the participation of various government agencies, often with different mandates. Under an IA, all relevant ministries and government agencies are invited to be part of the process and are encouraged to coordinate with the lead government agency.⁴ The involvement of a wide range of government institutions and agencies, as well as the private sector and NGOs, promotes information-sharing and cooperation. It also helps to reveal incoherence in policies and plans developed by different stakeholders and offers opportunities for their harmonization. IAs have been shown to have facilitated inter-

ministerial coordination and encouraged cooperation among stakeholders.

From a capacity building perspective, the CBTF IA projects have been designed in a way that the assessment is carried out by a designated national institution. By taking the lead in the process of identifying and assessing existing and potential environmental, social and economic impacts of different policy options, the capacities of national institutions to undertake this type of analysis in the future are improved through the process of “learning by doing”.

2.3 The IA process in East Africa

Table 1: Public and private institutions that formed the National Implementation Teams (NITs)

Country	Sector	Institution
Kenya	Public (lead government agency)	National Environment Management Agency (NEMA)
	Private (designated national institution)	Bridge Africa
	Organic movement (collaborator)	Kenya Organic Agriculture Network (KOAN)
Tanzania	Public	Crop Development Division, Ministry of Agriculture and Food Security
	Private	Envirocare
	Organic movement	Tanzania Organic Agriculture Movement (TOAM)
Uganda	Public	Uganda Export Promotion Board (UEPB)
	Private	Advocates Coalition for Development and Environment (ACODE)
	Organic movement	National Organic Agriculture Movement of Uganda (NOGAMU)

⁴ A lead government agency is the focal institution designated by each government to oversee the project.

The National Steering Committees (NSCs) included key stakeholders, such as members of lead government agencies, designated national institutions, NGOs, the private sector (farmers and agricultural cooperatives), academics, and community representatives. The NSCs identified the main issues to be addressed, IA tools and methodologies to be used, and provided guidance on responding to challenges that country project teams faced. A Regional Steering Committee (RSC) was also established, which included one government representative from each country, one representative from the private organic sector in each country, and one representative from each designated national institution carrying out an IA. It served as a platform for the cross fertilization of experiences and lessons learned among the three NITs.

2.4 Scope of the IA

While the NSCs defined the scope of the IA in the context of national priorities, the generic features of the IA studies are as follows:

- to provide an overview of the current state of the national organic sectors;
- to identify the main actors/stakeholders;
- to review existing agricultural, trade, environmental, financial and other relevant national policies that have an impact on the organic agricultural sector;
- to develop policy options to promote the organic agricultural sector;
- to assess the potential economic, social, and environmental impacts of implementing policy options; and
- to identify public awareness, training and capacity-building needs for policymakers, producers, exporters and consumers.

The IA project in Kenya undertook an economic, social, and environmental assessment of the benefits of organic agriculture. It was guided by specific targets, which included: assessing current practices and circumstances, defining the state of organic agriculture in Kenya (levels of production, policies and constraints),

Various stakeholder fora were established to offer opportunities for widespread participation. During the IA, three national stakeholder consultations were organized in each country to provide opportunities for relevant stakeholders to comment on the findings, conclusions and recommendations of the assessment reports. Participants in these workshops included policymakers, farmers, local community organizations, organic agricultural associations, NGOs, the private sector, and academics. A complete list of workshops, meetings, and conferences that were organized under the initiative is included in section 6.3 of this report, in sub-sections 1, 10 and 12.

facilitating the development of national organic agriculture policy and a national action plan, facilitating a national stakeholder dialogue, and identifying capacity building needs for the promotion of organic agriculture.

The IA project in Tanzania focused on three main areas. First, it documented relevant initiatives taken by various stakeholders in the country, including processes for developing government policy, and efforts by NGOs and other actors engaged in organic agriculture. Second, the IA examined current trends in the sector and analysed potential socio-economic and environmental benefits. Third, the IA developed a comprehensive set of recommendations to maximize the development gains for Tanzania from enhanced production of, and trade in, organic agricultural products.

In Uganda, the IA set targets to analyse current trends, identify the actors and the key drivers of change, examine the potential impacts of different scenarios of future growth, and make specific policy, legal and administrative recommendations to encourage growth in the

sector in a way that promotes sustainability and development. The overall objective was to promote informed policy choices that would encourage increasing production of, and trade in, organic agricultural products. The IA report was written with the view to

stimulate a dialogue and an effective alliance among policymakers, organic farmers and farmer organizations, as a means of moving forward the development of a national organic agriculture policy.

2.5 Analytical approaches

The selection of tools, methodologies, and analytical approaches for carrying out the IA varied in the three countries based on the national contexts and the decisions of the NSC. However, all three IAs shared the overall goal of illustrating the state of development of the organic agriculture sector, determining how organic agriculture fit into the overall agricultural sector, and examining the existing policy frameworks. Each assessment analysed the potential opportunities for trade in organic products and its impact on poverty reduction and sustainable development. Furthermore, the assessments sought to identify the main

constraints, advantages, and challenges associated with realizing these opportunities and developing policy options for the future.

Each assessment included a literature review on the current state of organic agriculture in the country. Kenya and Uganda used scenario analysis in their IAs. The assessments in Kenya and Tanzania both used specific crops in the organic agricultural sector to illustrate trends and opportunities and relied on fieldwork to gather empirical data. All three studies included policy recommendations.

2.5.1 Kenya

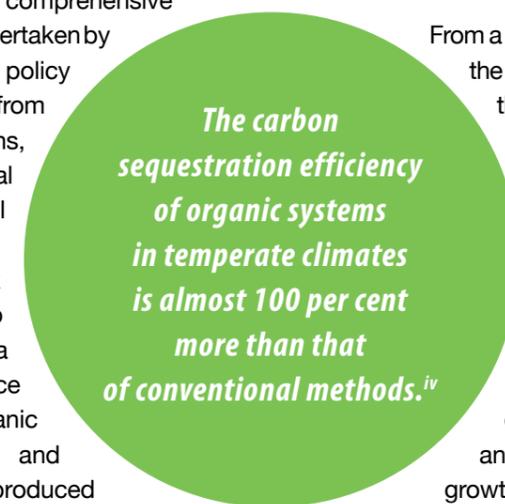
The IA in Kenya analysed different scenarios of growth in the organic agricultural sector to explore the range of possible environmental, economic and social impacts. It also identified institutional and policy changes needed to realize the optimal level of growth in production and trade of organic products.

At the start of the IA process, the Kenyan NIT identified specific economic, social, and environmental indicators to assess the impacts of growth in the organic sector. However, despite collecting information from various sources and stakeholders, not enough data were available from secondary sources to effectively apply the indicators and generate a reliable impact profile. Therefore, the study drew its conclusions from the information collected through field research, unpublished work by national experts and stakeholders, interviews, two case studies (Green Dreams Ltd. and Bridges Organic Health Restaurant), focus group discussions with stakeholders

(including farmers' groups), and findings from relevant studies on organic agriculture in Kenya. Particular attention was paid to documenting the experiences of smallholder farmers in conversion, production, and market-related issues. A questionnaire was developed to solicit the perspectives of key stakeholders about the challenges facing the organic agricultural sector in Kenya. The NSC decided to focus the IA on three organic crops (macadamia nuts, herbs, and spices) because they offered the greatest potential for production and export and were relevant from a policy perspective.

2.5.2 Tanzania

The IA project in Tanzania pursued the overall objective of providing evidence and analysis for informed decision making in the public and private sectors. First, a comprehensive literature review was undertaken by analysing government policy documents, reports from independent institutions, and studies on regional and international organic agricultural practices. Fieldwork was undertaken to collect empirical data and examine evidence of trends in organic agricultural production and trade. Organically produced cashew nuts, honey, and coffee were selected for in-depth analysis, based on criteria agreed by the NSC. Primary and secondary data were used to generate qualitative and quantitative information. Data, drawing from



cashew nuts, honey and coffee case studies were analyzed using the Statistical Package for Social Sciences.

From a methodological perspective, the IA focused on the following three main areas:

1. documenting the initiatives of various stakeholders in the country;
2. focusing on three key crops – coffee, cashew nuts, and honey – examining economic, social and environmental impacts of growth in their production and trade; and
3. drafting policy recommendations aimed at stimulating further dialogue to promote organic agriculture.

2.5.3 Uganda

Unlike the two other countries involved in this initiative, Uganda had already developed a draft of its National Policy on Organic Agriculture. The vision for the organic sector set out in the draft policy was the “attainment of a competitive and profitable organic agriculture sub-sector in Uganda generating adequate safe and quality food, fibre and other goods and services for sustainable development.” The policy outlined a series of objectives designed to fulfill this vision, with an emphasis on achieving sustainable development. Therefore, in addition to carrying out a comprehensive IA of Uganda’s organic agriculture sector, the project analysed the draft policy to evaluate whether it was sufficiently robust to stimulate growth in organic agriculture and whether the country was making progress towards achieving the vision laid out for the sector. In addition, the

assessment analysed other policies, which may have an impact on the organic sector, and proposed policy and institutional actions.

Specific crops were selected and analysed in order to understand trends. Crops were selected on the basis of their economic, social, and environmental relevance in Uganda and in the global market. Several scenarios were developed and the proposed policy actions were analysed in the context of those scenarios. The strategy of the NIT was to ensure that the assessment process would both benefit and inform the process of formulating policy, as well as its final outcome.

^{iv} Nadia El-Hage Scialabba, 2007, 'Organic Agriculture and Food Security,' FAO, p. 8. Available at <http://ftp.fao.org/paia/organicag/ofs/OFS-2007-5.pdf>.

Global trade in organic food, drinks, fibre and cosmetics is over US\$ 60 billion per year, and the organic sector has maintained a high growth rate in the sale of food, fibre and drinks despite the economic crisis.



3. Overview of the current state of organic agriculture in East Africa

In East Africa, organic agriculture constitutes an established and growing sector offering opportunities for economic development and export. Levels of government intervention have varied in the three countries and the organic sector has generally been led by the private sector and NGOs. Public and private investment as well as research in organic

agriculture appears to be limited. Annex 6 contains a matrix summarizing several aspects of the organic agriculture sectors in Burundi, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda, including development, marketing, standards, certification, government policy and harmonization.

3.1 The organic sector in East Africa

Kenya, Tanzania, and Uganda host growing organic sectors with potential for future growth. Organic agriculture, generally, caters to high-end markets in Europe and the United States, which offer price premiums for organic goods. These exports help bring small farmers (1 to 3 hectares), who typically use fewer chemical inputs than larger commercial farmers, into the global supply chains where they can benefit from business development and opportunities for wealth creation.

In assessing the organic sectors in Kenya, Tanzania, and Uganda some similarities as well as differences are apparent. In 2007, Uganda topped the list of African organic land under production with a total of 296,203 hectares (2.3 per cent of total agricultural land) under certified organic cultivation (Bouagnimbeck 2009).

Compared to Kenya's cultivation area of 4,636 hectares (0.02 per cent of total agricultural

land) and Tanzania's 62,180 hectares (0.2 per cent of total agricultural land) (Bouagnimbeck 2009), Uganda's sector is larger, and its trading position is stronger as it has been exporting since 1994 (Taylor unpublished). Uganda has the largest area of organic agricultural land in Africa, while Tanzania ranks fourth, after Tunisia (154,793 hectares) and Ethiopia (140,308 hectares) (Bouagnimbeck 2009).

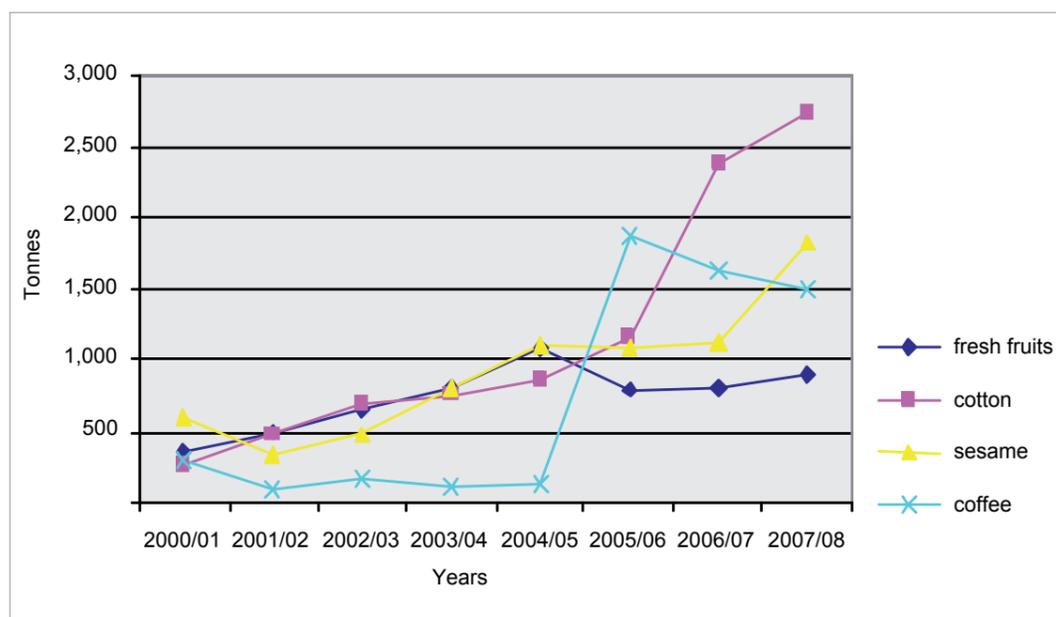
In Uganda, the number of certified farmers increased from fewer than 50,000 in 2002 to over 200,000 in 2008 (Bouagnimbeck 2009). Farmers often produce on small plots of land and make up a large proportion of the population. In Uganda, approximately 90 per cent of the population lives in rural areas and 4.5 million farmers cultivate an average of 2 hectares (Tumushabe 2006). In Kenya, women make up approximately 70 per cent of the agricultural workers and are responsible for much of the smallholder production (Kledal et al. 2009).

3.2 East African exports of organic agricultural products

The three East African countries produce a variety of organic fruits, vegetables, nuts, spices and herbs, and export volumes in recent years have been increasing. In Uganda, certified organic exports totaled US\$ 6.2 million in 2004-2005, growing from US\$ 3.7 million in 2003-2004 (Gibbon 2006). This represented a 40.32 per cent rate of growth. Both the national and export

markets for organic products continue to grow, with coffee leading the export sector. The variety of products exported includes fresh vegetables, fresh tropical fruits, dried fruits, coffee, tea, cotton, sesame, spices, honey and other forest products. Figure 1 illustrates the trend with respect to Uganda's most important organic export products.

Figure 1: Total Ugandan certified organic exports by product (tonnes)



In Tanzania, the major organic agricultural exports are coffee and cocoa, and trade in cashew nuts is growing. Other organic exports are: honey, pineapple, turmeric, ginger, tea, cotton, herbs, and spices.

In Kenya the major organic products exported are fruits, vegetables, and nuts. It exported 860 tonnes of nuts, 700 tonnes of vegetables, 400 tonnes of coffee, and 200 tonnes of tea in 2008 (Kledal et al. 2009).

Organic exports in all three countries are dominated by the organic versions of traditional cash crops that are already traded. These are, however, increasingly

being supplemented by non-traditional and processed products, which generally have a higher value and provide a greater price premium, ranging from 20 to 300 per cent (Naturinda 2008). Kenya, for example, is increasingly exporting high-value and value-added products, derived from organic honey, coffee, nuts and oil seeds, herbs and spices, essential and pressed oils, indigenous plant materials, as well as flavourings such as vanilla, fragrance, cosmetic and body care products and nutritional materials. The major export destination for most products is the European Union, although some are also destined for the United States, along with the rapidly growing market in the Middle East.

3.3 Standards and certification

Organic standards at the global level are proliferating, creating challenges for producers. The same was true in East Africa when the CBTF initiative was launched. In all three countries, organic standards had been developed with the support of local organic movements but this posed problems for producers seeking to target the regional market. The CBTF launched the process for harmonizing existing standards into a regional East African standard. With the

support of national governments, NGOs, and international institutions (particularly the IFOAM) an East African Organic Products Standard (EAOPS) was developed and has been adopted by the East African Community (EAC) as its official standard.

With regard to certification, various private certification companies and export outlets in all three countries support both smallholders and large-scale producers. Kenya has

27 domestic certification companies, including nine that cater to smallholders. Five international certification bodies are located in Kenya, but certification is typically performed by locally trained inspectors to minimize costs (Kledal et al. 2009). In Tanzania, there are six foreign certification companies: the Institute for Marketecology (IMO), Naturland, Ceres, SACert, EcoCert and Bio inspecta. The Tanzania Organic

Certification Association (TanCert) is a local certification company that achieved ISO-65 and IFOAM accreditation in 2008. Five international certification organizations work in Uganda, two of which cooperate with the Uganda Organic Certification Company (UgoCert) to perform local inspections. Domestically, five organic outlets have been established, including a major national supermarket chain.

3.4 The main actors: participants and stakeholders

The range of stakeholders within the organic sector in East Africa is expanding. Local and national governments, along with civil society organizations, recognize the trade-related opportunities associated with organic agriculture, and the means by which resource-poor farmers can enter commercial production. This has been encouraged by a growing number of research initiatives, including those that link national universities with universities in developed countries. A list of the main stakeholders involved in the IA on organic agriculture in East Africa is included in Annex 7. They fall within the general categories described below.

Producers. The organization of producer groups varies from country to country. In Kenya organic production oriented towards export markets has been developed mainly by a few large commercial farms, which have organized themselves into the Kenya Organic Producers Association. However, there are also over 30,000 small farmers' organizations involved in the production of organic crops for local markets or for subsistence. Most of these small producers are organized into groupings and some have formed a national association, the Kenya Organic Farmers Association. In Tanzania, small farmers have organized themselves into two main cooperatives: the Kilimanjaro Native Cooperative Union and the Kagera Cooperative Union. In Uganda, small producers are organized through at

least seven different private companies or cooperatives.

National organic organizations. All countries involved in the IA have national organic movement organizations responsible for advocacy, lobbying and uniting stakeholders. In Kenya and Tanzania these organizations were still in the early stages of development when the IA was initiated. The Kenya Organic Agriculture Network (KOAN) was formed in 2004 as an umbrella body representing all organic organizations in the country, and the Tanzania Organic Agricultural Movement (TOAM) is also a relatively new organization. In Uganda, however, development of the organic agriculture sector can be linked to the strong local organic movement, the National Organic Agricultural Movement of Uganda (NOGAMU).

NGOs and promoting organizations. Much like national organic organizations, NGOs and other organizations promoting and supporting organic agriculture exist in all three countries, but are at different stages of development and play different roles. Organic agriculture in Kenya was first promoted by rural-development NGOs, community based organizations, and faith-based organizations.⁵ In Tanzania there are several organizations, foundations and programmes that work to organize farmers for production, deliver extension services, raise funds for training and awareness, and lobby on behalf of organic producers.⁶ At least 14 organizations, including

⁵ Among these, the six key organizations involved in the training, establishment, and development of the organic agricultural sector in Kenya included: Kenya Institute of Organic Farming, Manor House Agricultural Centre (Kitale); Sustainable Agriculture Community Development Programme (Thika); Association of Better Land Husbandry (Nairobi); the Baraka Agricultural College (Molo); and the Sustainable Agriculture Centre for Research and Development in Africa.
⁶ Among the most important are the Participatory Ecological Land Use Management Tanzania, which played a major role in the development of standards; the Global Services Corps programme; the Meatu cotton organic project; the EPOPA (also active in Uganda); the natural crop protection in the Mgeta-Morogoro district; the organic vegetable farming in Zanzibar; the Institut Africain pour le Développement Economique et Social-Formation; and Envirocare.

NGOs, trusts, networks and some local representatives of international NGOs, work actively in Uganda to promote and support the development of organic agriculture.

Certification sector. Certification is carried out by domestic and international bodies. AfriCert Ltd. and Encert are the two national companies that carry out certification services in Kenya. The Conservation Agriculture Trust of Kenya is a non-profit trust that assists farmers and agricultural exporters to access the services of internationally recognized organic certifiers. The national certification agency in Tanzania is TanCert and in Uganda it is UgoCert. Like TanCert, UgoCert is ISO-65 accredited. International certification bodies or agencies active in East Africa include the Soil Association (Kenya), BioSuisse (Kenya and Tanzania), SGS Uganda Ltd. (Uganda), and Krav Kontrol (Uganda). IMO and EcoCert France carry out inspections and certification in all three East African countries.

Traders and retailers. Whether processing, retailing, exporting, or facilitating supply chain networking, commercial bodies, such as traders and retailers, are instrumental to organic agricultural production and trade. In Kenya some national supermarkets (Uchumi Hyper and Nakkumatt) have organic sections in their stores and there are other specialized stores for both local consumers and trade. These include Green Dreams, Healthy U, Green Corner Shop, ABC Place, Natures Organic, Organic Marketers Ltd., Natural Food Marketers and Findus. In Tanzania there are around 28 companies engaged in the organic market, including processors for the local markets and exporters. In the local

market, Mum's Kitchen, Vitality and Tunda Shop are the leading companies. In Uganda there are at least 14 companies involved in processing, retailing, or exporting of organic products. In both Tanzania and Uganda, the Swedish International Development Cooperation Agency (Sida) funded project, EPOPA, has played a major role in developing the export market.

Training and research institutions. Knowledge-based institutions that conduct training and research are playing a role to improve capacities of organizations and individuals involved in organic agricultural production and trade. In Kenya, there are around 30 organisations offering training in organic agriculture and, recently, universities have begun to offer research opportunities and training related to organic agriculture. At the time the IA was published, Egerton University is developing a curriculum for a course in organic agriculture and the International Centre for Insects Physiology and Ecology (ICIPE) is carrying out research on organic pest and disease control. In Tanzania, several universities, and agricultural and livestock research and training institutes, are involved in organic agriculture. In Uganda, two universities (the Makerere University and the Uganda Martyrs University Nkozi) offer training and research activities in organic agriculture.

Government and government institutions. Governments have several tools at their disposal to encourage and support organic agriculture. The Government of Kenya has recently started to recognize the role of organic agriculture in the country and is now participating in its development. Some of the institutions involved are: the Kenya Bureau of Standards (KBS, which

About 80 per cent of organic producers (a significant proportion of them women) are in developing countries, and about 97 per cent of sales revenue for organic products is generated in industrialized countries.

This is offering an opportunity to small farmers to become part of the rapidly growing global trade of organic products.^v

^v Analysis done by UNEP-ETB based on data from Sahota, A., 2009, 'The Global Market for Organic Food & Drink,' in Willer, H. & L. Kilcher, (eds.), 2009, *The World of Organic Agriculture: Statistics and Emerging Trends 2009*, FIBL-IFOAM Report, Bonn: IFOAM; Frick: FiBL; Geneva: ITC.

developed Kenya's Guidelines for Organic Production, Processing and Packaging) and the Ministry of Agriculture (although involvement is mainly at the extension level and through the Kenya Organic Agriculture Project, supported by the FAO). In Tanzania there are eight different ministries involved in organic agriculture, mainly through policy development and extension services.⁷ In Uganda, the Ministry of Agriculture, Animal Industry and Fisheries and the Ministry of Trade, Tourism and Industry, are the two main ministries involved in the organic agriculture sector, responsible for policy, extension services, export promotion and enabling and monitoring trade. There are six government institutions engaged in training, research, development of regulatory issues, and marketing.

Development partners. Development partners are also well equipped to provide support to the sector. Several development organizations are

involved in activities to promote the production of, and trade in, organic agricultural products in East Africa. In Kenya, these include: Humanistisch Instituut voor Ontwikkelingssamenwerking (Hivos), Miserio, Sida, FAO, the United Kingdom's Department for International Development, the German Agency for Technical Cooperation (GTZ), Biodivision, the Rockefeller Foundation, UNEP, the United Nations Development Programme (UNDP), the Centre for the Promotion of Imports from Developing Countries (CBI), the Research Institute of Organic Agriculture (FiBL) and Hydra. In Tanzania, these include: Grolink AD (Sweden), IFOAM, Agro Eco, EPOPA, the GTZ, and Sida. In Uganda, these include: Hivos, EPOPA, the German Development Service, CBI, Agro Eco, IFOAM, the Catholic Organization for Relief and Development, the Agricultural Sector Programme Support, and the Danish International Development Agency.

Organic moisturizing facial cream infused with papayas and other organic ingredients.



⁷ These include the Ministry of Agriculture and Food Security, the Ministry of Industry and Trade, the Ministry of Natural Resources and Tourism, the Bureau of Standards, and trade promotion offices.

3.5 Research and training

Research on organic agriculture in East Africa has been limited. Public sector supported research on the organic sector in Kenya is largely absent, although some private firms have carried out studies on organic production systems. These include the Kenya Agricultural Research Institute (KARI), the Kenya Tea Foundation, the Kenya Coffee Foundation, and the ICIPE.

In Tanzania, research has been scattered because the organic sector is not an important driver of national agriculture research (Taylor 2007). Nevertheless, the Uyole Agricultural Research Institute, Sokoine University, the Tengeru International Vegetable Research Institute, the Ukiliguru Agric Research Institute, and the Zanzibar Crop Pest Control Unit have projects underway concerning organic agriculture. The National Agricultural Research Organization enjoys a government mandate to conduct research on organics, but had yet to commit resources to a study when the IAs were undertaken.

Research in Uganda has been undertaken by the Danish Institute of International Studies. In addition, the University of Natural Resources and Applied Life Sciences (Austria) is conducting research on the impact of

certified organic agriculture on the well-being of small farmers. The research is focused on practical measures to bring farmer groups into commercially certified organic agricultural production for local and export markets.

A recent development is the creation of higher level organic training courses in East Africa. Courses exist at both Jomo Kenyatta University and Moi University. Furthermore, the Kenya Institute of Organic Farming (KIOF) has been training farmers and extension workers in organic production since 1986, with 35 training institutions currently involved in organic training services (Kimemia and Oyare 2006). In Uganda, the Uganda Martyrs University recently initiated a degree-level course on organics, short-term courses, and established a full department.

The UNEP-UNCTAD CBTF has also launched an online training course on “Successful Organic Production and Export.”

3.6 Government policies

Although policies vary from country to country, the governments in Kenya, Tanzania and Uganda are increasingly aware of the potential of organic agriculture. Policies to support organic agriculture are being developed, but government support is in its early stages. Moreover, even though implicit recognition of the importance of organic agriculture is evident from the range of government-led initiatives in

all three countries, there are several examples that illustrate instances where official policies and programmes discriminate against organic production. For example, farm input support schemes are generally designed to support conventional farming. In addition, public sector programmes exist that pose direct threats to organic farming (such as large-scale DDT spraying in Uganda).

3.6.1 Kenya

At present, Kenya does not have a policy explicitly directed towards organic agriculture. However, it has recently expressed an

interest in incorporating organic agriculture into Kenya’s general agricultural strategy. In addition, considerations related to organic

agriculture have been incorporated into the draft Food Security Policy and the draft Soil Fertility Policy (Kledal et al. 2009). At the institutional level, an organic desk has been established in the Ministry of Agriculture and the Government has dismantled subsidies for chemical inputs. The sector has benefited indirectly from the NGO Coordinating Act (1990), which recognized the work of NGOs as partners in rural development. The organic sector has also benefited from the economic

liberalization policies of the late 1980s and early 1990s, which improved the business environment. Recently, major organizations involved in organic trade have enjoyed recognition in key government fora. The KOAN has been nominated to be part of the Kenya Horticultural Task Force and has been recognized by the KARI, the Horticultural Crops Development Authority, and the Ministry of Health, as an organization that represents the Kenyan organic sector.

3.6.2 Tanzania

Until recently the Government of Tanzania had not dedicated significant attention to organic agriculture, despite growth in the sector. This is notable considering the long-standing support that the government has provided to the main commodity sectors and the agricultural marketing boards. Although there is still no separate policy on organic agriculture, the existing National Agricultural Policy contains a reference to organic agriculture. A new agricultural policy is in its final stages of development and will include several references to organic production, certification, and established regulations. The government has also prepared a new strategy to guide state-led intervention and has outlined

its commitment to the sector, in the National Organic Agricultural Development Programme.

There is, however, still a need for advocacy and lobbying for an organic policy. In addition, the knowledge base and inter-agency coordination needs to be enhanced. This is particularly important because the mandate to manage the organic sector is spread over eight government ministries. Moreover, the government continues to provide subsidies for synthetic fertilizers, which promotes their use and discourages conversion from conventional to organic agriculture. Finally, collaboration and cooperation with NGOs and certifying bodies needs to be improved.

3.6.3 Uganda

Among the governments of countries in East Africa, the Government of Uganda has been the most active supporter of the organic sector. Certain government agencies, such as the Uganda Export Promotion Board (UEPB) and the Uganda National Bureau of Standards, are particularly interested in promoting organic exports and developing

organic standards. The Ministry of Agriculture, in partnership with NGOs and private sector, has been in the process of developing an organic policy since 2003, spearheaded by a committee of stakeholders in the sector. At the time of the IA, the process had produced a background concept paper and a draft policy document.

Organic products command high price premiums, resulting in more income for farmers and others in the supply chain.

For example, in Uganda in 2007 farmers earned up to 100 per cent more for vanilla that was produced organically, compared with conventionally produced vanilla.^{vi}

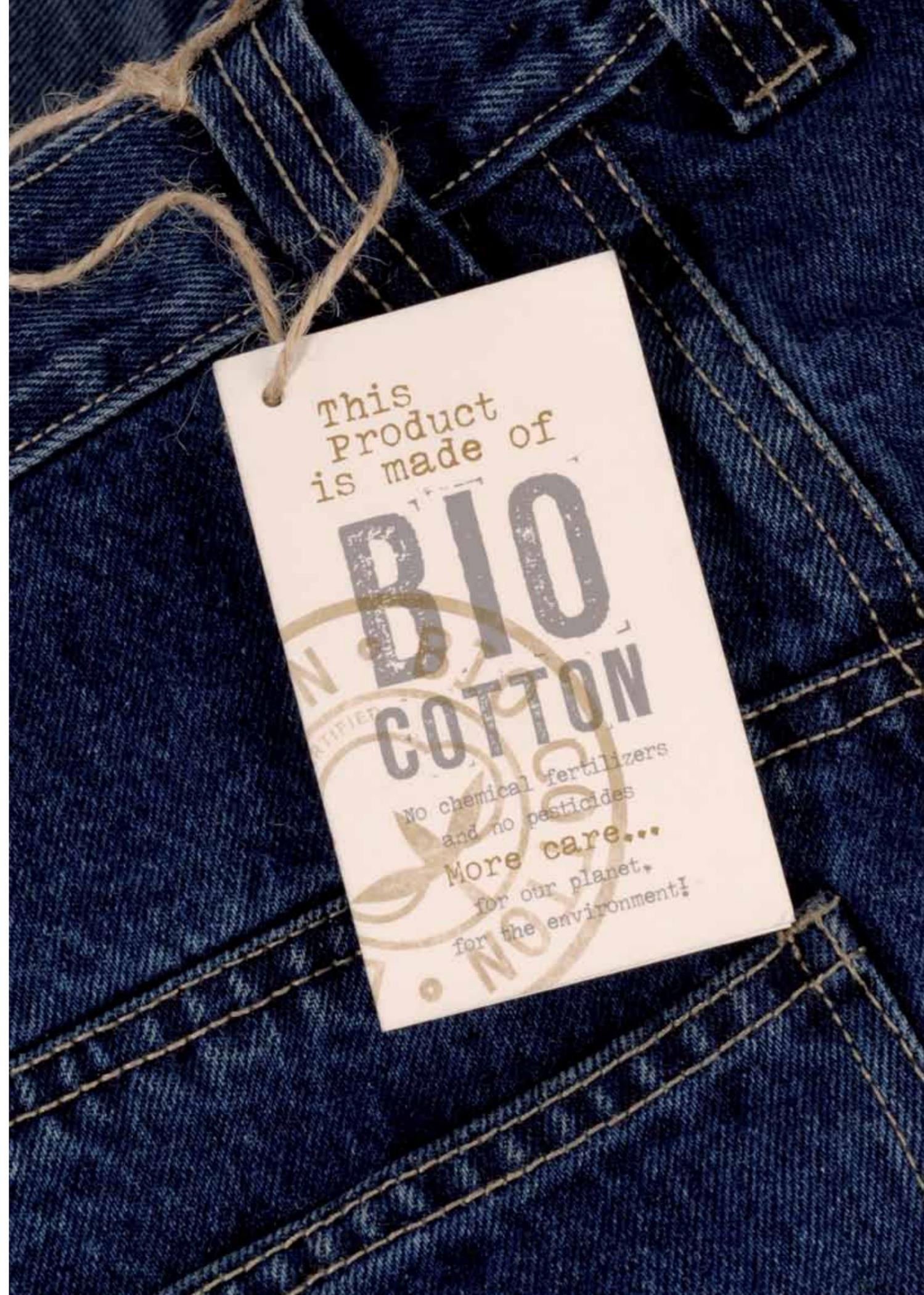
^{vi} Export Promotion of Organic Products from Africa (EPOPA), 2007, EPOPA newsletter, no. 5, May 2007.

Initiatives related to organic agriculture at the government level include the following:

- i) the Presidential Investors Roundtable, which recognizes organic agriculture as an alternative investment area and includes Uganda's major investor in organic agriculture (Booweil/Shares) as a member;
- ii) the A-to-Z Organic Program (Luwero 2006), which is a community based program (involving both national and international partners) aimed at helping rural producers in central Uganda (particularly in the Luwero District) market organic fruit;
- iii) the Agricultural Zoning Program (2004), which was conceived as a national master plan to promote agriculture for export; and
- iv) the President's Export Award, which is an annual award and event that recognizes the role of exporters in the country's economic

development and has given special recognition to organic exporters.

Despite these initiatives, the IAs identified some inconsistency in government policies with respect to organic production and export, and the need to further improve coordination among government ministries. For example, as part of the government's health policy with respect to malaria, DDT was sprayed on 15,000 organic farms, which subsequently lost their organic status.



Farmers in Kenya, Tanzania and Uganda have increased their productivity more than 100 per cent – and ensured food security – by shifting their production to organic or near-organic methods.^{vii}



^{vii} UNEP-UNCTAD CBTF, 2008, 'Organic Agriculture and Food Security in Africa,' Published by UNCTAD.

4. Findings: economic, social, and environmental assessments

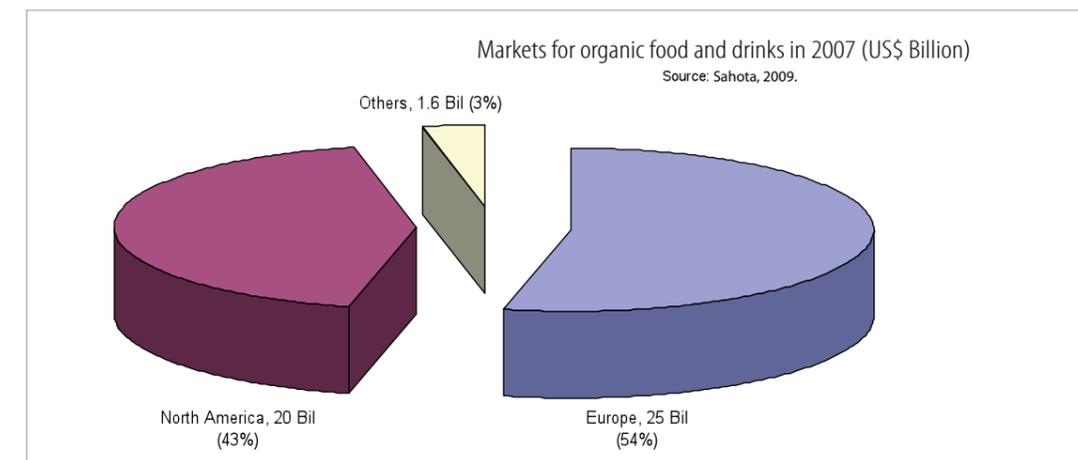
4.1 Economic assessment

4.1.1 A growing and profitable market

The global market for organic agricultural products has been growing steadily in the past decade, increasing by US\$ 30.9 billion between 1999 and 2007 (Sahota 2009). In the last few years, the market experienced annual growth rates of 10 to 20 per cent, amounting, on average, to growth of US\$ 5 billion per year, according to the World of Organic Agriculture Statistics and Emerging Trends (Sahota 2009). In 2007, international sales of organic foods and beverages amounted to US\$ 46.1 billion (Sahota 2009). These products were mostly sold in the European Union and the United States, where 97 per cent of the revenues were generated. Organics constitute between 1.5 and

2.5 per cent of total food sales in North America and the European Union. The ratio of organic food and beverages goes up to 5 per cent in Denmark and Switzerland (Willer and Yosseffi 2006; Oberholtzer et al. 2005; CBI 2005). This represents a huge potential for future growth in organic markets. In East African markets, demand for organic products has also been growing. The IA in Kenya noted that most of the organic product outlets in Nairobi faced an inadequate supply of produce, indicating unmet demand. Due to the financial and economic crises, the market growth rate started to slow down in the second half of 2008, but there is no projection for negative growth.

Figure 2: Markets for organic food and drinks in 2007 (US\$ billion)



East African producers increasingly recognize the potential and reap the rewards presented by this market. In a survey conducted in Uganda, 30.28 per cent of organic producers cited increased market access to explain their conversion to organic agriculture (Naturinda et al. 2008). These producers exported organic goods valued at over US\$ 6.2 million in 2004-2005 (Gibbon 2006). Producers in Kenya exported between 2,200 and 2,400 tonnes of organic produce, valued at over

US\$ 4.6 million in 2005 (Mwaura et al. 2008), while in 2000-2001, producers in Tanzania exported 1,700 tonnes of organic products (Rainard 2004). Although time series data are unavailable in all East African countries, experts from the region believe that the levels of growth documented at the international level extend to the East African region. In Uganda alone, certified organic exports grew from US\$ 3.7 million in 2003-2004 to US\$ 6.2 million in 2004-2005 (Gibbon 2006).

Levels of growth in the market for organic agriculture are underlined by a high price premium. This reflects consumers' willingness to pay to satisfy their desire for organically produced, healthy, and environmentally

friendly products. A comparison of prices for conventional and organic products carried out by Bridges Restaurant in Nairobi found that, on average, organic goods were sold at roughly twice the price of conventional goods.

Table 2: Price comparison for organic and conventional products supplied to Bridges Restaurant Nairobi in Kenyan Shillings (KES) (2007)

Product	Unit cost	Conventional	Organic	Difference	Price premium (percentage of additional income for farmers)*
					
Matoke (raw bananas)	Per piece	1.5	3	1.50	100
Ripe bananas	Per piece	4	5.5	1.50	37.5
Pawpaw	Per kg	20	45	25.00	125
Pineapple	Per kg	25	45	20.00	80
Carrots	Per kg	15	25	10.00	66.6
Kale (sukuma wiki)	Per kg	12	30	18.00	150
Coriander (Dhania)	Per kg	6	10	4.00	66.6
Black night shade (Managu)	Per kg	12	30	18.00	150
Arrow roots	Per kg	15	40	25.00	166.6
Eggs	Per piece	7	10	3.00	42.8
Potatoes	Per kg	17	28	11.00	64.7
Broccoli	Per kg	35	50	15.00	42.8
Garden peas	Per kg	80	110	30.00	37.5
Passion fruit	Per kg	25	40	15.00	60
Tree tomato	Per kg	45	70	25.00	55.5
Avocado	Per piece	3	7	4.00	133.3
Spinach	Per kg	15	30	15.00	100
Pumpkins	Per kg	21	35	14.00	66.6
Mangoes	Per piece	10	20	10.00	100
Sweet potatoes	Per kg	12	30	18.00	150
Watermelons	Per kg	25	45	20.00	80
Onions	Per kg	25	55	30.00	120
Average per cent increase in income for organic producers					90.7

*Note: Products are supplied directly by the farmers (producers) to the restaurant. Source: Bridges Restaurant (2007).

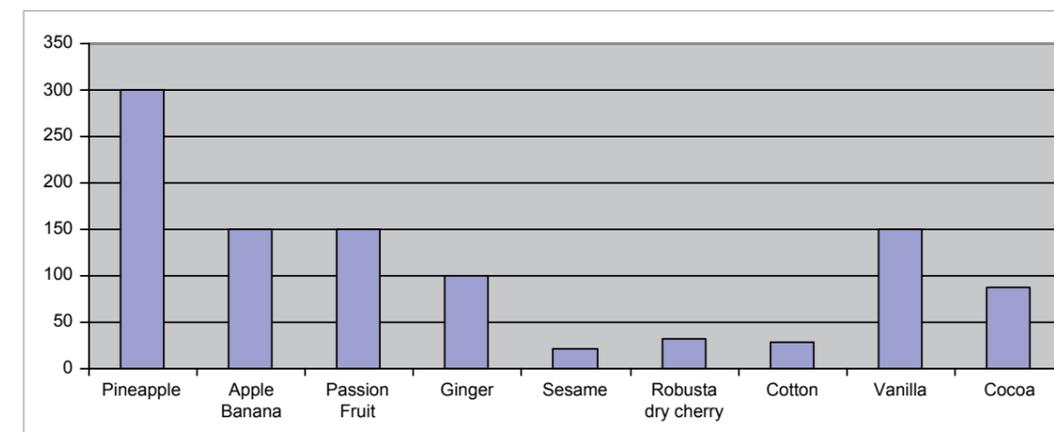
A study on pineapples in Uganda documented a 300 per cent price premium for organically grown pineapples

versus conventionally grown pineapples. Conventional pineapples sold at 100 to 200 Uganda shillings per kilogramme,

while organic pineapples were sold for between 400 and 500 Uganda shillings per kilogramme (Naturinda et al. 2008). Figure

3 illustrates the price premium enjoyed by organic products, as a percentage of the product's conventional price.

Figure 3: Percentage of price premium on organic products in Uganda in 2006



Note: Calculations from AgroEco Consultancy (2006). [price of organic – price of conventional / price of conventional].

4.1.2 Impact on farmers' incomes

Organic farming has been shown to have a positive impact on farmers' incomes, especially on incomes of smallholders. Although impacts on yield largely depend on the weather, type and rotation of crop, and the initial soil quality, organic production is competitive with conventional production, even in a high-yield environment (Fliessbach et al. 2009). Organic agriculture, in particular, has been shown to be more competitive in lower-yield environments, such as those common in developing countries (Badgley et al. 2007). Organic agriculture can be important for small farmers in these countries, providing them with higher prices for organically produced goods (Leonard 2006).

The thematic studies carried out under the CBTF initiative showed that switching from conventional agriculture to organic agriculture leads to increases in productivity per hectare of food crops (Hine and Pretty 2008). In Kenya, bean yields increased by 158 per cent after plots were converted to organic production under the Environmental Action Team programme. Elsewhere in Kenya, a study entitled "Community Mobilization against Desertification (C-MAD)" documented

a doubling in levels of productivity after converting to organic agriculture, increasing maize yields from two tonnes per hectare to four tonnes per hectare (Hine and Pretty 2008). Farmers either consume these surpluses as food, or augment their income by selling the surpluses. Of the 15 case studies examined in the thematic study on organic agriculture and food security, 87 per cent of the cases showed an increase in farmer and household incomes (Hine and Pretty 2008).

There are also savings associated with converting to organic agriculture because conversion eliminates the need to purchase synthetic inputs. Cash savings or avoiding this expenditure represent a considerable amount for smallholder farmers.

Adding value to organic products, whether in processing or packaging, also provides opportunities to increase the incomes of farmers and other actors in the supply chain. For example, in Tanzania the canning and export of organic pineapples by the Dabaga Fruit and Vegetable Canning Company has resulted in a price for organic pineapple that is 260 per cent higher than that of

conventionally grown pineapples (Taylor 2007). These farmers reported a substantial improvement in their livelihoods, “through a combination of higher prices, higher yields

and reduction in losses from spoilage” (Willer et al. 2008).

Box 1: Case Study - Green Dreams Ltd.



Green Dreams Ltd. started in 2000 on a ten-acre farm in Tigoni, Kenya and was operated by 30 staff members. After an initial product range of fresh vegetables and fruit, it expanded to incorporate poultry and eggs. These products were distributed to consumers in Nairobi through available grocery shops and supermarkets.

In 2004, Green Dreams Ltd. started a Box Scheme delivering products directly to consumers' homes and in 2005 it was the first certified local farm for local markets in the country. It soon became apparent that more was needed to satisfy the growing consumer demand for quality organic products and therefore it started an “out-grower” system. This involved teaching and assisting three other farmers about the process of organic production, a conversion that resulted in increasing volumes and diversity of products.

Green Dreams Ltd. also encouraged Brackenridge Jersey - one of Kenya's oldest Jersey farms - to seek organic status. This 40-acre farm, established in 1952, has now received organic certification. Green Dreams Ltd. constructed and manages the dairy processing facility on the farm, and produces the only certified organic dairy products in the country. These include the famous Natures Organics Probiotic Yoghurts. In 2006, Green Dreams Ltd. opened the first organic store in the Gigiri Shopping Centre in Nairobi. In 2007, the

Limuru Archdiocesan Farm, another out-grower, achieved organic certification status.

August 2007 was another milestone for Green Dreams Ltd. as it opened its first shop-in-shop in Nakumatt Westgate, the new supermarket leader in the country. Following the same shop-in-shop idea of Nakumatt supermarket, Green Dreams Ltd. (now a brand) has already expanded into four new outlets: Zuchinni ABC and Zuchinni Junction - one of Nairobi's largest vegetable shops, Chandarana Yaya - a supermarket chain, and Karen Provision Store - a grocery store. All of these outlets now have dedicated space branded by Green Dreams Ltd. where organic fresh and value-added products are available. This brings the number of Green Dreams Ltd. outlets to six.

In 2008, Green Dreams Ltd. moved out of production and closed down the farm due to vandalism during the post electoral period. Energies were turned to developing and strengthening the sales outlets supplied by a wide and diverse group of small-scale organic producers in the country. Irrigation equipment from the farm was donated to the Limuru Agri Youth Centre and the Kibera Youth Reform group - a now very successful organic farm situated in one of Africa's largest slums, Kibera (<http://greendreams.edublogs.org>). With training and support, Green Dreams Ltd. hopes that these projects will have a positive impact on the younger generation of farmers in Kenya.

In July 2008, Green Dreams Ltd. merged with Food Network East Africa with the objective of further developing the local

organic market as well as the international market for both local and regional organic producers. New offices were established and a new management structure was put in place to set the foundation for this expansion. The new management included a Quality Assurance Manager as well as a Supply Chain Co-ordinator assisted by a fleet of sales personnel.

Future plans involve Nakumatt Junction and Village, Chandarana Mobil Plaza as well as Sarit Centre, bringing the number of total outlets to ten. This expansion will require a ten-fold increase in organic produce for Green Dreams Ltd.

4.1.3 Economic independence and financial stability

Organic agriculture helps farmers achieve economic independence and financial stability by reducing reliance on external inputs – prices of which are beyond farmers' control – and by ensuring that one or some crops on the farm will survive even in case of a pest attack or climatic stress. Instead of chemical inputs, organic farmers use recycled waste, nitrogen-fixing plants, improved cropping systems and landscapes, and integrated crop and animal farming systems, over which they have some control (Fliessbach et al. 2009). Organic agriculture promotes the use of home-grown fertilizers produced

by livestock or other sources, which are less expensive than agrochemicals. Furthermore, because they are produced on-site, these inputs do not require financing and up-front cash for their purchase. In this way, farmers are able to increase their profit margins, reduce dependence on outside suppliers and avoid financial risk by eliminating the need to rely on high-interest loans. Moreover, locally produced, non-synthetic inputs improve organic matter in the soil, which helps maintain soil fertility and enhances long-term productivity ensuring sustainable income over the long term (Mäder et al. 2002).

4.1.4 Profit and predictability impacts

Integrating farmers into local and, particularly, international supply chains increases their income and profits as production costs are reduced and selling prices increase as a result of the premium for organics. Their integration into networks of production, export, and purchasing can help ensure a consistent income for organic farmers. While integrating them in supply chains presents the risk of making organic farmers vulnerable to price fluctuations in global markets, income levels are generally predictable as prices are included in

future contracts. For example, after the collapse of vanilla prices on the international market in 2006, organic vanilla producers in Uganda were paid “100 per cent more [...] for their vanilla than conventional buyers were willing to pay. In fact, many conventional vanilla farmers were unable to sell their crop” (EPOPA 2007, 3). The higher price was due to the vanilla's organic certification and the binding contracts between farmers and buyers to buy organic vanilla at prices that had been agreed in advance.

In subsistence agricultural systems, conversion to organic farming can increase yields by up to 180 per cent.^{viii}

^{viii} Nadia El-Hage Scialabba, 2007, 'Organic Agriculture and Food Security,' FAO, p. 8. Available at <ftp://ftp.fao.org/paia/organicag/ofs/OFS-2007-5.pdf>.

4.1.5 Impact on employment

There is growing evidence that organic agriculture creates additional and decent employment opportunities, especially for the poor. It is more labour intensive than conventional agriculture because it prohibits the use of chemical inputs. Maintaining soil fertility through the application of compost and manure and anti-erosion landscaping requires more labour than applying fertilizers and pesticides. The money saved by not using expensive synthetic pesticides allows farmers to hire additional workers, as necessary. Employment opportunities can grow between 10 and 30 per cent as a result of conversion from conventional to organic production, depending on farm size and crop (Padel and Lampkin 1994; Hird 1997). In 2007, 172,000 jobs were created in Mexico by converting some agricultural production to organic farming (Cruz et al. 2009). In Kenya, the C-MAD programme reported increases in local

employment as a result of growth in demand for on-farm labour (Hine and Pretty 2008).

Further employment opportunities arise from requirements to meet higher quality standards, and opportunities to add value to organic products for export. In this way, farmers and non-farmers become involved in other segments of the production chain, such as packaging and processing (Gibbon and Bolwig 2007). In Uganda, several tasks that add value to organic agriculture – such as those required for drying tropical fruits and herbs, producing essential oils, processing shea nuts, hulling coffee, drying cocoa and fermenting vanilla – have resulted in increasing employment opportunities (Naturinda 2008). In Kenya, the Green Dreams Ltd. case study, comprised of 500 small-scale producers, documented the creation of 2,500 local jobs (Mwaura et al. 2008).

4.2 Social assessment

4.2.1 Food security

Organic agriculture has been shown to enhance food security, especially for rural populations and poor smallholder farmers living in developing countries. The CBTF thematic study on organic agriculture and food security, as well as the IAs in East Africa, showed that yields and incomes rose after converting to organic agriculture, which resulted in an increase in the availability of food and more cash available to purchase food. Levels of food per farm and food per person increased, which enhanced food security. Crop yields increased, on average, by 128 per cent in East Africa, after the adoption of organic agriculture techniques. Access to food increased in 11 of 13 case studies related to food production that were examined in the thematic study on food security (Hine and Pretty 2008).

This experience has been replicated in countries around the world. In Chile, for example, organic vegetable garden systems

developed by the Centre for Education and Technology have demonstrated that even small gardens can lead to household food self-sufficiency year round and surpass the productivity of conventional farms (Scialabba and Hattam 2002). Opportunities to sell crop surpluses means farmers also enjoy higher incomes, increasing their purchasing power. Furthermore, fresh organic produce is available to people in the wider community, improving health and nutrition.

The consistency of production provided by organic agriculture also contributes to food security. Improved soil fertility is guaranteed over the long term because of the absence of chemical inputs (Fließbach and Mäder 2005). Also, topsoil, which is vital for plant growth, is subject to less erosion as a result of organic agricultural techniques (Altieri 2000). Organic agriculture is also more resistant and resilient in the case of environmental pressures. In

Kenya, the experience of some organic farms has shown that organic maize crops were able to withstand moisture stress better than conventionally grown crops (Mwaura et al. 2008). Moreover, productivity tends to increase over time, ensuring consistency in crop production (Mella et al. 2008). It has been noted that, “[u]nder conditions in which water is limited during the growing period, yields of organic farms are equal or significantly higher than those of conventional agriculture” (Fließbach et al. 2009, 15).

*Organic farming
can yield up to three times
as much food
on individual farms
in developing countries,
as low-intensive methods
on the same land.^{ix}*

animal sources for food consumption also helps provide a wider range of nutrients for on-farm consumption. Although industrial agriculture is purported to be more efficient and productive, as a result of diversification, small farms produce more per acre than industrial farms, measured in terms of total output. Industrial farms typically pursue monoculture, and while a smaller farm produces less of one crop, it will typically produce a larger total yield, taking into account all the crop varieties cultivated and livestock (Leonard 2006).

Diversifying crops, an important element of holistic organic agriculture, also contributes to food security by stabilizing and increasing agricultural output, increasing farmers’ cash income, and reducing vulnerability to price fluctuations on the world market. The technique of planting several crops, rather than mono-cropping, is a stabilizing option because diversification in agro-ecosystems diminishes the severity of animal and plant diseases (Altieri 2000). In addition, diversification allows farmers to produce cash crops alongside subsistence crops, thereby generating cash income and food. Moreover, if the selling price of one crop drops dramatically or pests destroy a particular variety, other non-affected crops can serve as livelihood insurance, whether in terms of cash or food. The increased diversity of plant and

The fact that organic agriculture is more energy independent than conventional methods also enhances food security. The use of on-site fertilizers and other agro-inputs contributes to self-sufficiency, leaving farmers less vulnerable to fluctuations in the price of purchased inputs and more likely to produce consistently. External agro-inputs are produced using fossil fuels and the increase in fertilizer prices has been consistent with rising fuel prices. Between 2007 and 2008, the price of synthetic fertilizer increased by 200 per cent (Hargrove 2008). Self sufficiency insulates farmers from these fluctuations, ensuring that cultivation proceeds and, ultimately, food can be either produced or purchased.

4.2.2 Health considerations: farmers, local populations and consumers

Methods of production employed in organic agriculture are better for the health of farmers, farm labourers, people living around farms and consumers. Evidence increasingly shows that pesticides are linked to significant health problems and that reducing the use of synthetic pesticides and fertilizers is related to the improved health of farmers and farm

labour. The run-off of chemicals from fertilizers and pesticides into streams and other water bodies, as well as the drift of the chemicals after aerial applications, can leave residual chemicals in the air, in water, and on produce (Vapnek et al. 2007). These residues are harmful for local populations. People living in developing countries are more likely to be

^{ix} Badgley, C., J. Moghtader, E. Qunitero, E. Zakern, J. Chapell, K. Avile’s-Va’zquez, A. Samulon and I. Perfecto, 2007, ‘Organic agriculture and the global food supply,’ *Renewable Agric. Food Sys.* vol. 22, p. 86-108.

affected by pesticide-related diseases than those in developed countries (Jankowski et al. 2007). While accounting for less than 25 per cent of global pesticide use, people from developing countries suffer from 50 per cent of the pesticide-related illnesses and 72 per cent of the pesticide-related fatalities worldwide (USAID 2008). The International Labour Organization and the FAO estimated that between 2 and 5 million people are victims of pesticide poisoning each year, of which 40,000 cases are fatal (FAO 2009).

Organic agriculture also results in improved health for consumers. Baker et al. (2002) found that 73 per cent of samples of conventional produce contained pesticide residues. This underlines the benefits of organic agriculture for

consumer health. In addition, however, organic products have higher levels of secondary plant compounds and vitamin C, and organic milk and meat products benefit from a more nutritional fatty acid profile (Alföldi et al. 2006).

Organic agriculture also prohibits the use of genetically modified organisms (GMOs). Genetic modifications can create new types of proteins and generate new allergies. They may also generate unforeseeable and unintended effects as interactions within organisms can produce undesirable metabolic products (von Beesten 2008). While studies are inconclusive about the effects of GMOs on humans, a study in Australia in November 2005 was stopped due to safety concerns because GMO peas were triggering pneumonia in field mice (Prescott et al. 2005).

4.2.3 Influence on local knowledge

The use of indigenous agricultural techniques in organic agriculture promotes the revival of, and an appreciation of, local and traditional knowledge. An important input for organic farming is the knowledge of local populations about the soil, climate, crop varieties, biodiversity, locally produced and adapted plants, local pests, and ecosystems. Some authors suggest that this traditional knowledge offers a “reservoir of adaptations” that has evolved specifically to address the realities of local climatic conditions and complex agro-ecosystems (Tengo and Belfrage 2004). Indigenous seeds and local varieties of crops used for organic production are well adapted

to local conditions. Consequently, organic farming is enhanced by traditional knowledge while organic agriculture enhances the productivity of traditional farms (Twarog 2006). For example, organic techniques and local knowledge are widely used to produce amaranthus, an indigenous Kenyan vegetable. In Thailand, organic agriculture has developed largely from traditional farming; farms have used local agro-ecological knowledge and techniques, enriched by organic practices, to augment productivity (Rundgren 2007). Moreover, sharing traditional knowledge and local experiences, “increases social capital and empowers” farmers (Mella et al. 2008, 44).

4.2.4 Gender equity and distribution of work

Organic agricultural production also has a positive impact on gender equity. In East Africa, 70 per cent of agricultural workers are

women. Results from the IAs show that organic agriculture can raise their incomes, not only through increased employment opportunities,

but also by allowing them to sell produce from the farms that they own or manage. However, benefits of organic agriculture for women vary from region to region. In Tanzania, for example, women benefit from employment opportunities and a better work environment on organic farms. The IA noted that men traditionally control cash crops and see themselves as the responsible party, even if the women do most of the work (Taylor 2007).

In addition to working on farms, employment opportunities for women increase with conversion to organic agriculture, because of the extra tasks required to meet organic standards and export demands with respect to quality and farm management. Organic processing, such as spice sorting, vanilla

curing and cashew nut processing, are tasks performed mainly by women (Taylor 2007).

As in conventional agriculture however, there is a risk that if additional labour is not hired, the workload may increase for the whole family, including women. Nevertheless, a recent study in Kenya and Uganda concluded “that all the women interviewed found that organic farming was well worth the extra work effort because of the income benefits for the household as a whole” (Gibbon et al. 2008, 6). This may be the reason that in many places it is the women who have taken the lead in initiating the transition to organic agriculture. In Thailand and Malaysia, for example, women have been the pioneers of organic agricultural trade (Rundgren 2008).

4.2.5 Impact on families and communities

Organic agriculture can promote family participation in farming activities. Because organic farming is labour intensive, family labour plays a major role on farms in East Africa as small farms are most likely to depend on family labour. Due to the lack of toxic agrochemicals in organic agriculture, involving children in farming activities is safer than it would be in conventional farming and is sometimes more prevalent. A case study of the Mbumi Coffee Mills documented that women preferred working in organic production because they could bring their children to work without fearing for their health (Taylor 2007).

Organic agriculture has been shown to help strengthen communities. In the CBTF study *Organic agriculture and food security in Africa*, 14 of the 15 case studies (93 per cent) undertaken showed improvements in “social

capital, including more and stronger social organizations at the local level, new rules and norms for managing collective natural resources and better connectedness to external policy institutions” (Hine and Pretty 2008, viii). For example, organic pineapple production helped revitalize a Madeke community in the Njombe District of Southern Tanzania (EPOPA 2007). The formation of farmers’ groups and cooperatives and less formal community collaboration surrounding the pursuit of organic agriculture promoted trust and improved social bonds (Hine and Pretty 2008). The community collaborated to work on common resource management, share knowledge and best practices, share the cost of certification and work together to meet the demands of potential buyers. Their collaboration also gave them more bargaining power in supply chain networks (Hine and Pretty 2008; Mella et al. 2008).

By banning the use of chemical fertilizers and pesticides, organic agriculture contributes to the creation of a decent work environment for the poorest and most unprotected labour force, breeding grounds for biodiversity and maintaining and improving water and soil quality.^x

^x El-Batawi, Mostafa A., 2004, ‘Health of workers in agriculture,’ WHO, Regional Office for the Eastern Mediterranean, Available at <http://www.emro.who.int/dsaf/dsa226.pdf>; and Mäder, P. et al., May 2002, ‘Soil Fertility and Biodiversity in Organic Farming,’ *Science* vol. 296, no. 5573, p. 1694 – 1697.

4.3 Environmental assessment

4.3.1 Climate change adaptation and mitigation capacities

According to a 2007 report of the Intergovernmental Panel on Climate Change (IPCC), the agriculture sector (after excluding

emissions from the use of electricity and fuel) is responsible for 13.5 per cent of global greenhouse gas (GHG) emissions.

The production of chemical fertilizers and pesticides also produces greenhouse gases (notably nitrous oxide) which are not included in agriculture-related emissions and are covered under industrial emissions. High levels of reactive nitrogen (NH_4 , NO_3) remain in soils after using chemical inputs and contribute to the emission of nitrous oxide (Fließbach et al. 2009). Nitrous oxide is a very potent greenhouse gas, with 310 times more global warming impact per unit than carbon dioxide (Forster et al. 2007). In addition, clearing land for agriculture contributes to deforestation, which reduces carbon sequestration capacities and results in the release of additional GHGs into the atmosphere.

Although organic agriculture is not exempt from all of agriculture's contributions to GHGs, it has an enhanced potential to reduce and absorb emissions (Mäder et al. 2002; Scialabba and Hattam 2002; Wall and Smith 2005; Ho and Ching 2008). Organic agriculture has been shown to consume 20 to 56 per cent less energy per unit of crop dry matter

produced than conventional agriculture (Mäder et al. 2002).

According to one study, CO_2 emissions per hectare of organic agriculture systems are 64 per cent lower than in conventional systems (Scialabba and Hattam 2002). A series of life-cycle assessments showed that GHG emissions in organic systems were 36 per cent lower than in conventional systems (Nemecek et al. 2005). Another study noted that, "a minimum scenario" of conversion to organic production could mitigate 40 per cent of the world's agricultural GHG emissions, while "an optimum scenario" would amount to a 65 per cent reduction, if combined with reduced tillage techniques. Furthermore, it estimated that another 20 per cent of the agricultural GHGs would be reduced simply by abandoning industrially produced nitrogen fertilizers (Fließbach et al. 2009).

The potential of organic agriculture to reduce GHG emissions is the result of its increased carbon absorption and its minimal use of

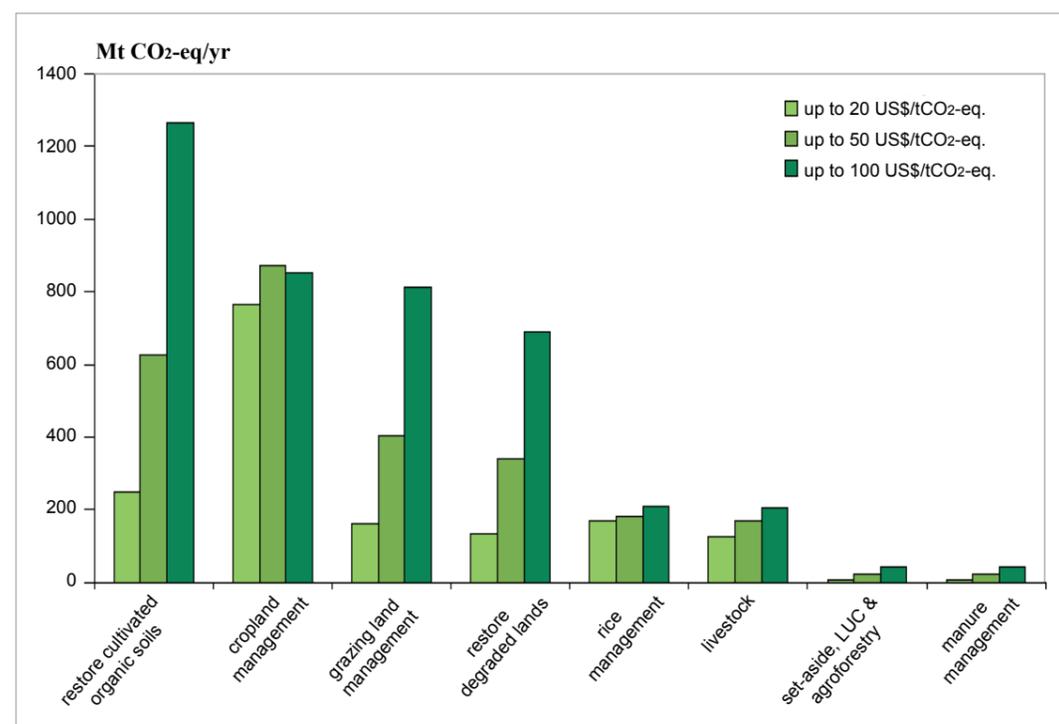
energy. Production methods used in organic agriculture, such as crop rotation, organic manure, agro-forestry and conservation tillage, have been shown to promote carbon sequestration (Reganold et al. 1987). Mycorrhizal fungi, whose growth is encouraged by organic practices, are important in carbon sequestration and mineral solubilization. Diversifying crops, crop rotation, and using green manure improves the soil structure and organic soils are thus better aerated and have lower mobile nitrogen concentrations, which reduces their N_2O emissions (Petersen et al. 2005; Flessa et al. 2002; Bos et al. 2007). A recent study by the Rodale Institute reported that organic agriculture sequesters three to eight more tonnes of carbon per hectare than conventional methods. Long-term field trials have shown that sequestration of this kind does not slow for over 30 years (Fließbach et al. 2009). The 2007 IPCC report classifies "restore organic cultivated soil" as the best

option for agricultural mitigation of GHGs by 2030.

The adaptive role that organic agriculture can play is also significant for farmers facing a changing climate. Organic agriculture is more resilient than conventional farming in the face of drought, flooding and extreme temperatures because it results in increased water filtration and water retention capacity of soils, and augments their organic nutrient content (Scialabba and Hattam 2002; Wall and Smith 2005; Ho and Ching 2007). Furthermore, by eliminating dependence on a single crop, diversification increases the likelihood that one of the cultivated species will withstand the temperature and precipitation stresses associated with climate change. Certain crops have been shown to be more resistant to drought when grown using organic techniques, notably maize in Kenya (Mwaura et al. 2008).

CO₂ emissions, per hectare, from organic agricultural systems are 64 per cent lower than emissions from conventional farms.^{xi}

Figure 4: Economic potential for GHG agricultural mitigation by 2030 at a range of prices of CO_2 -eq



Source: Smith et al. (2007).

4.3.2 Erosion control and soil fertility impacts

By employing organic techniques for cultivation, erosion due to wind, water and overgrazing has been reduced by 10 million hectares per year (Pimentel et al. 1995). Because organic agriculture does not use agro-chemicals, it is dependent on the natural composition and continued fertility of the soil. It uses a range of techniques to maintain and improve soil fertility including: organic compost and bio-fertilizers, mulching, cover crops, agro-forestry, crop rotation and multiple cropping. These techniques increase the density and richness of soil, and contribute to biological activity, which is instrumental for maintaining fertility. Beneficial inhabitants, such as indigenous invertebrates, arthropods,

earthworms, symbionts, and microbes, contribute to a higher level of organic matter in soil (Prasad 2005). Therefore, organic farming helps conserve and improve topsoil and enriches its microbiological diversity, ensuring long-term fertility. A 2005 FiBL study confirmed this, concluding that "organic farming systems [...] enhance chemical, physical and biological indicators of soil quality" (Mella et al. 2008, 46).

The IA studies reflected these findings even though quantitative data were not available. For example, farmers interviewed in Uganda reported a significant improvement in soil quality (Naturinda et al. 2008). Data from Switzerland also clearly show that the levels

^{xi} Küstermann, B. and K.-J. Hülsbergen, 2008, 'Emission of Climate-Relevant Gases in Organic and Conventional Cropping Systems,' 16th IFOAM Organic World Congress, Modena, Italy, June 16-20, 2008, Available at <http://orgprints.org/12813/1/12813.pdf>

of stability in the soil structure were between 20 and 40 per cent higher in soils subject to organic techniques than those under conventional production (Mäder et al. 2002).

Organic farming techniques also contribute to soil stability by reducing erosion (Altieri 2000). In Kenya, organic farmers prevent erosion and conserve water using techniques such as the use of trees, shrubs, and leguminous plants, terracing, and check-dams that stabilise the soil. Other farmers use a zero-tillage approach

to cultivation which ensures sufficient topsoil, even during erosive rains. Soils that have not been tilled also retain more water, and reduce soil losses from runoff and evaporation, which is a particular advantage in areas subject to drought (Economist 2008). One study found that erosion was less frequent on organic farms, resulting in more fertile topsoil and that “the amount of productive topsoil was dramatically less” on conventional farms (Reganold et al. 1987, 371).

4.3.3 Conservation of agro-biodiversity

Levels of biodiversity are higher in organic farming systems than in conventional farming because soils that support organic agricultural production maintain a diversity of life (Mäder et al. 2002). The lack of chemical inputs creates an environment conducive to the existence and breeding of micro-organisms, plants, and animals. Furthermore, holistically based organic agriculture depends on the cultivation of a diverse set of crops. A 2005 analysis showed that organic farms have a level of

species richness that is 30 per cent higher than conventional farms (Bengtsson et al. 2005). Furthermore, the ecosystems located on the periphery of organic fields are not damaged by the use of chemical inputs, making them suitable for animal habitat. In Kenya, field audits during the IA project revealed that organic farms exhibited high levels of biodiversity, with more trees and a wider variety of crops and seeds (Mwaura et al. 2008).

4.3.4 Pest control

Organic farming systems can result in improved pest control. Conventional farming uses chemical pesticides to control pests. Since organic agriculture cannot rely on this type of pest control, organic farmers must employ integrated pest management approaches that involve a combination of natural enemies, crop rotation and diversification, and biological control. These methods cost less than pesticides, foster environmental balance, prevent pest resurgence, and prevent the emergence

of new chemical-resistant pests. In a case study in Kenya, the low-cost integrated pest management technology reduced pests and increased yields without using chemicals (Hine and Pretty 2008). Also in Kenya, the existence of many natural predators, otherwise absent due to chemical residues, helped to control pests and prevent disease (Mwaura et al. 2008). Enhanced biodiversity also reduces incidents of pest outbreaks (Zehnder et al. 2007; Wyss et al. 1995; Pfiffner et al. 2003).

4.3.5 Impact on water conservation and quality

Organic farming also promotes water conservation and retention in soils. The capture of water during torrential rains is twice as high in organically managed soils (Lotter et al. 2003), which reduces the risk of floods. Levels of organic matter are higher in

top soils on organic farms. This is important for water retention capacity; water moisture content was found to be significantly higher in organic soils (Reganold et al. 1987). Soils retain more rain water due to the “sponge-like properties of organic matter” (Fleissbach et

al. 2009, 14). This is evident in the fact that the need to irrigate was found to drop by 30 to 50 per cent on farms that converted to organic production in India (Proctor and Cole 2002). Organic farming also helps safeguard water quality by eliminating the use of toxic agrochemicals that often end up in lakes, streams and groundwater. A study conducted

by the US Environmental Protection Agency found that agriculture was the greatest source for pollution in lakes and rivers (USEPA 1994). On organic farms, however, nitrate leakage into groundwater has been found to be 57 per cent lower than on conventional farms (Prasad 2005).



All the world's nearly one billion hungry people could be lifted out of malnourishment on less than a quarter of the food that is wasted in the US, UK and Europe.^{xii}



^{xii} Feeding the 5000, 2009, 'Food Waste Facts' Available at: <http://www.feeding5k.org/food-waste-facts.php>

5. Challenges

While the economic, social and environmental assessments present the impacts of converting to organic agriculture, it is important to be

aware of the barriers to conversion. Challenges identified in the IAs in Kenya, Tanzania and Uganda, have been summarized below.

5.1 Barriers to entry

The rates of conversion from conventional to organic agriculture are relatively low because farmers perceive risks and high costs associated with conversion (Rundgren 2008). A transition from conventional to organic farming can be costly, and lack of options for financing conversion is a barrier as well. Typically, during the first three years of organic production farmers are not able to certify their crops as organic so they cannot access the premium prices associated with certified organic produce. Although the price premiums and decreased production costs eventually result in higher profitability and productivity, costs incurred for increased labour, training, facilities for packaging and labelling, and an effective monitoring system must be paid up front. For farmers seeking to export or sell in domestic markets, utility prices, post-harvest losses and transportation costs are high in the East African region. Freight costs are particularly high in Uganda and in the islands off Tanzania.

Farmers are often reluctant to make the investment required to convert to organic production because conversion requires time, resources and initiative and the ability to learn new techniques. One impediment to making the necessary investment is insecure land tenure and the uncertainty associated

with a farmers' ability to reap the rewards of improved soil in the future. Furthermore, if animal husbandry and crop cultivation are not in close proximity, the use of on-site, home-grown inputs is difficult (Rundgren 2008).

Another barrier to entering organic production is the temptation to produce crops using conventional methods. The IA study in Kenya confirmed the high demand for cheap (thus conventionally grown) products in East Africa (Mella et al. 2008). Furthermore, continued government support for conventional practices encourages farmers to remain in conventional agriculture. Marketing boards and monopolies maintain support for conventional agriculture and thereby discourage conversion to organic agriculture (Kimemia and Oyare 2006). Farmers in developing countries also face competition from imported organic products that are sold cheaply because production in most developed countries is heavily subsidized. In Kenya, an organic retail outlet reported that only one per cent of the products it sold had originated domestically (Kimemia and Oyare 2006). However, imports can also encourage domestic demand by stimulating the market for organic agricultural products (Rundgren 2008).

5.2 Specific challenges

In addition to general barriers to entry, the IAs identified specific challenges associated with conversion to organic agriculture, some of which are summarised below.

Support favours conventional agriculture. Government support continues to favour

conventional agriculture and governments have yet to demonstrate a clear commitment to the promotion of the organic sector. Countries have not developed policy and institutional frameworks that are conducive to promoting organic agriculture. There is also a lack of financial, economic and

market incentives to help farmers convert from conventional to organic production. Some governments actively support research and development of GMOs, which are not permitted in organic farming. Uganda, however, is a unique example in the region where organic agriculture has been included in the Export Promotion Strategy 2008-2012 and where a draft of the National Organic Agriculture Policy has been prepared.

High costs of certification. Certification costs are often cited as a significant obstacle especially for small producers, since certification is an essential prerequisite for marketing agricultural produce as organic. Certification costs are increasing and becoming a more significant component of production costs as some major supply chains are gradually moving towards multiple certification (for example Fair Trade) in addition to the basic organic documentation. In East Africa, an individual farm will pay between US\$ 500 and US\$ 3,000 to secure organic certification (Bouagnimbeck 2009). In 2000 in Uganda, a European certification firm charged individual producers a fee of £ 200 plus inspection costs of £ 350 per day per inspector (plus airfare, accommodation and other expenses) (Personal communication with Giersmehl 2000; Mwaura et al. 2008). Smaller operators with low sales tend to pay considerably more in terms of share of their farm revenue, given the scale of their production. One operator with sales of only US\$ 12,000, paid US\$ 4,000 in certification costs (Naturinda et al. 2008). In the region,

however, there are replicable models of farmers' cooperatives and farmers' groups that have helped reduce the certification costs. In some cases, certification amounted to between one and four per cent of the value of the product, although this proportion is often higher for smallholders, especially those getting certification for individual small farms (Rundgren 2008).

Proliferation of standards. A growing array of standards characterizes the organic sector – whether they are official standards supported by governments or voluntary standards created by private bodies, NGOs or value chains. This becomes a barrier to the ability of producers to access different markets as a product certified under a specific standard can only be sold in a market where that standard is accepted. The option of getting a product certified under different standards increases farmers' costs. They are required to meet different standards to access national, regional, or international markets as there is little or no coordination among standard-setting bodies. For example, the standards necessary to secure certifications to access the largest organic markets, such as the European Union, the United States and Japan, vary; this requires producers to either choose to target one market, or face high adjustment and certification costs. Furthermore, the absence of reliable local standards in some places obliges farmers to use private standards, usually verified or inspected by foreign certification bodies, which are

costly. These foreign standards are not adapted to local agro-ecological conditions which put local producers at a technological disadvantage. While standardization is positive for consumers, because they are assured their purchases are produced in a certain manner, the proliferation of standards

is becoming a burden for producers. Under this initiative, the UNEP-UNCTAD CBTF, in partnership with IFOAM, was able to create a model for harmonizing organic standards, which offers opportunities for accessing a larger market and reducing the certification costs.

Box 2: The development of the East African Organic Products Standard (EAOPS)

In East Africa, the problem of prolific standards was recognized early. When the UNEP-UNCTAD CBTF initiative was launched at the beginning of 2005, several public and private national and international standards existed for organic agricultural production in East Africa. In assessing these competing standards, it became obvious that a common standard among the three countries would encourage regional trade and, in effect, triple the size of the domestic market. The CBTF and IFOAM cooperated to organize a unique process to facilitate the development of the EAOPS.

The public and private participatory process through which the EAOPS was developed ensured a regional standard that was tailored to the ecological and social conditions in the region. The process involved a great deal of coordination and public consultation, along with the development of alliances among international institutions, East African governments, certification bodies, the Secretariat of the EAC and organic networks. Three drafts of the EAOPS were developed and revised based on a review process that involved over 1,000 individuals through a widely participatory process. A

regional public-private sector working group finalized the standard and presented it to the EAC Council of Ministers.

In April 2007, EAOPS was adopted by the EAC Council of Ministers as the official organic standard of the EAC, applicable to its member states: Uganda, Tanzania, Kenya, Rwanda and Burundi. Any existing public national standards in the EAC member states were required to be withdrawn. The EAOPS joins the European Union Organic Standard as one of only two regional organic standards, and is the first to have been developed through a collaborative process that involved the public, private and NGO sectors.

This process of developing the EAOPS now serves as a successful and replicable model for developing regional standards worldwide. IFOAM recently implemented the same process in the Organic Standards for the Pacific project, another regional standard-making process. Annex 4 provides a description of the full background to the EAOPS and the process that made it unique. The full text of EAOPS is reproduced in Annex 5.

Low levels of knowledge and poor dissemination. In East Africa, knowledge of organic techniques is limited and low levels of awareness of organic agriculture's economic, social and environmental benefits persist, particularly among small-scale farmers. Exposure to the demand for organics in developed markets is also limited. Moreover, what knowledge exists is poorly disseminated. Smallholders can be isolated, far from cities

and even roads, which prevent them from acquiring relevant information (Rundgren 2008). Members of the government's support staff are often instrumental in disseminating knowledge of organic agriculture in rural areas, and are spread thin. For instance, in Tanzania's Mkuranga District one agricultural extension officer is responsible for the cashew nut crop of the whole district. In the Rufiji District, one extension officer is responsible for the entire

In conventional farming, every year an estimated 2 to 5 million agricultural workers suffer from severe pesticide poisoning, resulting in approximately 40,000 deaths,^{xiii} and many more cases of work-related cancer and reproductive impairments.

The current level of the use of agro-chemicals is also a major cause of biodiversity loss, water pollution, and loss of soil fertility.^{xiv}

^{xiii} FAO and ILO, 2009, 'Safety and Health,' FAO and ILO, Available at <http://www.fao-ilo.org/fao-ilo-safety/en/>

^{xiv} Krebs, J.R. et al., 1999, 'The second Silent Spring?: The drive to squeeze ever more food from the land has sent Europe's farmland wildlife into a precipitous decline,' *Nature* vol. 400, p. 611-612; Green, R. E. et al., 2005, 'Establishing Indicators for Biodiversity,' *Science* vol. 308; and Nellemann, C. et al., (eds.), 2009, 'The environmental food crisis – The environment's role in averting future food crises,' UNEP, GRID-Arendal, Available at http://www.ilo.org/global/What_we_do/Publications/Newreleases/lang--en/docName--WCMS_098503/index.htm

district in matters associated with beekeeping. Poor infrastructure also prevents the spread of information. This is a key challenge in both Tanzania and Uganda. An estimated 10 to 20 million hectares of nearly organic, yet uncertified, farmland currently exists in developing countries (Grolink 2006). Bringing this land under certified organic production could lead to increased levels of revenue and foreign exchange.

Research gaps.

Research gaps exist with respect to organic agriculture. While research on conventional agriculture and biotechnology is being supported and undertaken, research on organic agriculture is not as well developed in East Africa. In Kenya, for example, the current agricultural research system is heavily weighted in favour of conventional agriculture and GMOs. The IA studies established that research is a key area where funding and support are needed, and improved research could play an important role in expanding the organic sector. The study in Uganda identified specific areas dealing with organic agriculture that could be expanded and enhanced by research. These included: opportunities for value added processing, improved soil fertility, soil erosion control, biodiversity conservation, seed improvement, productivity improvement, post-harvest handling, and pest and disease control. Investment, especially from the public sector, to undertake further research and disseminate its findings is vital to increase levels of organic production.

Technical hurdles. There is a lack of appropriate technologies and technical facilities, which discourages conversion to organic agriculture. Organic agricultural production and processing require knowledge and equipment (particularly for processing). Skills, proper packing facilities, and machinery for grading or sorting are

necessary to add value to some products. Furthermore, inputs are not always available for processing. For example, organic fruit may be produced domestically, but without readily available organic sugar, a value-added product such as organic marmalade cannot be produced. Infrastructure, such as cooling facilities and pack-houses, tends to be inadequate. Techniques, such as fumigating products with chemicals for export are not permitted in the organic sector, and alternative treatments (that employ carbon dioxide and freezing, for example) require specialised equipment. Inadequate facilities in Uganda have resulted in poor post-harvest handling leading to loss of produce and income. Organic seeds, seedlings and other vegetative materials are not always readily available. Moreover, the high cost of logistics is also an issue (Rundgren 2008). The draft Organic Agriculture Policy of Uganda, which has examined some of these issues, is a good model to identify technical hurdles and propose remedial measures.

Inadequate economies of scale. Because of the small size of the average farm in East Africa, farmers are not able to take advantage of economies of scale. Large distribution centres typically prefer not to deal with small producers, since associated costs are high and the scale of production necessary to afford the costs of certification, distribution, and transportation are often beyond the reach of small-scale farmers. Therefore, small farmers often need middlemen to sell their produce (as opposed to dealing directly with buyers), which diminishes their profits. Limited access to market information and poor organization also negatively affect small farmers, reducing their bargaining power and often resulting in lower prices and insecure or ambiguous contractual terms. Establishing internal control systems,

farmers' organizations, and improving access to market information could bring farmers together to help address challenges associated with scale.

Lack of financing. Constraints posed by the added costs of introducing new crops, equipment, certification, and freight could be mitigated through improved access to credit. However, typically financing is not available for small-scale producers. Small farmers and women farmers lack perceived "credit-worthiness" because they possess no title to their land or they are too impoverished (Rundgren 2008). In Kenya, for example, small-scale farmers have little access to financing

to purchase drip irrigation equipment, which could stabilize and improve organic production during water shortages, one of the biggest risks associated with rain-fed agriculture. Of the 20 local farmers interviewed for the IA study in Kenya, around 25 per cent had suffered production losses as a result of drought (Mella et al. 2008). Increasing access of farmers to credit that would permit them to purchase organic inputs, cover certification costs, and pay for post-harvest transportation and storage, could be a key factor to removing barriers that discourage farmers from converting to organic farming.



* Scialabba, N. E.-H., 2007, 'Organic Agriculture and Food Security,' FAO, p. 16, Available at <http://ftp.fao.org/paia/organicag/ofs/OFS-2007-5.pdf>

Agricultural subsidies, which amount to over US\$ 1 billion per day, need to be redirected towards supporting sustainable agriculture to maintain the multifunctionality of agriculture.



6. Conclusions, recommendations, policy options, and lessons learned

6.1 Conclusions

Employing a multistakeholder and participatory process, the IA projects in Kenya, Tanzania, and Uganda examined their existing organic agriculture sectors and assessed the economic, social, and environmental impacts of promoting organic production and trade. In general, production of, and trade in, organic agricultural products offers great potential for accessing international markets, using resources sustainably, reducing poverty, ensuring food security and addressing climate change in these countries. There are, however, certain challenges that the region has to overcome in order to exploit the full potential of organic agriculture.

Organic and near-organic agricultural methods and technologies are well suited for many poor, small farmers in Kenya, Tanzania, and Uganda as they tend to rely on locally and naturally available materials to produce healthy, safe, and marketable products. Organic agriculture has been the key to protecting the multifunctional nature of agriculture and it encourages a holistic approach to farming that is more diverse and resistant to climatic stress than conventional methods. Furthermore, many smallholders in the region actually engage in organic production by default, due to a lack of agrochemical inputs. “Organic by default” production offers all the socio-economic and environmental benefits of organic agriculture without access to the premium prices.

While the governments of Kenya, Tanzania, and Uganda are slowly, but increasingly, recognizing the positive impacts and the full potential of organic agriculture, comprehensive government policies to support this sector have not been prevalent. Some agricultural policies in place in East Africa even discourage the conversion to

organic farming. Currently, Uganda leads the region in terms of public sector support for the sector. The Government has included organics in the Export Promotion Strategy and is supporting a multistakeholder process to develop a National Organic Agriculture Policy.

The private sector (encouraged by high-end international markets) and NGOs (inspired by social and environmental concerns) have consistently and passionately supported the expansion of organic agriculture in the region and they deserve the credit for existing levels of organic production and trade in East Africa.

The time series data for the organic agriculture sector in East Africa show a consistent upward trajectory for certified organic production and trade. Moreover, it is also clear that there is already an established organic agricultural industry in East Africa, with existing standards, certification bodies, and research institutions. Partnerships between farmers, farmer groups, NGOs, organic movement organizations, governments, and certifying bodies at all levels, have contributed to the growth of this sector.

The economic assessment in the IA documented a large and growing international and national market for East African organic products which offers a significant price premium. Higher farm yields and resulting profits of organic farmers, compared to their conventional counterparts, are contributing to economic prosperity of families, regions and countries. In addition, organic farming is helping to ensure food security (especially for the poor and smallholder farmers), and reducing poverty as net profits from increased yields and emerging market opportunities (domestic and international) benefit large and small farmers alike. Employment

opportunities, on- and off-farm, are also increasing as a result of requirements for increased labour for production and for processing and packaging activities.

The social assessment demonstrated the positive impacts of organic agriculture on food security, traditional knowledge, gender, health, and community development. A transition to organic agriculture has been shown to increase access to food in a variety of ways: increasing yields, increasing total on-farm productivity, and enabling farmers to buy more food with their increased incomes. Case studies reported increases in per hectare productivity of food crops following conversion to organic agriculture. This was proved even under difficult environmental conditions, such as droughts. Organic farming has a positive impact on the health of farmers, farm labour, communities and consumers. It reduces the health expenditure of farming families and minimizes the number of labour days lost due to bad health. Finally, the IAs noted that organic farming helps strengthen community bonds due to the need to come together for certification, marketing and to attain economies of scale for exports. The strong focus of organic farming on the use of traditional and local knowledge also helps to strengthen this bond.

From an environmental perspective, it is clear that organic agriculture contributes to the mitigation of climate change by lowering emissions of GHGs, reducing energy use, and increasing carbon sequestration. Furthermore, levels of chemical run-off from agriculture practices are decreased, which results in reduced pollution levels in water bodies and elsewhere in the ecosystem. Under organic agriculture, soils are more fertile, resilient, and resistant to erosion over the long term. After conversion to organic production, levels of biodiversity increase as a result of crop diversification, the elimination of chemical residues in the soil, and the improved health of habitats surrounding organic farms. Pests can be effectively targeted using organic inputs

and use of techniques that do not treat good and bad pests alike. Organic agricultural practices have proved to be more water efficient and have shown to increase the water retention capacity of soils, mainly through increased levels of organic matter in the soil. This has the potential to transform agricultural productivity in drought stricken parts of East Africa.

Nevertheless, there are a number of obstacles that constrain the ability of East African countries to exploit the full potential of organic agriculture. These challenges make it more difficult or more expensive for small farmers (and sometimes even large-scale producers) to take advantage of the opportunities offered by organic agriculture. Knowledge of production processes and access to certification and supply networks are limited, particularly for smallholders. There is a need to build capacities of individuals and groups especially with respect to the management of organic farms, meeting certification requirements, and issues related to supply chains. Furthermore, research on agro-ecological technologies, techniques, and best practices is lacking in East Africa. The cost of certification, lack of technical expertise, lack of the availability of appropriate technologies, and challenges related to marketing are among the factors that discourage conversion to organic production. This situation is aggravated by lack of access to credit for organic farmers. Finally, there is very little support from public institutions for marketing East African organic products.

The IAs and thematic research studies supported by the UNEP-UNCTAD CBTF concluded that organic farming increases the income of farmers by increasing yields and productivity of farms, and offers a wide array of social and environmental benefits. The successful models that have been developed for overcoming the challenges in East Africa should be documented and replicated to maximize net development gains from the promotion of organic production and trade.

6.2 Recommendations and policy options

The IAs offered some recommendations on how best to support the organic agricultural sector. Some of these recommendations are country specific to Kenya, Tanzania, and Uganda while others are more broadly applicable. The thematic research study, *Best practices for organic policy: What developing country governments can do to promote the organic agriculture sector*, also includes a detailed discussion on ways in which governments in developing countries can promote organic agriculture. Notably, recommendations regarding enhanced regional cooperation on standards, conformity assessment, research and development, and marketing are provided.

In general, the successful adoption of organic agriculture and the realization of its economic, social and environmental benefits will depend on important considerations and investments by government, the private sector, NGOs and farmers themselves. Future policy frameworks should emphasize support for, and protection of, small-scale producers. An integrated strategy to increase the production of, and trade in, organic agriculture should be informed by the social and ecological conditions that underpin organic agriculture and should be based on a long-term development horizon.

The recommendations presented below have been compiled from the individual country assessment reports:

Establish clear and cohesive government policies to promote organic agriculture

- Draft and implement a cohesive policy framework on organic agriculture that sends a clear message with respect to government priorities and the types and levels of support producers can expect in pursuing organic agriculture.

- Design complementary, coordinated, and mutually supportive policies. Review existing policies across sectors and identify and remove inconsistencies that discourage conversion to organic farming.
- Assign a government ministry or agency to lead and manage policy in this area.
- Establish a specialized inter-ministerial and multistakeholder national committee on organic agriculture to recommend and implement actions that encourage development in the sector.

Facilitate networking and institution-building

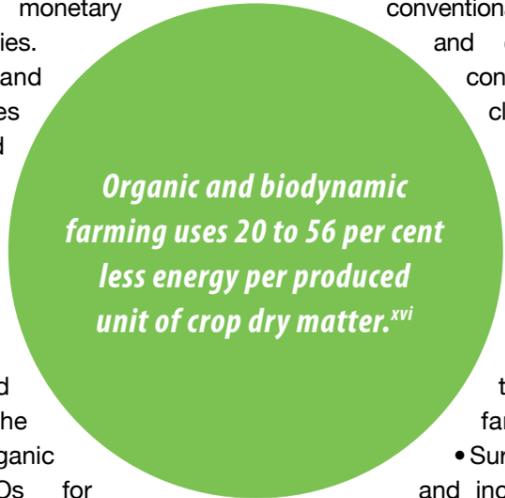
- Strengthen and develop regulatory systems, including organic inspection and certification capabilities, which are locally based and regionally harmonized to reduce costs arising from the process of attaining organic certification.
- Facilitate access to certification services, support producers to comply with standards, certification procedures, and regulations with special consideration for smallholders (group certification).
 - Establish and strengthen supply chains through private-public initiatives (covering inputs, production, processing, trade, distribution, retailing, and catering) accompanied by improvements in infrastructure.

Reducing food waste could help rationalise the call for doubling food production by 2050 and encourage transition to more sustainable farming methods.

Support organic producers

- Create innovative financing mechanisms to enable small farmers to benefit from the availability of short-term credit to meet the cost of investment in organic agriculture.
- Increase the availability of natural and organic inputs to farmers to provide alternatives to chemical farm inputs.
- Pursue and promote public procurement and consumption of organic products and provide tax incentives to organic producers

- to provide direct monetary support for their activities.
- Make information and marketing opportunities affordable and accessible and widely available to producers.
- Enhance cooperation in organic agriculture*
- Facilitate and strengthen the organization of organic farmers and NGOs for marketing organic produce, building linkages between producers, traders and consumers, improving bargaining power, and disseminating organic technologies among small-scale producers.
 - Consider NGOs with knowledge and experience in organic production as preferred government partners for future organic agricultural projects and target them for financing.
- Enhance research, information, education and public awareness*
- Perform an assessment of the sector by collecting data on both the organic and



Organic and biodynamic farming uses 20 to 56 per cent less energy per produced unit of crop dry matter.^{xvi}

- conventional agricultural sectors and carry out participatory consultations to establish a clear picture of the strengths and weaknesses of organic agriculture.
- Support and expand training programmes and extension services to disseminate knowledge and build technical capacities of farmers.
 - Survey traditional knowledge and incorporate it into training programmes and organic agricultural practices with respect to locally adapted and climate-specific techniques, seeds, and other areas.
 - Establish and support special research programmes for organic research (participatory and building on traditional knowledge) and training.
 - Launch targeted education, information, and public awareness campaigns at the local, regional, and national levels.

6.3 Lessons learned

In addition to collecting concrete information on the current state of organic agriculture in East Africa and the economic, environmental and social benefits that the sector offers, several lessons emerged from the IA process itself. These are presented below, and should contribute to the design of future projects.

1. It is worth investing time and resources in a multistakeholder participatory process to conceptualize and design the initiatives. The CBTF organized the following consultative meetings, which were instrumental in ensuring that the initiative appropriately responded to the needs of the participating countries and the region:

- February 2002, CBTF policy dialogue in Brussels on Promoting Production and Trading Opportunities for Organic Agricultural Products.
- November 2002, UNCTAD and FIELD sub-regional consultations in Nairobi with representatives from the ministries of trade, environment and agriculture from five countries (Kenya, Tanzania, Uganda, Ethiopia and Mozambique).
- May 2003, CBTF Workshop on Trade and Environment for Anglophone African Countries. Cape Town, South

Africa, where 18 countries were represented.

- June 2004, a Roundtable on Promoting Trade for Sustainable Development, in conjunction with UNCTAD XI, in Sao Paulo, Brazil.
- September/October 2004, CBTF held national multistakeholder consultations with representatives of the trade, environment and agricultural ministries and the organic sector in Kenya, Tanzania and Uganda to discuss the possibility of launching the CBTF project.

2. Allocating a small budget for a scoping study goes a long way to avoid duplication of efforts. The study on *Overview of Organic Agriculture in East Africa*,⁸ which was developed with the contribution of 15 experts from the region, provided information on the status of the organic sector in the region, identified ongoing initiatives, suggested what additional value the new initiative could bring, and proposed the most relevant partners for the CBTF. It also helped avoid duplication of efforts and built synergies with other projects.

3. Building on past and ongoing initiatives and their successes helps to achieve results and impacts relatively quickly. Based on consultations and information provided by the overview study, the CBTF initiative started its activities from the level where other past and ongoing initiatives had left off. The initiative, in particular, built on the work of the EPOPA project of the IFOAM, which was working closely with national organic movements and had prepared the ground to initiate work to develop an East African organic standard.

4. Partnerships with local and international institutions that have a built-in interest in supporting the objectives of an initiative is a key to success. These partnerships are particularly important for activities being implemented by non-resident agencies such as UNEP and UNCTAD. One reason that the CBTF initiative

was able to achieve significant results (such as development of the EAOPS and its adoption by the EAC as its official standard) was due to the partnership it formed with the national organic movements of Kenya, Tanzania and Uganda, as well as with the IFOAM.

5. Bringing the government into the process early, and identifying a lead government agency to oversee the initiative helps achieve the buy-in by, and support of, the public sector and avoids unpredictable barriers to implementation. The governments in the three countries had designated the following institutions as lead partners for the CBTF and many of the achievements can be attributed to the commitment of these agencies:

- National Environment Management Authority (Kenya);
- Crop Development Division, Ministry of Agriculture and Food Security (Tanzania);
- Uganda Export Promotion Board (Uganda).

6. In addition to a lead government agency, inviting and involving other relevant ministries and government agencies will help institutionalize the outcomes and recommendations of the initiative. The formation of the NSC provided an opportunity to include relevant governmental ministries and agencies as well as representatives of business sector and NGOs in the process. The ministries responsible for the environment, trade and agriculture from all three countries were invited to join the NSC.

7. Tripartite partnership with clearly defined roles and responsibilities for each partner is important for the smooth implementation of activities. The legal instruments (Memoranda of Understanding and Letters of Agreement) used for this initiative required cooperation between national government ministries and agencies, a local NGO or think tank, and the CBTF. The lead government agency was responsible for overseeing the project implementation and providing strategic guidance, the think tank was responsible for

^{xvi} Mäder, P., A. Fleissbach, D. Dubois, L. Gunst, F. Padruot & U. Niggli, 2002 'Soil fertility and biodiversity in organic farming,' Science, vol. 296, p. 1694-1697.

⁸ This study was published in 2007. An update, which will be published in 2010, is being finalized and will also cover Burundi, Ethiopia and Rwanda.

conducting multidisciplinary research and organizing participatory workshops, and the CBTF was responsible for providing technical and financial assistance. It was mainly as a result of these partnerships that the CBTF initiative was able to achieve the following results:

- a. Uganda is leading the region by including organic products as a priority sector for export promotion in its National Export Strategy 2007 – 2012.
- b. Organic agriculture was specifically mentioned in the Joint Assistance Strategy 2005-2009 that has been developed to coordinate all development assistance provided to Uganda.
- c. In Kenya, a clear focal point for organic agriculture has been established in the Ministry of Agriculture, and the national food and nutrition policy is currently under review to, *inter alia*, include a section on organics.
- d. In Tanzania, measures to promote organic agriculture have been incorporated into the national agriculture policy.

8. The IA projects were a useful mechanism to fill gaps in knowledge and available data. The absence of structured and credible data was a challenge in undertaking all of the studies. Baselines for projections could only be constructed from incomplete data sets or anecdotal evidence. Therefore, the projects relied on case studies to draw conclusions about organic agriculture in the region. Data regarding the potential and actual importance of the organic agriculture sector, as well as about the current status of its development in relation to the agricultural policies in place in each country, are now available because of this process.

9. The IA methodology, which combines multidisciplinary research and a multistakeholder

participatory process, not only provides a platform to validate and refine the findings of the research but also ensures that final recommendations are practical and appropriate given the socio-economic and environmental realities of the country. The participatory process was also helpful in establishing a national organic network in Tanzania, which consists of representatives from different sectors and different government agencies. This network is taking the organic agenda forward even after the CBTF project has finished.

10. In the case of a regional initiative, regular consultations and exchanges of information between country project teams and stakeholders from participating countries in the form of regional workshops or other events are key for developing team dynamics and a regional network of practitioners. It was mainly the result of efforts by this loosely organized East African team that the EAOPS was developed (with support of the CBTF and the IFOAM) and was adopted by the East African Council of Ministers as the official voluntary standard for the EAC. Organization of the following events resulted in the formation of the so-called “East African Organic Team”:

- a. Training on Integrated Assessment for the East African Organic Agriculture Initiative, Geneva, Switzerland, 23 September 2005;
- b. Sub-regional Seminar on Organic Agriculture in East Africa, Kampala, Uganda, 19-20 October 2005;
- c. Sub-regional Seminar on Organic Agriculture in East Africa, Arusha, Tanzania, 7-9 March 2006;
- d. Joint CBTF/IFOAM advisory mission on Promoting Production and Trade

The overwhelming majority of cases show that organic farms are more economically profitable even in developed countries.^{xvii}

- e. Opportunities for Organic Agriculture in East Africa, Kenya, Tanzania and Uganda, 20-25 July 2006;
- e. East African Policy Seminar on Organic Agriculture, Nairobi, Kenya, 11 December 2006;
- f. Workshop on Moving the Organic Agenda Ahead in East Africa, Dar es Salaam, Tanzania, 30-31 May 2007;
- g. Workshop on Developing Local and Regional Markets for Organic Agriculture in East Africa, Dar es Salaam, Tanzania, 28 May 2007;
- h. East African Organic Exhibition, Dar es Salaam, Tanzania, 28-29 May 2007;
- i. Launch of the East African Organic Products Standard, Dar es Salaam, Tanzania, 29 May 2007;
- j. Symposium on Environmental Requirements and Market Access: Turning Challenges into Opportunities, Geneva, Switzerland, 3 October 2007.

11. Working closely with the media and organizing high-level events were both helpful in drawing the organic sector to the attention of the general public. Participation of key decision makers in these events facilitated the incorporation of organic agriculture in policies and plans. The CBTF drew the highest level of public and media attention to the organic agriculture sector in May 2007 when the Prime Minister of Tanzania Honourable Edward N. Lowassa officially launched the EAOPS at Africa's biggest event on organic agriculture “The East African Organic Conference” in Dar es Salaam, Tanzania. The CBTF-IFOAM hosted conference was also attended by the Trade Minister of Uganda, Agriculture Minister of Tanzania, Resident Representative of African Development Bank (Uganda) and many other high level dignitaries. The TV coverage of the event is available at <http://www.youtube.com/watch?v=S9v9b4TX58k>.

12. Participation of UNEP and UNCTAD in events on trade and environment organized by other organizations helped to raise the profile of organic agriculture as a win-win-win opportunity for trade, environment and development, and led to the development of a broad informal coalition of organizations

and donors to support organic agriculture. The CBTF made presentations about organic agriculture and the East African Initiative at several events, some of which are listed below:

- a. Workshop on Integrated Assessment and Planning for Sustainable Development in Geneva, Switzerland, 14-15 February 2005;
- b. Briefing on the CBTF activities for 2005, Geneva, Switzerland, 6 July 2005;
- c. Sessions in the WTO Sub-regional Workshop on Trade and Environment for Central and Eastern Europe, Central Asia and the Caucasus, Vienna, Austria, 13-14 December 2005;
- d. CBTF Briefing for Asia Pacific Countries, Bangkok, Thailand, 19 October 2006.
- e. Seminar on Organic Agriculture, Pune, India, 4-6 January 2006;
- f. Sessions in the UNESCWA/UNEP Regional Workshop on Trade and Environment for Arab and Middle Eastern Countries, Muscat, Oman, 25-27 March 2006;
- g. Sessions in the WTO Regional Workshop on Trade and Environment for Arab and Middle Eastern Countries, Muscat, Oman, 28-29 March 2006;
- h. Sessions in the United Nations Economic Commission for Africa (UNECA) Workshop on Trade and Environment for English Speaking African Countries, Addis Ababa, Ethiopia, 5-8 June 2006.
- i. Briefing on the CBTF activities for Developing Countries, Geneva, Switzerland, 13 June 2006;
- j. Sessions in the UN ECA Workshop on Trade and Environment for French Speaking African Countries, Dakar, Senegal, 26-29 June 2006;
- k. Sixth Meeting of the International Task Force on Harmonisation and Equivalence in Organic Agriculture, Stockholm, Sweden, 9-13 October 2006;
- l. Seventh Meeting of the International Task Force on Harmonisation and Equivalence in Organic Agriculture, Bali, Indonesia, 27-30 November 2007;
- m. Eighth and Final Meeting of the International Task Force on Harmonization and Equivalence in Organic Agriculture, Geneva, Switzerland, 6-7 October 2008.

^{xvii} Noémi Nemes, 2009, 'Comparative Analysis of Organic and Non-Organic Farming Systems: A Critical Assessment of Farm Profitability.' FAO, Available at <http://ftp.fao.org/docrep/fao/011/ak355e/ak355e00.pdf>.

13. The establishment of a Regional Steering Committee requires time, resources and clearly defined targets and goals for it to function properly. While during this initiative the Regional Steering Committee provided overall guidance and inputs for various activities of the initiative, the full potential of this group could not be fully exploited.

14. Involving national institutions to take the lead in project implementation was found to be the most effective way of building their capacity through a process of “learning by doing.” Though the CBTF could have developed studies and reports in a relatively shorter time by hiring international consultants to undertake the IAs, that would not have improved the capacity of national institutions to replicate the IA process if, and when, needed in the future.

15. Monitoring and evaluation through independent sources is the best tool to reflect on the strengths and weaknesses of a project. The European Union, the major donor for this project, sponsored a monitoring mission in 2007 - before the completion of activities - to review the project. The mission

concluded that “this is a timely and relevant project achieving important results in an area of growing significance: support to sustainable international trade. The choice of the two UN agencies as implementing partners has been a good one and has ensured much greater ownership by developing country administrations than would otherwise have been the case.” It further reported that “in the area of organics, for example, while it is too early to see expected impacts in terms of changes in trade flows and greater space for smallholder exports, the inclusion by the National Planning Authority of Uganda of organic agriculture and trade in medium-term planning frameworks augurs well for future development of the sector. In Tanzania and Kenya, working groups on future development of the sector have been constituted by key national stakeholders.” Ranking of the initiative by the Monitoring Report is provided below:

Quality of project design	B
Efficiency of implementation to date	A
Effectiveness to date	A
Impact prospects	B
Potential sustainability	A



The Tanzanian Prime Minister launches the East African Organic Products Standard (EAOPS) in 2007, the first of its kind after the European Union Organic Standard. The UNEP-UNCTAD CBTF, in collaboration with IFOAM and national organic movements, led the collaborative process of developing the standard.

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Annexes

Annex 1: Overview of the organic development status in Burundi, Ethiopia, Kenya, Rwanda, Uganda and the United Republic of Tanzania: Summary⁹

This study sought to update and expand on a similar study that had been commissioned by the CBTF in 2005 (and published in 2006). While the original overview only covered Kenya, Tanzania and Uganda, the more recent version includes all the countries of the East African Community, as well as Ethiopia. As time was limited and the information requested broad, the most recent study should be viewed as a snapshot of the situation with respect to organic agriculture in East Africa during the fourth quarter of 2008.

The study covers 15 aspects of organic development, including: stakeholders, products, history, training, research, gender, employment, trade, standards, certification, policy, regulations, and regional cooperation. It also documented the challenges and opportunities associated with organic agriculture in Eastern Africa, and made recommendations specific to each country. The information in the study was presented in a country-by-country format in order to expose similarities and differences in organic agriculture across Eastern Africa. While each country analysis stands on its own, the study in its entirety presents a vision of the East African organic sector as a whole, and this broader outlook is reflected in the recommendations.

The study recognizes the need to continue to expand the knowledge base about organic agriculture. Information was gathered in a highly participatory manner with national organic agriculture movements providing much of the information for Kenya, Tanzania, and Uganda. The author also visited

Burundi, Ethiopia and Rwanda to meet with stakeholders and obtain information first hand. The status of organic agriculture in East Africa was determined through consultations with local experts civil society, government agencies, the private sector, and the national organic movements in the region.

The overview shows that the organic sector is developing throughout East Africa, albeit at different rates in different countries. Uganda is the leading producer of organics in the region (Willer et al. 2009) and Ethiopia, Kenya and Tanzania also have well-established sectors. Uganda led East Africa in terms of the total number of organic farmers and exports when the first overview was carried out in 2005 and continues to lead to this day, although its neighbours have closed its lead to some extent. Certified organic production and exports are growing in most of the countries surveyed, but the sector was relatively less developed in Burundi and Rwanda, which have both experienced security concerns in the past decade. Generally, certification of organic agriculture is less prevalent given the need for basic food security, although coffee continues to be a major export crop for both Burundi and Rwanda. Exports of organic agricultural products from Kenya, Tanzania, and Uganda have also been rising, while Ethiopia enjoys increasing production volumes in most organic products. Export relationships have also been consolidated, which has created more stable trading relationships.

The domestic markets are also growing in most of the countries in East Africa, which is confirmed by the increasing number of

⁹ Alastair Taylor (Agro Eco-Uganda Branch) coordinated the *Overview of the organic development status in Burundi, Ethiopia, Kenya, Rwanda, Uganda and the United Republic of Tanzania* (2006). The most recent study remains unpublished, but it is forthcoming.

local organic outlets. Local consumers are increasingly aware of the benefits of organic products and are willing to pay the higher prices that they command. The most vibrant domestic market is in Kenya, where major supermarket chains sell organic products. The domestic market for organic products in Ethiopia is small but growing, with fresh and processed products promoted at the national level. The national markets in Tanzania and Uganda are also increasing, with five national outlets in each country providing consumers with organic products. In contrast, at the time of this publication, no domestic market existed in either Burundi or Rwanda because organic products had not been distinguished by label or price.

Generally, civil society organizations and the private sector have taken the lead in promoting the organic movement because they recognize the increasing opportunities and benefits offered by organic production. These groups have received some government support and have united to form sometimes fragmented movements and/or networks to promote organic agriculture. The KOAN, the Rwanda Organic Agricultural Movement (ROAM) and the Ethiopian Association of Organic Agriculture (EAOA) have all received support and/or established ties with their respective governments. In Ethiopia, the EAOA was established to lobby for the effective implementation of the Government's organic policy. At the time this study was prepared, there is no national organic agriculture movement in Burundi.

Despite some support for these movements, government policy has lagged behind the recognition of organic agriculture offered early on by civil society organizations and the private sector. Typically, governments appear to be more interested in promoting and supporting conventional farming practices, although an increasing recognition of the value of organic production is arising, reflected in documents, such as the most recent Agricultural Strategic Plan in Burundi. In Rwanda, there are now several government

agencies with units mandated, inter alia, to promote organic agricultural production. Uganda has had inconsistent, and sometimes even detrimental, policies with respect to organic agriculture although a national agricultural policy, which incorporates organic agriculture, was mandated for approval in early 2009. Tanzania hosts a National Organic Agricultural Development Programme, demonstrating its growing interest in the sector. Ethiopia is the only country among the six studied, which had a specific organic policy. Ethiopia's "Organic Proclamation – No 488/2006" aims to increase the recognition and acceptance of Ethiopian organic products in international markets.

In these countries, gender plays a role in the distribution of the agricultural workload. Typically, women are responsible for most of the agricultural work in all six countries. However, the men contribute to the heavy work and tend to be responsible for selling the produce.

Standards related to organic agriculture exist in some countries at the national level, although the recently developed East African Organic Products Standard (EAOPS) has been widely adopted in EAC member states. The EAOPS is widely used in Kenya, Tanzania, and Uganda, where the standard is perceived as most applicable to marketing at the local and regional levels. The EAOPS is not used in Rwanda at present because no local marketing for organics exists. The EAOPS does not apply to Ethiopia as it is not a member of the EAC, but it is seen as a guide for the development of an Ethiopian organic standard.

To certify organic products for international trade the six countries studied rely on foreign certification bodies. However, some national certifying bodies, notably TanCert in Tanzania and UgoCert in Uganda, have been accredited by the European Union and the United States, along with international organic movement certification bodies. This makes

certification cheaper and more accessible and can improve access to the international market. There are six certification companies operating in Kenya and five in Uganda. The major certifier in Ethiopia is the Bureau Certification Système (BCS) which has a fully registered office in that country. Three other certification bodies also operate in Ethiopia. In Burundi, certification is undertaken by the Burundi Bureau of Standards (BBN) in collaboration with ECOCERT. In Rwanda, certification is undertaken by ECOCERT, but CERES has a full time representative/inspector in that country and hopes to certify several export products in collaboration with the Rwanda Bureau of Standards (RBS) and the Rwanda Horticultural Development Authority (RHODA).

Country specific summaries

Burundi. In the early 1990s, Burundi began to export organic fresh fruit, certified by the BBN in collaboration with ECOCERT. Since then, all exports have ceased as a result of the deteriorating security situation, which began in the late 1990s. Burundi remains in a state of conflict recovery and the government and development agencies are more concerned with encouraging food security than with exporting organic agricultural products. Moreover, poor airfreight connections hamper export as most products must be transported by road to Rwanda to be transferred by air to Europe. In 2008 only one company exported fresh organic fruit from Burundi (although coffee remains a major export crop). The stakeholders consulted for this study expressed an interest in organic agriculture and viewed organic production and marketing as an important opportunity to support Burundi in its next stage of development. Government agencies also expressed interest, and Burundi's most recent Agricultural Strategic Plan refers to organic agriculture in terms of building soil fertility. However, the lack of NGOs directly involved in support for, and training in, the agricultural sector is problematic given the

Research and training efforts associated with organic agriculture exist, but are limited. Research has not focused directly on systems that improve organic production and exports. There is no specific organic research underway in Ethiopia. Explicit organic research in Kenya is virtually non-existent as well, although the ICIPE carries out research, some of which is relevant for organic production. In Tanzania, the Tanzania Sokoine University has recently embarked on several research initiatives to support the sector. Training in Burundi, Kenya, Tanzania, Rwanda, and Uganda is typically carried out by local NGOs. In Kenya, Tanzania, and Uganda, training courses also exist in the national universities.

instrumental role that NGOs have played in this sector elsewhere in East Africa. There is no official national organic agricultural movement in Burundi, and other types of support are missing as well. For example, the EAOPS is a recognized standard in the region but is not used in Burundi. There is limited inspection capacity and little demand from the local market. There is potential in Burundi to expand organic agricultural production and export, but it is not able to take advantage of those opportunities given its current national situation.

Ethiopia. A well-established organic export sector exists in Ethiopia. Export of organic coffee and sesame began in 2000, and in 2008 honey began to be exported as well. Furthermore, the market for organic products in the capital, Addis Ababa, is small, but is defined by growing consumption and promotion of fresh and processed organic products. In Ethiopia, organic production has long been recognized and promoted as a system that encourages trade opportunities and is linked to improved food security through environmental enhancement. The government has recognised this, and Ethiopia

is the only country among the six studied with a specific organic policy, which aims to increase the recognition and acceptance of Ethiopian organic products in international markets. The Ministry of Agriculture officially manages the programme, but in practice it has not been widely implemented. Several NGOs are involved in promoting organic agriculture, including the EAOA, which was instrumental in addressing quality concerns that emerged in 2008. It also continues to lobby for the effective implementation of the government's organic policy. With respect to standards and certification, Ethiopia uses external organic standards. The major certifier in Ethiopia is the BCS, but three other certification bodies also operate in the country. No specific organic research is undertaken in Ethiopia, although aspects of organic production fall within the auspices of several current research initiatives, particularly with respect to improving soil fertility and developing integrated pest management.

Kenya. The organic sector in Kenya continues to grow and there are now 38 organizations producing organic products for local and international markets. Kenya has a strong conventional export sector and has one of the strongest economies among the countries included in the study. The organic sector has been able to build on these strengths. The commercial export sector has grown from a few specialised organic enterprises to include several very large companies, which have developed organic divisions. The growth of the national organic market is also important and includes large supermarket outlets, which are adding to the demand for organic produce. Much of the credit for this growth rests with private sector entrepreneurs. Growth is also the result of professional guidance provided by KOAN, which has attempted to unite the interests of small- and large-scale producers of organic products for the general benefit of the sector. This has earned KOAN the respect of government departments and it is now considered the voice of the organic sector. In this role it works with the government to promote policies to further

support organic development in Kenya. There are six certification companies operating in Kenya. The Institute for Marketecology (IMO) is slightly larger than its nearest rival, rated by project numbers. The local certification company, EnCert Ltd., offers relatively affordable certification to smaller projects. Explicit organic research in Kenya does not exist, although the ICIPE carries out research that is relevant for organic production systems. Jomo Kenyatta University and Moi University, in collaboration with KIOF and the Sustainable Agriculture Centre for Research and Development in Africa, respectively, now offer higher-education courses in organic agriculture.

Rwanda. Rwanda is the smallest of the countries included in this study, but has some of the highest population densities in the region. The government is committed to finding food and income strategies that avoid the use of costly external chemical inputs. It has therefore adopted several policies that encourage organic production systems, such as building soil fertility through animal manure, promoting biodiversity and tree planting, banning the use of polluting plastic bags, and requiring compulsory community soil conservation activities. The RBS and the Rwanda Horticultural Development Authority (RHODA) both have dedicated organic units and these are well supported by the government with the aim of developing commercial organic production. The government's interest is encouraged by NGO activities that promote sustainable agriculture, and training is provided to the sector by the GAKO Organic Farming Training Centre. The ROAM was established in 2007, but is still in its infancy and is currently working mainly as a focal point for those trying to promote the organic sector in Rwanda. There are currently three companies involved in organic production in Rwanda, exporting hot chillies, geranium oil and fresh fruits, which are certified by ECOCERT. CERES has a full-time representative/inspector in the country and is hoping to certify a number of export projects in collaboration with the RBS and

RHODA. The RBS has developed its own organic standard and can certify operations for marketing local produce but does not yet have systems in place to inspect and certify external standards or EAOPS. The EAOPS is not used in Rwanda as there is no local organic market, although producers could potentially supply EAOPS-certified organic products to the regional market, particularly to Kenya.

Tanzania. Tanzania boasts the longest history of organic agricultural production among the countries studied. The first organic farming techniques in Tanzania were practiced by the Peramiho Mission Centre in the Ruvuma region. The mission was promoting the use of green manure to build soil fertility, a practice which continues to this day. The organic movement, TOAM, was established in 2005 and united a relatively fractured organic sector. It now has 69 members representing 89,000 small farmers. There are 36 organic projects in Tanzania and 20 of these are certified and involved in the export of at least 11 different organic products. The major organic crops for export are coffee and cocoa. Cashew nuts are becoming increasingly important as an export from the coastal region. There is no organic policy, but government actors are interested in learning more about organic agriculture, particularly at the regional level. The government has developed a National Organic Agricultural Development Programme and it is hoped that this will guide government policy and commitment in the sector. Sokoine University is committed to developing organic agriculture and has embarked on several research initiatives to support the sector. There are five organic outlets in Dar es Salaam, one in Bagamoyo and one in Kilimanjaro. Although the market is small, growers and suppliers are able to obtain certification from the Participatory Guarantee Systems for Organic Agriculture (PGS) and EAOPS. The Kilimohai mark associated with the EAOPS has proved to be an effective marketing tool for Tanzanian organic products in the local and regional markets.

Uganda. When the first overview was carried out in 2005, Uganda led the region in number of organic farmers and amount of exports. Since then, it has continued to see significant growth of organic agriculture in both the export and national markets, but neighbouring countries are closing in on its lead in exports and number of producers. Uganda's slower rates of growth in this sector appear to be due to inconsistent government policies with respect to organic production and export. For example, through a policy in the health sector, DDT was sprayed on some certified organic areas and 15,000 farmers lost their organic status. Moreover, in the cotton sector, government policy has made it difficult for organic producers to operate and some have re-located as a result. An organic policy statement is in the final round of consultations. It is hoped that this will give the organic sector a stronger operational mandate and increase opportunities for research into the challenges facing the sector. The NOGAMU has united stakeholders in the sector and has lobbied effectively, even in the face of strong opposition. It now has over 542 institutional and individual members and 26 organic-company members and is the leading voice of the organic sector in Uganda. Uganda has a long history of NGOs training in sustainable organic agriculture and this has been augmented with the degree-level courses in organic agriculture offered by the Uganda Martyrs University, which will graduate highly qualified technicians into the organic sector. Both the export and national markets for organic products continue to increase with coffee leading the export sector. The number of organic outlets for the national market has grown to five and this includes a presence in one of the major national supermarkets. The EAOPS is used for some of the products that are entering this national market alongside various PGS schemes.

Conclusions

Between 2006 and the last quarter of 2008 the organic sector in Eastern Africa has grown steadily both in terms of exports and with respect to the development of initiatives in the national markets, and the interest and recognition of governments. These encouraging developments have fostered increasing strength and credibility in the sector. With this strength comes responsibilities, and in some cases opposition. The blame for contaminated coffee in Ethiopia was attributed to private-sector regulators and poor performance with respect to the organic sector. In Uganda, the poor performance in the cotton sector has been blamed on the rapid expansion of areas under organic production. In Burundi and Rwanda

there is still a very vocal concern that organic production will not be able to meet the food needs of those very densely populated countries.

The organic sector needs to take these concerns seriously and ensure that it is able to satisfy the demands that are placed on it and ultimately, meet the expectations of small-scale farmers who choose to rely on it for their food security and livelihoods. Growing demand for organic products from Eastern Africa, new opportunities (such as the international accreditation of local certifiers), and the EAOPS all present opportunities for growth with respect to organic production and processing.

Recommendations

The following recommendations focus on issues that will encourage the organic agricultural sector in Eastern Africa to develop. They draw out key issues related to the ability of the government and the wider stakeholder community to enable the sector to build on its strengths and address the challenges that it faces. This is a compilation of general recommendations as each country faces a unique set of opportunities and challenges and specific recommendations are provided in the full reports for each country.

For governments:

- develop an explicit policy on organic agriculture;
- increase research initiatives with respect to organic agriculture;
- fund and otherwise support the organic agricultural sector; and
- develop infrastructure and tax incentives.

For other stakeholders:

- promote EAOPS and the use of Kolimohai mark;
- build inspection and certification capacity for organic agriculture;
- establish alternatives to external third party certification;
- build national organic agriculture movements;

- promote the benefits of organic agriculture;
- build knowledge of organic agriculture, especially within the government;
- maintain the quality profile of organic products;
- increase the supply of organic products;
- promote organic products in local and regional markets;
- develop a range of organic products and agro-ecological zones for production;
- associate organic agriculture with climate change mitigation;
- support farmers interested in converting to organic agriculture;
- promote organic tourism; and
- support the development of alternatives to chemical farm inputs.

Annex 2: Organic agriculture and food security in Africa: Summary¹⁰

The thematic research study, *Organic agriculture and food security in Africa*, explored the relationship between organic agriculture and food security. When the UNEP-UNCTAD CBTF started its work on organic agriculture in East Africa, a key question repeatedly raised by public and private sector stakeholders in the region was the extent to which organic agriculture could influence food security in Africa. This thematic research study was developed in response to that question. The study drew on 15 East African case studies (in Ethiopia, Kenya,

Malawi, Uganda and Tanzania) that explored the impact of organic agriculture on natural, social, human, physical, and financial capital. A literature review and stakeholder feedback also contributed to the findings. Although special attention was placed on East Africa, the conclusions and findings of the study are relevant for all African countries, as well as for other developing countries. The study firmly asserts that “organic agriculture can be good for food security in Africa — equal or better than most systems and more likely to be sustainable in the longer-term.”

Food security and agricultural production

Modern agricultural methods have resulted in spectacular increases in productivity: more cereals and animals per hectare, more meat and milk per animal, more food output per person employed. However, the majority of the chronically hungry are small farmers in developing countries who produce much of what they eat, are often too poor to purchase inputs, and are too marginalized to take advantage of markets.

In the last ten years, progress in the drive to reduce hunger has been slow, with varied results around the world. In sub-Saharan Africa the number of hungry people has actually increased by 20 per cent since 1990. Between 2000 and 2002, the percentage of undernourished people was 33 per cent in Kenya, 44 per cent in Tanzania, and 19 per cent in Uganda. The number of underweight children has increased in Central, Western and Eastern Africa compared to an overall decline in other developing regions such as Asia, South America and North Africa (FAO 2005; von Braun 2005).

The world still faces a fundamental food security challenge. Despite steadily falling fertility rates and family sizes, the global

population continues to increase, as will the absolute demand for food. Food demand will also shift in the coming decades, as economic growth increases people’s purchasing power, growing urbanization encourages people to adopt new diets, and climate change threatens both land and water resources.

Conventional wisdom suggests that in order to double food supply, efforts need to be redoubled to modernize agriculture. Such a strategy has been successful in the past. But there are doubts about the capacity of such systems to reduce food poverty. The great technological progress in the past half-century has not led to major reductions in hunger and poverty in developing countries (Trewavas 2002; Smil 2000; Tilman et al. 2002; McNeely and Scherr 2003).

Arguably, the most sustainable choice for agricultural development and food security is to increase total farm productivity *in situ* in the developing countries that are the most in need of greater food supplies. Attention should focus on the following considerations:

- the extent to which farmers can improve food production and raise incomes with

¹⁰ This study was undertaken by Rachel Hine and Jules Pretty of the University of Essex, and by Sophia Twarog of UNCTAD. The authors benefited from the valuable input of several individuals and organizations in Kenya, Tanzania, Uganda, UNEP, UNCTAD, Grolink and IFOAM. The terms of reference and a draft of the study were presented to, and discussed by, stakeholders involved in the CBTF Organic Agriculture Initiative in Kenya, Tanzania and Uganda. The full report is available at: http://www.unep-unctad.org/cbtf/publications/UNCTAD_DITC_TED_2007_15.pdf.

low-cost, locally available technologies and inputs (this is particularly important in times of high fuel and agrochemical prices);

- whether they can do this without causing further environmental damage; and
- the extent of farmers' ability to trade.

The food security of any region is not simply a question of producing enough food to meet demand but it is influenced by a multitude of factors, both natural and

man-made. Increased food supply does not automatically mean increased food security for all. What is important is who produces the food, who has access to the technology and knowledge to produce it, and who has the purchasing power and access to acquire it. Furthermore, many of the causes of food insecurity are also symptoms, creating a cyclical effect that can result in further food insecurity.

Organic agriculture and food security

Agriculture, by its inherent multifunctional nature, has the potential to both influence and address the factors that contribute to food insecurity. Organic agriculture relies on its five capital assets for success (natural, social, human, physical and financial) and so contributes to, and builds up, stocks of these natural, social, and economic resources over time (Ostrom 1998; Pretty 2003). This often reduces many of the factors that lead to food insecurity.

Increase in food availability. In developing countries, studies show that yields from organic systems tend to be stable when converting from low-input systems (those that may have been by-passed by the "green revolution") such as those frequently found in East Africa. They can out-perform traditional systems and can match, and often surpass, yields achieved using more conventional input-intensive systems, over time. Gibbon and Bolwig (2007) have found that organic conversion in tropical Africa was associated with yield increases rather than with yield reductions. Organic farming can increase access to food in several ways. First, it increases the quantity of food produced per farm, which leads to household food security where all members of the household have access to enough food. Second, the production and sale of food surpluses at local markets means that farmers benefit from extra income, which increases their purchasing power. Third, fresh organic produce is available to more people

in the wider community. Finally, organic farming enables new and different groups in a community to get involved in agricultural production and trade where previously they had been excluded for financial or cultural reasons.

Benefits to the natural environment (natural capital). The vast majority of the case studies used in this research showed improvements to the natural capital base (local natural environment), with 93 per cent of the case studies documenting benefits to soil fertility, water supply and flood control, and biodiversity. Organic farming leads to many improvements to the natural environment, including increased water retention in soils, improvements in the water table (with more drinking water in the dry season), reduced soil erosion combined with improved organic matter in soils, improved carbon sequestration, and increased agro-biodiversity. As a result, soils are healthier, more able to sustain plant growth, higher in nutrient content, better able to hold water, and more stable. This enables farmers to grow crops for longer, with higher yields and under marginal conditions, which can have a major impact on reducing food insecurity.

Benefits to community cooperation and partnerships (social capital). Organic agriculture leads to improvements to social capital, including more and stronger social organizations at the local level, new

rules and norms for managing collective natural resources, and better contact with external policy institutions. Results from the case studies showed 93 per cent citing improvements to social capital as integral to their success. The formation of farmers' groups and co-operatives and less formal community collaboration lowered the costs of working, increased knowledge transfer amongst farmers, reduced the costs of organic certification, and increased food security. Strong networks and links with partners from government, NGOs and organic support organizations (such as KOAN, TOAM and NOGAMU) have helped farmers organize for organic certification, access export and domestic organic markets, and gain knowledge of sustainable organic techniques, crops, and markets.

Increase in education, skills and health (human capital). Organic farming leads to increasing human capital. All of the case studies examined showed improvements in this area. Because most of the case studies involved some element of education or training, they produced increases in farmers' and other producers' knowledge of organic farming methods and augmented skills for producing organically. Many cases showed direct improvements to the health of individuals and communities as a result of increased knowledge, increased food yields, and improved access to food. The ability of farmers to use their increased understanding of the holistic nature of organic farming to adapt and change their farming systems when faced with new challenges has meant that these agricultural systems are more resilient to environmental and external stresses.

Improvements to infrastructure and markets (physical capital). Organic farming can lead to improvements in infrastructure (communications and transport) because there is a heightened need to access markets that may be far from production sites. Access to markets is an essential part of organic farming and is crucial for export. Farmers, NGOs, and governments can work together to ensure access to the price premiums for organic

produce. Of the case studies examined, 40 per cent reported improvements to the physical infrastructure and improvements in market access. Access to markets increased both for farmers able to sell surpluses in the domestic markets and for farmers able to sell certified organic produce in international markets.

Increase of farmer and household incomes (financial capital). Poverty is a major contributing factor to food insecurity and organic farming has a positive impact on poverty in several ways. Farmers benefit from cash savings as there is no need to purchase synthetic pesticides and fertilizers; extra income is earned by selling surplus produce (resulting from the change to organic production); premium prices for certified organic produce can be obtained in East Africa primarily for export but also for domestic markets; and, farmers can add value to organic products through processing activities. These findings are supported by studies from Asia and Latin America, which concluded that organic farming can reduce poverty in an environmentally friendly way (Bolwig et al. 2007). Another recent study concluded that certified organic farms involved in production for export were significantly more profitable than farmers involved in conventional production (in terms of net farm income earnings) (Gibbon and Bolwig 2007). The majority of case studies examined for this study reported improvements to the financial capital base among their successes. Of the cases examined, 80 per cent showed increases in farmer and household incomes as a result of converting to organic production, which contributed to decreasing poverty levels and increasing food security in the region. In addition to the premiums available for organic produce that have access to foreign and domestic markets, the considerable non-monetary benefits of organic farming should be a major consideration and arguably the principle consideration when seeking to increase the food security of a region.

Annex 3: Best practices for organic policy: What developing country governments can do to promote the organic agriculture sector: Summary¹¹

The thematic research study entitled *Best practices for organic policy: What developing country governments can do to promote the organic agriculture sector* was intended to guide the development of appropriate policies for the organic sector. As the CBTF initiative proceeded, the national governments in Kenya, Tanzania and Uganda became increasingly aware of the sector and interested in how they could support its development. The study sought to identify efficient and effective policy options to promote production of, and trade in, organic agriculture. It focused primarily on developing countries but also applies to developed countries. The study presented 35 recommendations for policy options, drawing on experiences in East Africa and in other parts of the world.

The report relied on experiences documented in seven case studies: Chile, Costa Rica, Denmark, Egypt, Malaysia, Thailand and South Africa, as well as from other parts of the world. Identifying best practices and lessons learned in these case studies allowed the author to identify effective and efficient government policies employed to promote production of, and trade in, organic agricultural products. It also showed that organic agriculture is developing strongly in all the seven countries, despite varied conditions and different levels and types of government involvement. Most organic production is for export purposes but countries like Egypt, Malaysia, and South Africa have developed significant domestic markets. In fact, Malaysia is a net importer of organic food.

In almost all countries with a developed organic sector the early proponents were NGOs and the private sector. Governments rarely played a role in the early stages of development. Countries with a unified organic movement

developed more rapidly than those without such an umbrella movement. These factors should be taken into account by governments that seek to engage in the sector. They should work in close cooperation with stakeholders and national organizations when developing policies related to organic agriculture.

Any policy or action plan related to organic agriculture should be linked to the overarching objectives of a country's agriculture policies in order to make them mutually supportive. The contribution of organic agriculture to these broader objectives should be highlighted. Similarly, existing policies should be assessed to determine their potential impacts on organic agriculture, with the aim of removing obstacles to the development of a dynamic organic agricultural sector.

A starting point for government engagement is to recognize and encourage the organic agricultural sector. This includes recognition of the relevance of organizations in the sector and the need for governments to closely cooperate with these non-governmental entities. In this way, governments should adopt an enabling role rather than a controlling role. In particular, governments should not adopt regulations governing the domestic organic market in haste, or they run the risk of stifling, rather than stimulating, development.

A process for developing organic policy should be established and should be participatory and based on clear objectives. Action plans, programmes and projects should develop based on the overall policy. It is critical for development that bottlenecks be identified and that all aspects (production, marketing, supply chain, training, and research) are considered. Furthermore, most developing countries have limited resources

and have to balance their resources against their needs, so priorities should be identified. The adaptation of policy measures to the conditions in a specific country, its stage of

development, and the proper sequencing of measures is vital for the development of a successful organic agricultural sector.

Recommendations

The report developed recommendations based on the studies' findings. They have been summarised below.

General policy

- A country seeking to develop its organic sector should perform a comprehensive IA of its general agricultural policies, programmes and plans, to understand how they affect the competitiveness of, and conditions in, the organic sector.
- The objectives for government involvement in the development of the organic sector need to be clarified before actions are taken. All stakeholders should be involved in the development of policies, plans and programmes.
- General and organic agricultural policies should support each other to the greatest extent possible to promote policy coherence, particularly if organic agriculture is promoted as a mainstream solution.
- An action plan for the organic sector should be developed based on an analysis of the state of the sector, participatory consultations, a needs assessments, and the proper sequencing of actions. The action plan should include measurable targets for the organic sector to help agencies and stakeholders focus their efforts.
- One government ministry or agency should be assigned the lead role and organic desks should be established in other relevant ministries and agencies.
- Governments should recognise the diverse interests represented in the organic sector and ensure that they are all properly considered as well as directing special attention to disadvantaged groups.
- A permanent body should be established to facilitate consultations between the government and the private sector.

- Governments should actively contribute to awareness raising for organic agriculture at all levels.
- Data about organic production and markets need to be collected over time, analysed and made available to the sector and to policy makers.

Standards and regulation

- A national or regional standard for organic production should be developed, through close cooperation between the private sector and government. It should be well adapted to the conditions in the country and focus mainly on the domestic market.
- Governments should facilitate access to certification services, either by encouraging foreign certification companies to open local offices, or by supporting the development of local certification providers. In some countries, especially where the private sector is weak, governments could consider establishing a governmental certification service.
- Compulsory requirements for mandatory third-party certification should be avoided as it will not help alternatives emerge. Other conformity assessment procedures, such as participatory guarantee systems, should be explored.
- Mandatory regulations should only be considered when a need has been clearly established and simpler options have been ruled out. In the early stages of development, a mandatory organic regulation is not likely to be a priority. Regulations for domestic markets should be based on local conditions and not primarily on the conditions in export markets.
- The recommendations from the International Task Force on Harmonization and Equivalence in Organic Agriculture (ITF) for regulatory solutions, in particular

¹¹ Gunnar Rundgren of Grolink AB, Sweden, under the oversight of Sophia Twarog (UNCTAD) and Asad Naqvi (UNEP-CBTF) prepared *Best practices for organic policy: What developing country governments can do to promote the organic agriculture sector*. The national case studies were prepared by: Patricio Parra C. (Chile), Felicia Echeverria, Ecologica (Costa Rica), Mette Meldgaard (Denmark), M. Yousri Hashem, Center for Organic Agriculture in Egypt (Egypt), Ong Kung Wai, Humus Consultancy (Malaysia), Raymond Auerbach, Rainman Landcare Foundation (South Africa), Vitoon Panyakuul, Green Net (Thailand). Insight from UNEP-UNCTAD CBTF was also instrumental. The full report is available at: http://www.unep-unctad.org/cbtf/publications/Best_Practices_UNCTAD_DITC_TED_2007_3.pdf.

- those relating to import access, should be considered.
- Producers, especially smallholders, should be supported to comply with standards, certification procedures and regulations. Special consideration should be given to certification of smallholders. Training programs for farmers' groups to set up internal control systems should be supported.
 - Before establishing regulations, governments should clarify the objectives of those regulations. Governments should develop regulations in close consultation with the major actors in the organic agricultural sector and ensure that the regulations are enabling rather than controlling in nature.

Markets

- Public procurement of organic products should be encouraged, including featuring organic food at important public events.
- Consumer education and awareness should be actively promoted.
- A common (national, regional or international) mark for organic products should be established and promoted.
- Domestic market development strategies should include measures for both supply and demand, including the role of imports.
- The organization of farmers with respect to marketing, joint distribution, and storage should be supported.
- Market information systems should be established.
- Export promotion activities should be supported, recognising the special nature of organic markets. Organic exporters should be encouraged to unite to promote and market their products.
- Organic products should be excluded from any mandatory phytosanitary treatments that are not permitted for organic products. Alternatives for fumigation should be supported.

Production

- Direct support measures for producers need to be adapted to small farmers as well as to commercial operations in the organic agricultural sector.

- Extension services for organic agriculture should be established and staff should be trained. These extension services should be developed and implemented in a participatory manner and focus on the needs of the farmers.
- Traditional knowledge about pest control treatments and other issues should be surveyed, included in the extension service for organic agriculture, and disseminated in other ways.
- Recycling of agricultural and food waste into organic farming systems should be promoted.
- Governments (or others) should establish basic controls on biological inputs such as pest control agents and organic fertilizers.
- Seed breeding and testing should be oriented towards organic agricultural production. Compulsory seed treatments should be waived for organic farmers and untreated seeds should be made available. Alternative seed treatments should be developed and promoted.
- Policies for GMOs should ensure that GMO-seeds are not distributed or used in a way that could contaminate wild seeds.

Other

- Organic agriculture should be integrated into the curriculum in primary and secondary schools. Specialised institutions involved in training for organic agriculture should be supported. Higher education in organic agriculture should be developed.
- Special research programs should be established for organic research, and the sector should be involved in setting priorities. Research and development focused on organic agriculture should be participatory, build on, and integrate traditional knowledge (where relevant), and be based on the needs of producers.
- Governments and the private sector should participate in relevant international fora, such as the Codex Alimentarius, the IFOAM and the ITF.
- Regional cooperation in marketing, standards, conformity assessment, and research and development should be promoted.

Annex 4: Development of the East African Organic Products Standard

Background

When the UNEP-UNCTAD CBTF initiative was launched at the beginning of 2005, at least five public, and several private, international standards existed for organic agricultural production in East Africa, posing significant problems for local farmers because they had to meet different requirements to access regional or international markets. Foreign standards are not adapted to local agro-ecological conditions, putting local producers at a technological disadvantage. Furthermore, costs associated with meeting so many different standards were high, especially if foreign certification was required. The absence of a reliable local standard obliged farmers to use private standards, usually verified or inspected by foreign certification bodies, which was costly.

Based on these concerns, the idea to develop a common standard among the three countries was prepared by stakeholders. It was recognized that such a standard would facilitate regional trade and increase the size of the market for organic goods. A regional certification body could also reduce costs and regional coordination and pooling of resources could increase the likelihood of success in negotiations with the European Union and other major importers on issues associated with equivalence or mutual recognition. This could result in improved market access for East African organic agricultural products. The recognition of the need for an organic agriculture production standard tailored to local ecological and socio-economic conditions as well as the other benefits offered by a regional standard led to the development of the East African Organic Products Standard (EAOPS).

Although the benefits of regional cooperation and coordination were clear, local standards

continued to develop in the region after the Sida study. Before the CBTF project, Uganda and Tanzania had already developed private sector national standards for organic agriculture. In Kenya, the KOAN had taken up standards development and the KBS had also produced draft organic standards.

It was in this context that the UNEP-UNCTAD CBTF, IFOAM and the local organic movement (NOGAMU, TOAM and KOAN), decided to collaborate to develop the EAOPS.¹²

The EAOPS was built on work already carried out in the region, in particular, the Export Promotion of Organic Products from Africa (EPOPA) project, funded by Sida in collaboration with the International Federation of Organic Agriculture Movements (IFOAM). Based on this work and the apparent need for further work on standards, the UNEP-UNCTAD CBTF launched the EAOPS project and pursued its development by employing a participatory multistakeholder process. The IFOAM became a key partner after the project debued, contributing its knowledge and expertise. Local partners included the national organic agriculture movements in Kenya (KOAM), Tanzania (TOAM) and Uganda (NOGAMU), one certification body from each of the three countries, and National Bureaus of Standards from Burundi, Kenya, Rwanda, Tanzania and Uganda. While Kenya, Tanzania, and Uganda were directly involved in this process, two other East African countries, Rwanda and Burundi, which joined the EAC in 2006 after the project had started, have also benefited from the initiative.

¹² The working name of the standard was East African Organic Standard. The final name became the East African Organic Products Standard, a change insisted upon by the bureaus of standards.

The process

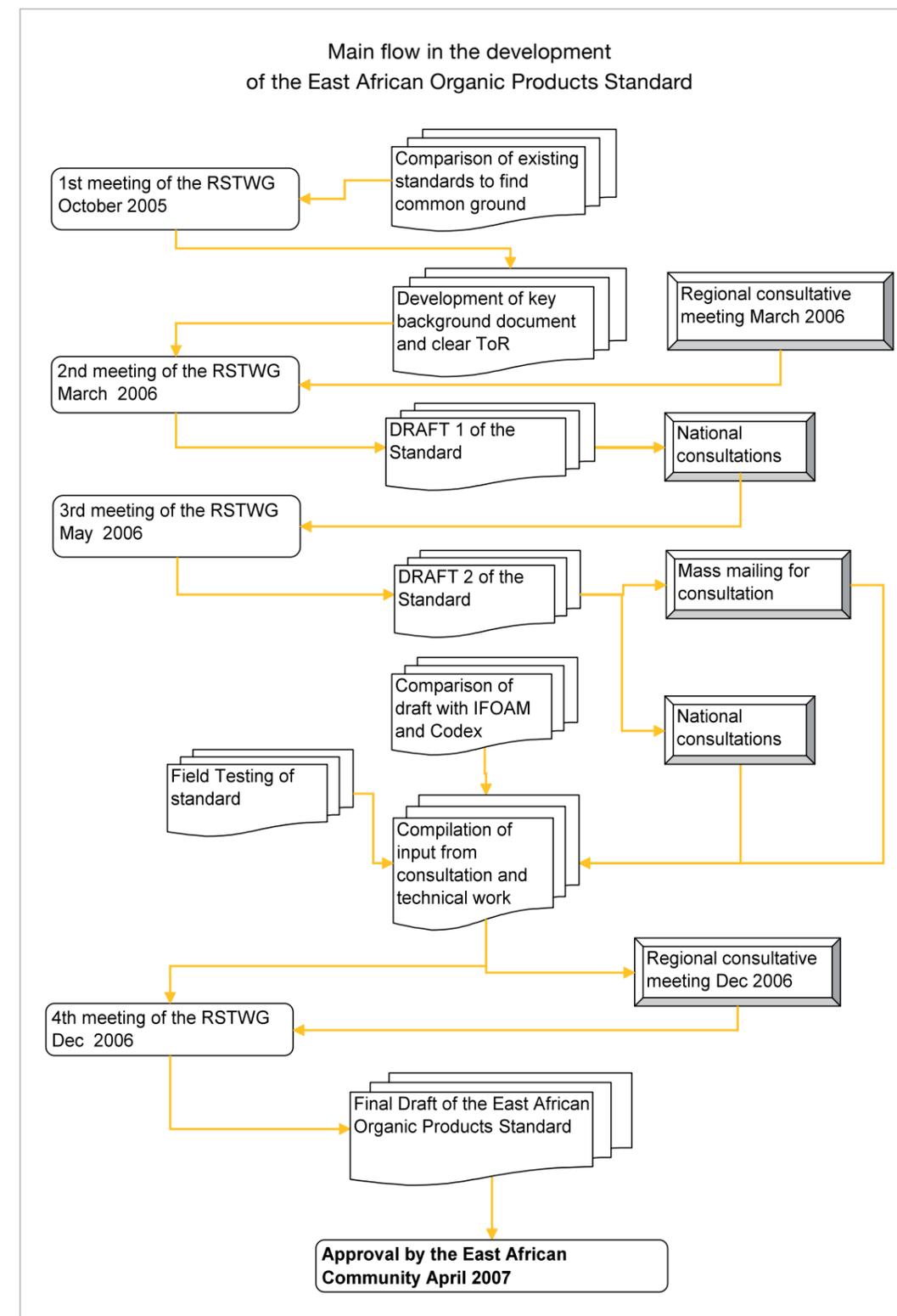
The process of drafting the EAOPS required a great deal of coordination and public consultation, along with the development of alliances among international institutions, East African governments, and organic networks. In general, it was a widely participatory process and commenced by comparing existing national standards and evaluating the similarities and differences among them.¹³ Thereafter, a regional public-private sector working group, the Regional Standards Technical Working Group (RSTWG) was established. RSTWG members included representatives of the national bureaus of standards, national organic movements, the organic certifying bodies of Kenya, Tanzania, Uganda, Burundi and Rwanda, and the East African Business Council. The RSTWG took into consideration the agreements that had previously been made by organic stakeholders and undertook the drafting of the EAOPS.

Six meetings of the RSTWG were convened, as well as two regional workshops, one in Arusha in March 2006 and the other in Nairobi in December 2006. Direct consultations and personal meetings with representatives of the ministries of agriculture, the national bureaus of standards, and the EAC also took place. Other activities included:

- two national consultations in each of the three participating East African countries;
- an assessment of the second draft of the EAOPS in relation to IFOAM and Codex Alimentarius standards;
- field testing of the EAOPS; and
- e-mail consultations.

The process employed to develop the EAOPS is displayed in Figure A4-1.

Figure A4-1: Process for developing the EAOPS



Source: Rundgren (2007).

¹³ This comparison was carried out by a Grolink consultant.

The development of the substantive content of the standard was based on the following elements:

- existing private and public standards in East Africa;
- Codex Alimentarius Guidelines for Organic Production, CAC/GL 32;
- IFOAM Basic Standards;
- intensive consultations in all three countries at the national and regional levels; and
- the results of field tests of the second draft of the EAOPS.

Three drafts of the EAOPS were developed, revised, and improved by many actors, in a process that directly involved over 1,000 individuals. The third and final draft was presented to the EAC in February 2007 by the

KBS, the formal sponsor for official adoption of the EAOPS. In April 2007 the EAOPS was adopted by the EAC Council as an official standard (EAS 456).

The EAC provides the official governance structure for organic standards in the region. The EAOPS is the official standard for partner states in the EAC and any existing public national standards were required to be withdrawn. The EAOPS joined the European Union Organic Standard as one of the only two regional organic standards in the world, and is the first developed in a collaborative process involving the public sector, the private sector and NGOs. The EAOPS was officially launched by the Prime Minister of Tanzania at the Organic Conference in Dar es Salaam in May 2007.

Summary of issues covered in the EAOPS

The text of the EAOPS is organized into 10 sections and four annexes. A summary of the coverage of the EAOPS is presented below in Table A4-2. The officially published EAOPS, “has been written for organic production in East Africa and has been adapted to conditions in East Africa. The purpose is to have a single organic standard for organic agriculture production under East African conditions” (EAOPS 2007).

Based on the organic standards which had previously been in place in the East African region, the IFOAM Basic Standards, the Codex Alimentarius guidelines for organic production

and processing, and the inputs of informed stakeholders from the region, the EAOPS, “can be used for self-assessment by producers, declarations of conformity in the marketplace, certification by certification bodies in the region, or other kinds of verification. If the standard is used for the purposes of third-party certification, inspection and certification it should be carried out in accordance with international norms, such as ISO Guide 65 or the IFOAM Accreditation Criteria. If adherence to the standard is verified through other mechanisms, those mechanisms shall adhere to the principles of competency, integrity and transparency” (EAOPS 2007).

Table A4-2: Overview of the coverage of the EAOPS

Section/Annex number and title	Issues covered
1. Scope	States that the standard covers plant production, animal husbandry, bee-keeping, wild collection, processing and labelling of products. It does not cover procedures for verification.
2. Normative references	Explains the process for incorporating provisions from future amendments and publications.
3. Terms and definitions	Defines the following terms: Biodiversity, Breeding, Buffer zone, Child, Child labour, Contamination, Conventional, Conversion period, Crop rotation, Food additive, Food fortification, Genetic engineering, Genetically modified organism, Green manure, Habitat, Ingredient, Ionizing radiation, Label, Operator, Organic, Organic agriculture, Organic product, Organic seed and planting material, Parallel production, Processing aid, Propagation, Shall, Should, Synthetic, Synthetic pesticide, Traceability and In-conversion.
4. General requirements for organic production	Applies to all operators in general. States what the operators should or shall do (or avoid doing) with regards to the following issues: <ul style="list-style-type: none"> • documentation and transparency; • contamination; • genetically modified organisms; • social justice; • adherence to relevant legislation; and • knowledge about organic production.
5. Crop production	States what operators that wish to produce organic crops must comply with in their agricultural practices. It covers the following issues: <ul style="list-style-type: none"> • conversion period and requirements; • farm conversion and parallel production; • biodiversity; • farming system diversity; • soil and water conservation, including erosion control; • soil fertility management; • pest, disease and weed management; • seeds, seedlings, and planting materials; • mushroom production; • contamination; and • draught animals (when used in plant production).

6. Animal husbandry	States what operators that wish to practice organic animal husbandry must comply with. It covers the following issues: <ul style="list-style-type: none"> • conversion and brought-in animals; • parallel production; • animal management; • breeding; • mutilations; • animal feeds; • parasite and disease management; and • transport and slaughter.
7. Bee-keeping	Covers the following issues that organic honey producers must comply with: <ul style="list-style-type: none"> • conversion and brought-in bees and swarms; • location and construction; • feed; • husbandry; and • harvest.
8. Wild collection	Contains two articles stating the basic practices permitted for harvesting wild products.
9. Handling, storage and processing	States what operators must comply with in terms of handling, storage and processing activities of organic products. It covers the following issues: <ul style="list-style-type: none"> • separation; • ingredients; • technologies; • additives and processing aids; • food fortification; • packaging material; and • hygiene and pest management.
10. Labelling	Contains seven articles under the main title. These articles state when and how a product can be labelled as organic under this regulation.
Annex A.¹⁴ IFOAM principles of organic agriculture	Identified as “informative”. Contains the full text of IFOAM’s principles of organic agriculture: health, ecology, fairness and care.
Annex B. List of substances which may be used in organic plant production	Identified as “informative”. Consists of two tables, each one containing a list of substances that could be used as fertilizers and soil conditioners (Table B.1) and crop protectants and growth regulators (Table B.2).

¹⁴ The Annexes of the EAOPS are not included in this synthesis report.

Annex C. List of natural substances which may not be used in organic plant production	Identified as “informative”. Consists of one table containing a list of substances that may not be used. The table contains two columns with the following information for each substance listed: 1. Description, compositional requirements of substances and 2. Comments.
Annex D. List of additives and processing aids for organic food processing	Identified as “informative”. Consists of one table containing a list of products that may be used in food processing. The table contains five columns with the following information for each product listed: 1. International Numbering System, 2. Product, 3. Indicates if it is an additive, 4. Indicates if it is a processing aid, 5. Indicates the limitations and/or permitted uses.

Annex 5: The East African Organic Products Standard (EAS 456:2007. ICS 67.020)

1. Scope

This East African Standard provides requirements for organic production. It covers plant production, animal husbandry, bee-keeping, the collection of wild products, and

the processing and labelling of the products there from. It does not cover procedures for verification such as inspection or certification of products.

2. Normative references

This East African Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this East African Standard only when incorporated in it by amendment or revision.

For undated references the latest edition of the publication referred to applies.

CAC/GL 32, *Codex Alimentarius — Guidelines for the production, processing, labelling, and marketing of organically produced foods.*

IFOAM *Basic Standards for Organic Production and Processing. Version 2005.*

3. Terms and definitions

For the purposes of this standard, the following definitions apply:

3.1 biodiversity

the variety of life: it includes genetic diversity (i.e., diversity within and among species), species diversity (i.e., the number and variety of species), and ecosystem diversity (total number of ecosystem types)

3.2 breeding

selection of plants or animals to reproduce or to further develop desired characteristics in succeeding generations

3.3 buffer zone

a clearly defined and identifiable boundary area bordering an organic production site and adjacent areas that is established to avoid contact with substances which shall not be used according to this standard

3.4 child

a person under the specified age in the respective national legislations. In cases involving employment in hazardous sectors, child denotes a person under the age of 18 years

3.5 child labour

any employment that interferes with the legal rights of a child and culturally appropriate educational needs

3.6 contamination

pollution of organic product or land or contact with any material that would render the product unsuitable for organic production or as an organic product

3.7 conventional

any material, production, or processing practice that is not organic or organic “in-conversion”

3.8 conversion period

the time between the start of organic management and the time when crops and animal products qualify as organic

3.9 crop rotation

the practice of alternating the species or families of annual and/or biennial crops grown in a certain field in a pattern or sequence so as to break weed, pest and disease cycles and to maintain or improve soil fertility and the content of organic matter

3.10 food additive

any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result, (directly or indirectly) in it or its by-products becoming a

component of or otherwise affecting the characteristics of such foods. The term does not include contaminants, or substances added to food for maintaining or improving nutritional qualities, or sodium chloride

3.11 food fortification

the addition of one or more essential nutrients to a food, whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups

3.12 genetic engineering

a set of techniques from molecular biology (such as recombinant DNA) by which the genetic material of plants, animals, microorganisms, cells and other biological units are altered in ways or with results that could not be obtained by methods of natural mating and reproduction or natural recombination. Techniques of genetic modification include, but are not limited to, recombinant DNA, cell fusion, micro and macro injection, encapsulation, gene deletion and doubling. Genetically engineered organisms do not include organisms resulting from techniques such as conjugation, transduction and natural hybridization

3.13 genetically modified organism (GMO)

a plant, animal or microbe that has been transformed by genetic engineering

3.14 green manure

a crop that is incorporated into the soil for the purpose of soil improvement and which may include spontaneous crops, plants or weeds

3.15 habitat

the area over which a plant or animal species naturally exists; the area where a species occurs. It is also used to indicate types of habitat, e.g., seashore, riverbank, woodland, and grassland

3.16 ingredient

any substance, including a food additive, used in the manufacture or preparation of food and non-food products and present in the final product (although possibly in a modified form)

3.17 ionizing radiation

processing of food products by gamma rays, X-rays or accelerated electrons capable of altering a food's molecular structure for the purpose of controlling microbial contaminants, pathogens, parasites and pests in food, preserving food or inhibiting physiological processes such as sprouting or ripening

3.18 label

any written, printed or graphic representation that is present on a product, accompanies the product or is displayed near the product

3.19 operator

an individual or organization responsible for ensuring that the production system and the products meet this standard

3.20 organic

refers to the farming system and products described in this standard. Organic does not refer to organic chemistry

3.21 organic agriculture

a farming system in compliance with this standard

3.22 organic product

a product which has been produced, processed and handled in compliance with this standard

3.23 organic seed and planting material

seed and planting material that is produced by organic agriculture

3.24 parallel production

any production in which the same unit is growing, breeding, handling or processing the same products in both an organic and a non-organic system. A

situation with organic and in-conversion production of the same product is also parallel production

3.25 processing aid

any substance (not including apparatuses or utensils) not consumed as a food itself and which is used in the processing of raw materials, foods, or ingredients to fulfil a certain technical purpose during treatment or processing and which may result in the presence of residues or derivatives in the final product

3.26 propagation

the reproduction of plants sexually (i.e., seed) or asexually (i.e., cuttings, root division)

3.27 shall

a required state or action

3.29 should

a recommended, desirable or expected state or action

3.30 synthetic

manufactured by chemical and industrial processes. Includes products not found in nature or simulation of products from natural sources (but not extracted from natural raw materials)

3.31 synthetic pesticide

synthetic product intended to prevent, eliminate or control a pest

3.32 traceability

the ability to follow the movement of a food through specified stage(s) of production, processing and distribution

3.33 in-conversion

a crop which is grown both as organic and non-organic (conventional or in-conversion) on the same farm

4. General requirements for organic production

4.1 General

The requirements of this clause shall apply to all categories of organic production and to all operators.

4.2 Documentation and transparency

4.2.1 The operator shall maintain records of the production, appropriate for the scale of production and the ability of the operator.

4.2.2 The operator shall give interested parties relevant information about the production.

4.2.3 The operator shall maintain a system for traceability of organic products.

4.3 Contamination

4.3.1 The operator shall avoid using chemical products that may endanger human health or the environment. Where there are products that are considered to be less harmful, they shall be used.

4.3.2 The operator shall take relevant precautionary measures to avoid the contamination of organic sites and products. Where there is a reasonable suspicion of substantial contamination by, for example, soil, water, air, inputs or ingredients, appropriate actions shall be taken.

Litter and production waste, both on farms and in processing, shall be handled in such a way that they do not contaminate the organic products or the environment.

Chemical products shall be properly labelled and safely stored.

4.3.3 Contamination of organic products that results from circumstances beyond the control of the operator may alter the organic status of the operation, the product or both.

4.4 Genetically Modified Organisms (GMOs)

4.4.1 Genetically modified organisms or their derivatives shall not be used or introduced through negligence or oversight. This includes animals, seed, propagation material, farm inputs such as fertilizers, soil conditioners and crop-protection materials.

4.4.2 Ingredients, additives or processing aids derived from GMOs shall not be used in organic processing.

4.4.3 Inputs, processing aids, and ingredients shall be traced back one step in the biological chain from which they are produced to verify that they are not derived from GMOs.

4.4.4 Genetically modified organisms shall not be used in the conventional production on farms that are not fully converted to organic production.

4.5 Social justice

4.5.1 Employees and workers shall be guaranteed basic human rights and fair working conditions in accordance with national and international conventions and laws.

4.5.2 The operator shall not use forced or involuntary labour.

4.5.3 Employees, casual workers and contractors of organic operations shall have the freedom to associate, the right to organize, and the right to bargain collectively.

4.5.4 Employees shall have equal opportunities and equal wages when performing the same level of work, regardless of colour, creed, ethnicity or gender.

4.5.5 The operator shall not hire child labour. Children may work on their family's farm or a neighbouring farm provided that such work is not dangerous to their health and safety and

does not jeopardize their educational, moral, social and physical development. Such work shall be supervised by adults and authorized by a legal guardian.

4.5.6 The operator shall provide adequate health and safety measures for employees, casual workers and contractors.

4.5.7 An operator employing five or more permanent workers shall have a documented policy covering the aspects of 4.5.

5. Crop production

5.1 Conversion period and requirements

5.1.1 The conversion period for land shall be a minimum of one year of management according to this standard. If land that has been in fallow for at least one year is brought into production, no conversion period shall apply for that land.

5.1.2 The conversion period may be extended depending on past land use (for example, heavy use of pesticides with a risk of contamination of products and the nature of contaminants).

5.2 Farm conversion and parallel production

5.2.1 If the whole farm is not converted, the organic, in-conversion and conventional parts of the farm shall be clearly and continuously separated.

5.2.2 Land converted to organic production shall not be alternated (switched back and forth) between organic and conventional production.

5.2.3 A crop which is grown both as organic and non-organic (conventional or in-conversion) on the same farm shall not be sold as organic unless the production is managed in a way that allows clear and continuous separation

4.6 Adherence to relevant legislation

The operator shall act in accordance with relevant legislation.

4.7 Knowledge about organic production

The operator shall ensure that all persons involved in organic production have adequate knowledge of organic production and the relevant parts of this standard.

of the organic and non-organic production (e.g., the varieties for the organic and non-organic crop differ in such a way that they can easily be distinguished from each other).

5.3 Biodiversity

5.3.1 The operator shall demonstrate care for biodiversity throughout the farm holding.

5.3.2 Culturally or legally protected primary ecosystems, such as primary forests and wetlands, shall not be cleared or drained for the purpose of establishing production according to this standard.

5.3.3 To the extent possible and appropriate to the crop and the conditions, trees shall be present in the fields.

NOTE: Older, fruiting trees are especially important to insects and birds.

5.3.4 Natural boundaries such as hedges, paths and ditches should be encouraged.

NOTE: Hedges, paths and ditches act as important wildlife corridors through agricultural land, help to maintain a diverse ecology, and provide a habitat

for many beneficial animals and insects and shelter for livestock.

5.4 Farming system diversity

5.4.1 Diversity in plant production, organic matter, soil fertility, microbial activity and soil and plant health shall be stimulated by crop rotation, intercropping, agro-forestry and other appropriate measures.

For annual crops, crop rotation shall be practised.

For perennial crops, other plants shall be intercropped. For perennial crops that are grown as monocultures where intercropping is not possible (e.g., sugarcane and tea), other means to secure diversity shall be applied to the growing system.

5.4.2 The operator is encouraged to use and preserve indigenous breeds, varieties and species of plants and animals.

5.5 Soil and water conservation, including erosion control

5.5.1 Soil conservation shall be an integral part of the organic farming system. In order to prevent erosion by wind and water, the operator shall take measures appropriate to the specific local conditions of climate, soil, slope and land use. Examples are the use of windbreaks, soil cover, cover crops, minimum tillage, fallowing (with vegetation cover), mulching, terraces and contour planting.

5.5.2 Relevant measures shall be taken to prevent or remedy the salinisation of soil and water.

5.5.3 Burning of vegetation shall be restricted and controlled to protect organic matter and biodiversity.

5.5.4 The operator shall not deplete or excessively exploit water resources and shall seek to conserve water resources and quality. Where necessary, the operator shall collect or harvest rainwater.

5.6 Soil fertility management

5.6.1 Appropriate use and recycling of nutrients, an appropriate crop rotation, and efforts to minimise nutrient losses shall be implemented by the operator.

5.6.2 Material of microbial, plant or animal origin shall form the basis of the soil fertility programme.

Fertilizers of mineral origin shall be applied in the form which they are naturally composed and extracted. They shall not be rendered more soluble by chemical treatment, other than the addition of water. Mineral fertilizers may only be used for long-term fertility needs along with other techniques such as organic-matter additions, green manures, crop rotations and nitrogen fixation by plants.

5.6.3 Fertilizers and soil conditioners approved for use in organic agriculture according to the IFOAM Basic Standards or CAC GL32 may be used.

Fertilizers and soil conditioners of natural origin may be used unless listed in Annex C.

Fertilizers and soil conditioners of synthetic origin may be used if listed in Annex B.

5.7 Pest, disease and weed management

5.7.1 Physical, cultural and biological methods for pest, disease and weed management, including the application of heat, may be used.

5.7.2 Inputs for pest, disease, weed or growth management approved for use in organic agriculture according to the IFOAM Basic Standards and CAC/GL 32 may be used.

Active ingredients of natural origin in inputs for pest, disease, weed or growth management may be used unless listed in Annex C.

Active ingredients of synthetic origin may be used if listed in Annex B.

5.7.3 Non-active ingredients, such as carriers and wetting agents, shall not be

carcinogens, teratogens, mutagens or neurotoxins.

5.8 Seeds, seedlings, and planting materials

5.8.1 Seeds, seedlings and planting materials from organic production shall be used. If organic seeds, seedlings and planting materials are not commercially available, then conventional, chemically untreated seed, seedlings and planting material may be used.

Only if these are not commercially available may chemically treated seeds, seedlings and planting materials be used. The operator shall demonstrate the apparent need for such use.

All use of chemically treated seeds, seedlings and planting materials shall be documented.

5.9 Mushroom production

5.9.1 The culture substrate for mushrooms shall be constituted of organic ingredients such as organic grain, seed-cakes and straw.

Where organic substrates are not commercially available in sufficient quality and quantity, ingredients from conventional production or of natural origin which do not pose a risk of contamination may be used.

5.9.2 Inputs used in mushroom production shall be in accordance with 5.6, 5.7 and 5.8.

5.10 Contamination

5.10.1 Where there is an apparent and substantial risk of contamination from adjacent farms, the operator shall implement measures, including barriers and buffer zones, to avoid or limit the contamination.

5.10.2 Machines, equipment and tools (e.g., seed drills, fertilizer spreaders and spraying equipment) used in non-organic production shall be cleaned before they are used in organic production.

5.10.3 Treatment of animals against ticks and other ectoparasites shall be administered in such a way that the risk of the contamination of crop land is minimised.

5.11 Draught animals

Draught animals, when used in organic plant production, shall be treated according to the animal management standards (6.3). Working conditions for draught animals shall not be adverse to the health and development of the animal.

6. Animal husbandry

6.1 Conversion and brought-in animals

6.1.1 The animal husbandry and individual animals brought into a herd shall undergo a conversion period according to the following:

Type of production	Species	Length of conversion period
Meat production	cows	12 months
	poultry	45 days
	sheep, goats, pigs	3 months
	rabbits	45 days
Dairy production	all species	3 months
Eggs	all species	45 days

6.1.2 Animals shall be raised organically from birth. Where organic livestock is not available, conventional animals may be brought in, according to the following maximum age limits:

- 2-day-old chicks for meat production;
- 18-week-old hens for egg production;
- 2 weeks old for any other poultry;
- 3 months old for piglets;
- 3 months old for calves;
- 3 months for goats and sheep.

Older animals may be brought in for breeding only.

6.2 Parallel production

Products from the same type of animal and the same type of production which are both organic and non-organic (conventional or in-conversion) on the same farm shall not be sold as organic unless the production is done in a way that allows for the clear and continuous separation of the organic and non-organic productions.

6.3 Animal management

6.3.1 Animals shall be kept in accordance with good animal-husbandry practices.

Animals shall have access to sufficient fresh air, water and feed.

Animals shall have access to protection from direct sunlight, excessive noise, heat, rain, mud and wind to reduce stress and ensure their well-being. Animals shall not be mistreated or beaten.

6.3.2 Animals shall have the living conditions and be managed according to their natural behavioural needs. For example:

- Pigs shall be provided with material to root.
- Goats shall have the possibility of climbing.
- Chickens shall have the possibility of scratching and of taking regular dust baths.

Animals shall have the living conditions and be managed in a way that prevents abnormal behaviour, injury and disease.

6.3.3 Animals shall have sufficient space for free movement, according to their natural behaviour.

6.3.4 Housing conditions shall ensure sufficient lying and resting areas that correspond to the natural needs of the animals. Animals shall have a dry resting area whenever possible. They shall also be provided with natural bedding where appropriate.

6.3.5 Pens and holding areas shall be cleaned regularly.

6.3.6 Tethering may be practised, provided it does not affect the well-being of the animal. The animal shall have access to adequate feed, shade and water. The method of tethering shall enable the animal to freely move within the grazing area without getting entangled or choked. The tethering shall not cause wounds or otherwise physically harm animals.

6.3.7 Animals shall have the opportunity to feed according to their natural behaviour, e.g., grazing. However, where the bringing of fodder

is a more sustainable way to use land resources than grazing, animals may be fed with brought fodder, provided that the animals have access to an outdoor run on a regular basis.

6.3.8 Grazing management shall not degrade soil, pasture and water resources.

6.4 Breeding

6.4.1 Artificial insemination may be practised.

6.4.2 Embryo-transfer techniques and cloning shall not be used.

6.5 Mutilations

Mutilations may not be practised, except in the following cases:

- castration
- ringing
- dehorning (only of young animals)

Mutilations shall be done in such a way that the suffering of the animal is minimised. Anaesthetics shall be used where appropriate.

6.6 Animal feeds

6.6.1 Animals shall be fed 100% organic feedstuff. Where the quantity or quality of commercially available organic feed is inadequate, the daily maximum percentage of non-organic feed shall be 40%, calculated on a dry-matter basis.

6.6.2 All animals shall have access to fresh fodder. Ruminants shall get fresh fodder daily through grazing or feeding. Where such fodder is not available, preserved fodder may be used.

6.6.3 To ensure a connection between plant production and animal husbandry, at least 60 % of feed shall come from the farm itself or be produced in cooperation with other organic farms.

6.6.4 The following products shall not be included in the feed:

- meat, bone and other abattoir waste products to ruminants

- chicken manure or other animal manure to ruminants
- Feeds subjected to solvent extraction (e.g., hexane) or the addition of other chemical agents
- amino-acid isolates
- urea and other synthetic nitrogen compounds
- synthetic growth promoters or stimulants
- antibiotics
- synthetic appetizers
- artificial colouring agents
- genetically engineered organisms or products thereof.

6.6.5 Feed preservatives may not be used except for:

- plant-based products,
- by-products from the food industry (e.g., molasses),
- bacteria, fungi and enzymes.

6.6.6 Animals may be fed vitamins, trace elements and supplements from natural sources. Synthetic vitamins, minerals and supplements may be used where natural sources are lacking in quantity or quality.

6.6.7 Young stock from mammals shall be raised on maternal milk or organic whole milk from their own species. Young animals shall be allowed to suckle.

Where organic whole milk is not available, conventional whole milk shall be used. Milk replacements may be used only in emergencies and shall not contain ingredients mentioned in 6.6.8.

Animals shall be weaned only after a minimum time that takes into account the natural behaviour and physical needs of the animal.

6.7 Parasite and disease management

6.7.1 Disease prevention in organic livestock production shall be based on the following:

- the choice of appropriate breeds or strains of animals;
- the application of animal-husbandry

practices appropriate to each species, encouraging strong resistance to disease and the prevention of infections;

- the use of good quality organic feed, regular exercise, and access to pasture or runs in the open air;
- an appropriate density of livestock.

6.7.2 If an animal becomes sick or injured despite preventative measures, it shall be treated promptly and adequately. As a first option, phytotherapeutic and other alternative treatments shall be used where they are proven to be effective in curing sickness or healing an injury.

An operator may use synthetic veterinary drugs, antibiotics or synthetic pesticides only if preventive and alternative practices are unlikely to be effective in curing sickness or healing an injury. The operator shall not withhold medication from sick or injured animals, even if the use of such medication would cause the animal to lose its organic status.

6.7.3 Treatments with synthetic pesticides or veterinary drugs against parasites shall be based on knowledge of the parasites and the chemical treatment used. All treatments with synthetic pesticides or veterinary drugs against parasites shall be documented.

6.7.4 Withholding periods after treating

animals with synthetic veterinary drugs, antibiotics or synthetic pesticides shall not be less than double the period required by legislation or a minimum of 48 hours, whichever is longer.

6.7.5 Vaccinations may only be used when:

- an endemic disease is known or is expected to be a problem in the region of the farm; and where this disease cannot be controlled by other management techniques; or
- vaccination is legally required.

6.7.6 Hormonal treatment may be used only for therapeutic reasons and under veterinary supervision.

6.7.7 Synthetic growth promoters or substances used for the purpose of stimulating production shall not be used.

6.8 Transport and slaughter

Handling, including transport and slaughter, shall be carried out calmly and gently and involve the minimum of physical and mental strain or stress for the animal.

The animals shall be provided with conditions that minimise stress and other adverse effects of:

- hunger and thirst,
- extreme temperatures or relative humidity,
- mixing different groups, sexes, age, and health status.

7.1.3 Introduced bees shall come from organic production units where available or otherwise from traditional bee-keeping. Swarms from other areas can be used without a conversion time if there is no risk of contamination.

7.2 Location and construction

7.2.1 Hives shall be situated in organically managed fields and/or wild

natural areas. Hives shall be placed in an area with sufficient forage, access to water, honeydew, nectar and pollen.

7.2.2 Organic wax shall be used for starter combs. Where organic wax is not available, conventional wax may be used. The conventional wax shall not be contaminated with synthetic pesticides.

7.2.3 Hives shall consist of materials presenting no risk of toxic effects to the bees or the bee products.

7.3 Feed

7.3.1 The honeydew, nectar and pollen shall mainly come from plants that are either wild or that fulfil organic crop requirements.

7.3.2 Supplementary feeding of colonies can be undertaken to overcome temporary feed shortages due to climatic or other exceptional circumstances. In such cases, organically produced honey or sugars shall be used, where available.

7.4 Husbandry

7.4.1 The health of bee colonies shall be maintained by good management practices, with emphasis on disease prevention through breed selection and hive management. This includes:

- the use of breeds that adapt well to local conditions;
- renewal of queen bees, where necessary;
- regular cleaning and disinfecting of equipment;
- regular renewal of beeswax;

8. Wild collection

8.1 Wild harvested organic products shall originate from a stable and sustainable growing environment. The harvest shall not be at a rate that exceeds the sustainable yield of the species or the ecosystem, and it shall not threaten the existence of plant, fungal, or animal species, including those not directly exploited.

- availability in hives of sufficient pollen and honey;
- placing of hives so that the temperature is favourable to the bees;
- inspection of hives to detect any anomalies;
- disinfection, isolation or destruction of contaminated hives and materials.

7.4.2 For pest and disease control, the following may be used:

- lactic, oxalic, acetic acid;
- sulphur;
- natural etheric oils (e.g., menthol, eucalyptol, camphor, thymon, lemongrass oil);
- *Bacillus thuringiensis*;
- steam and direct flame;
- glycerol;
- phytotherapeutic treatment;
- wood ash.

Should these processes and substances fail, synthetic veterinary drugs, antibiotics or synthetic pesticides may be used. If they are used, the colony shall undergo a new conversion.

Used engine oil shall not be used for pest control.

7.5 Harvest

7.5.1 At the harvest, colonies shall be left with reserves of honey, brood and pollen sufficient for the survival of the colony.

7.5.2 Synthetic repellents shall not be used during the harvest of bee products. Smoking shall be kept to a minimum. Smoking materials shall be of natural origin.

8.2 The operator shall harvest products only from a clearly defined area where synthetic pesticides and other substances not allowed by this standard have not been applied for at least three years before harvest. The harvest area shall be at an appropriate distance from conventional farms and sources of contamination.

9. Handling, storage and processing

9.1 Separation

9.1.1 The integrity of organic products shall be maintained throughout the phases of post-harvest handling, storage, processing and transport.

9.1.2 All organic products shall be clearly identified as organic. Throughout the entire process of storage and transportation, the products shall be stored and transported in a way that prevents their contact or mixing with non-organic products.

9.2 Ingredients

9.2.1 All ingredients used in organic products shall be organically produced where commercially available in sufficient quality and quantity.

NOTE: The labelling requirements in Clause 10 apply.

Water and edible salt may be used as ingredients in the production of organic products and are not included in the percentage calculations of organic ingredients.

9.3 Technologies

9.3.1 Technologies used to process and preserve organic products shall be biological, physical or mechanical. Ionizing radiation shall not be used.

9.3.2 Only water, ethanol, plant and animal oils, vinegar, carbon dioxide, and nitrogen may be used as solvents for extraction.

9.3.3 Equipment shall not contain substances that may negatively affect the product.

9.3.4 Controlled atmosphere may be used for storage.

9.4 Additives and processing aids

9.4.1 Preparations of enzymes and micro-organisms (with the exception of genetically engineered micro-organisms

and their derivatives) may be used in food processing.

9.4.2 Synthetic substances (including nature-identical colourings, flavourings, and taste-enhancing) shall not be used.

9.4.3 Food additives and processing aids in accordance with IFOAM Basic Standards or CAC/GL 32 may be used. Annex D contains the food additives and processing additives that were accepted at the time of publication of this standard. If the substances listed in Annex D can be found in nature, natural sources are preferred. Substances of organic origin are preferred.

9.5 Food fortification

Synthetically produced minerals (including trace substances), vitamins, amino acids and other nitrogen compounds may be used for food fortification purposes only where legally required or in cases in which dietary or nutritional deficiency can be demonstrated.

9.6 Packaging materials

9.6.1 Packaging materials shall not contaminate the organic product.

9.6.2 Organic products shall not be packaged in materials that have been used for or treated with chemical fertilizers or pesticides or other substances that may compromise the organic integrity of the product.

9.6.3 Environmentally adapted packaging shall be preferred. Polyvinyl chloride (PVC) and other chlorine-based plastics shall be avoided if possible.

9.7 Hygiene and pest management

9.7.1 Pest-management measures shall be established and maintained to ensure that areas used for the storing, handling

and processing of organic products are effectively protected against pests.

9.7.2 Management of pests shall be achieved mainly by means of scrupulous hygiene, cleaning and sanitation.

9.7.3 To manage pests, the following methods may be used:

- preventive methods such as disruption, elimination of habitat, and access to facilities
- mechanical, physical and biological methods
- substances listed in Annex B.

9.7.4 If the methods listed above are unsuccessful, conventional pest control

(e.g., fumigations) may be used, with maximum care, under the following conditions:

- Ethylene oxide, methyl bromide, aluminium phosphide or ionizing radiation may not be used.
- Organic products shall be moved out of the treated area.
- The operator shall take precautions to prevent contamination and include measures to decontaminate the equipment or facilities.
- The treatment shall be carried out under the supervision of a qualified person or organization.
- Records of date, substance and area treated shall be kept of all pest-control and fumigation measures taken.

10. Labelling

10.1 A raw or processed product labelled as “organic” shall contain, by weight, excluding water and edible salt, no less than 95% organic ingredients. The remaining ingredients may include non-organic ingredients fulfilling the relevant parts of this standard.

10.2 A product labelled as “made with organic ingredient(s)” shall contain, by weight, excluding water and edible salt, at least 70% organic ingredients. The remaining ingredients may include non-organic ingredients fulfilling the relevant parts of this standard.

10.3 For a product in which less than 70% of the ingredients are organic, the word organic may be stated in the ingredient panel or in conjunction with the organic ingredient.

10.4 All ingredients of a multi-ingredient product shall be listed on the product label in order of their weight percentage.

It shall be apparent which ingredients are of organic origin and which are not. All additives shall be listed with their full name. Where herbs and/or spices constitute less than 2% of the total weight of the product, they may be listed as “spices” or “herbs” without stating the percentage.

10.5 The name and contact address of the responsible operator shall appear on the labelling for products in their final consumer packaging.

10.6 Labelling shall follow the applicable legislation.

10.7 A statement that the product is “produced according to the East Africa Organic Standard” may be made on the labels.

Annex 6: Sector summary matrix: A comparison of the organic sectors in East Africa

	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
General organic agriculture sector information	Organic agricultural production began in the early 1990s but stopped abruptly in 1996 following a coup that led to political instability. Currently, stakeholders believe that it is time to establish and develop a national organic agricultural movement to support growing interest in organics. International NGOs are promoting sustainable agriculture, while the <i>Institut des Sciences Agronomiques du Burundi</i> seems poised to begin research on organics.	Certified organic agriculture was initiated in 1996 and the number of companies involved has multiplied over the years. The Ethiopian Association of Organic Agriculture (EAOA) was formed in 2007 and is taking the lead in ensuring that production in the organic sector is consistent with Ethiopia's organic proclamation. Most training has been done by NGOs but little research has been dedicated to organics.	Organic production began in the early 1980s, as a result of NGO training initiatives. To date, the organic sub-sector is relatively small but growing quickly. NGOs and the private sector have taken the lead in organics. Organic networks are seeking to develop skills with respect to the industry aspects of organic agriculture. Limited research efforts are taking place.	The Rwanda Organic Agricultural Movement (ROAM) was formed in 2007 to help develop organic agriculture in Rwanda. NGOs carry out training to promote organic production for food security. No active research is being undertaken at this time.	Organic agriculture was initiated through the work of the Peramiho Mission Centre in the Ruvuma Region, almost one hundred years ago. Organic agriculture is driven by the private sector with support from development partners. The Tanzania Organic Agriculture Movement (TOAM) was founded in 2005 and is an umbrella organization helping to promote organic agriculture. Training and some research is proceeding in Tanzania to provide ongoing support for organic production.	Organic agriculture began in Uganda in 1994. The National Organic Agriculture Movement of Uganda (NOGAMU), was formed in 2001 and has played a key role in coordinating training in the organic sector. Limited research efforts are taking place at the moment.
Gender, employment and livelihoods	Women do most work in the agricultural sector, which employs the majority of Burundians. Organic products seem to be associated with wealthy consumers. Organic production is a potential source of income for many farmers.	Gender division of labour varies in agriculture, as women take on weeding and men prepare land for cultivation. Organic agriculture enables poor farmers to increase their production for food and income through price premiums.	Production involves mixed groups, but women make up the majority of workers. Organic agriculture offers greater returns to smallholder farmers through the price premiums obtained.	Most agriculture is performed by women, but men assist with heavy work. Organic agriculture is popular because of the extra income it can provide. The majority of the population is employed in farming.	Projects undertaken in Tanzania have aimed to achieve a balance between men and women. Crops sold as "organic" command a price premium.	The majority of farm work is carried out by women with the support of family members. Farmers can receive a 20 to 200 per cent premium from organic farming, making it a viable livelihood option.
Marketing profile	There is currently only one certified export company, Etro Ltd. There is no distinction for organics in the local market.	The main exports are Arabica coffee, sesame, and honey. The Business Organization Access to Markets is interested in the export of fruits. The ECOPEA markets products in supermarkets and engages in direct sales locally.	Major products include fruit, vegetables, and nuts, whose export values are increasing. The domestic market is growing quickly and products are sold locally through nine supply chains.	Geranium oil, fruit, and chillies are exported. There is no domestic marketing as price premiums are not available for organic products.	Organic trade continues to develop strongly, with honey, coffee, cocoa, and cashews leading exports. There are seven outlets for organic products locally. Participatory Guarantee Systems are used.	Organic exports have increased, despite some negative claims regarding organic cotton. Five organic outlets provide organic supply locally.

	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
Standards	The Burundi Bureau of Standards (BBS) controls standards. There is no national organic standard but the East African Organic Products Standard (EAOPS) or the Codex Alimentarius are used.	There is no national organic standard and all certification is carried out using external standards, such as those from the EU, as well as the National Organic Program (NOP).	Six standards are employed: EAOPS, EU, Encert, NOP, Japan's Agricultural Standards (JAS) and Soil Association standards.	Currently there is no system in place for inspecting and certifying external standards or the EAOPS. The Rwandan Bureau of Standards plans to develop a unique organic certification mark.	Products are certified according to US, EU and Japanese standards. The EAOPS is used for the local and regional market.	Ugandan Organic Standards and external standards are used. The EAOPS is used for some products entering the domestic market.
Certification	Ecocert carries out all inspections in Burundi. The Burundi Bureau of Standards plans to build its capacity to manage organic certification.	There is no locally established certification company. External companies are employed.	Certification is carried out by external certification bureaus according to EU regulations.	Ecocert and CERES certify products intended for the EU and US markets.	There are six certification bureaus. These include Tancert, a local company accredited to International Standards Organisation (ISO) 65 standards and IFOAM.	Certification is performed by international certification companies. UgoCert, a local company now accredited by ISO and IFOAM, also certifies organic products.
Government and policy	The government seems open to the idea of promoting organics and has expressed an interest in increasing organic export opportunities. However, no funds have been allocated to support this effort.	Organic agriculture is recognized as a strategic option for supporting agricultural development. An organic proclamation was instituted as law in 2006.	There is no explicit policy regarding organics. An organic desk has been established in the Ministry of Agriculture, and the Kenya Organic Agriculture Network (KOAN) has been recognized in key fora. Organic agriculture is also mentioned as a strategic option with respect to food policy.	At present, no policies present barriers to organic production and trade. However, no policy explicitly supports the organic sector either.	A new agricultural policy is being drafted and will include a number of references to organics, amongst them, mention of certification, regulation, and the development of organic agriculture by the TOAM.	A draft policy is in the final stages of consultation. The UEPB and Uganda National Bureau of Standards (UNBS) support organic exports and standards. Counter policies, such as the use of DDT have adversely affected the sub-sector.
Harmonization	The EAOPS has been signed but it is not in use domestically. There is some resistance to the use of the Kilimohai mark as Swahili is not widely used.	The EAOA has been involved in several regional meetings and has suggested adapting the EAOPS, which is not in use since Ethiopia is not a member of the EAC.	The KOAN is in close contact with other national organic agriculture movements (NOAMs) in the region. Stakeholders have accepted the use of the EAOPS and licenses have been issued in that regard.	The EAOPS is promoted widely and is expected to improve regional marketing. Kenya and Uganda are target markets.	Regional networking between the TOAM and other NOAMs has been successful. Regular meetings are organized to promote joint strategies in marketing and other areas.	NOGAMU continues to work with other NOAMs especially on institutional development, standards, and marketing.

Source: Taylor (unpublished).

Annex 7: Organic agriculture stakeholders in East Africa (Kenya, Tanzania and Uganda)

Table A7-1 identifies the key stakeholders involved in the organic sector in each country and describes each stakeholder's activity or role.

Table A7-1: Stakeholders involved in the organic agriculture sector in East Africa

Country	Stakeholder category	Activity or role
1. Private sector		
Kenya	Industry and producer associations (including SFO, CBO and FBO). Estimates suggest that there are 35,000 groups with an average of 20 to 30 members.	Involved primarily in the production of organic crops either for national or local markets.
	Commercial farmers (including several large-scale companies and some medium-scale companies), which are certified, and in some cases share overhead costs and management	There are a growing number of certified organic companies and/or operators producing for both the national and international markets. Some grow vegetables, fresh and dried fruits, herbs and spices, and harvest wild products.
	Processors. In most cases, these are the same companies that produce the raw materials and they do the processing according to buyers' requirements. Some processors buy raw materials from small farmers.	There are certified organic companies extracting essential oils from herbs, spices and cold pressed oils from high-value crops. Some are also drying or semi-processing herbs and nutraceutical plant products. Others are exporting packaged vegetables, nuts, coffee and tea.
	Traders and retailers. These include national supermarkets (such as Uchumi Hyper and Nakkumatt), greengrocers (such as Healthy U, Green Corner Shop, and ABC Place), Natures Organic (box delivery), Organic Marketers Ltd., Natural Food Marketers, and Findus. They also include Effective Micro-organisms supply and BIOP Ltd. (for organic fertilizers).	Local and international trade of raw and semi-processed products from primary operators. These stakeholders also deal with input supplies.
	Certifiers and inspection agencies. Africert and Encert are two national companies, which partner with internationally accredited companies.	Certification of organic products for regulated export markets. At the time of the study there was no certification facility for the national market. These companies also offer EurepGAP certification.
Tanzania	Cooperatives (Kilimanjaro Native Cooperative Union and Kagera Cooperative Union).	Organize farmers for production, processing, and marketing.
	Companies (Biore, PCI, Fida Hussein, Dabaga, Biolands, LIMA, Bombay Burma, MTC, TATEPA, KIMANGO, Kibidula, TAZOP, Zanz-Germ, OCSD and EPOPA-TZ).	Operators, processing, packaging and exporters.
	Certification bodies (TanCert, IMO, Bio-Inspecta, Ecocert).	Inspection and certification services.

Uganda	Cooperatives (Gumutindo Coffee Coop, Kayunga Organic Agriculture Producers Association, Nombe Organic Producers Association, Masaka Organic Producers, Namulonge Horticultural Producers, Bufundo Organic Agriculture Producers Association, Lusanja Agali Awamu).	Organize farmers for production, processing, and marketing.
	Companies (Lango Organic Farming Promotion, Uganda Marketing Services, African Organ, Bio Fresh Ltd., Masaka Organic Producers, Tropical Ecological Foods Uganda, Sulma Foods, Kawacon, Ibero, Jaksons (U) Ltd., Agricultural Organic Exports, Outspan, Bio Uganda, and Bo Weevil).	Operators, processing, packaging, and exporters.
	Certification bodies (UgoCert, SGS-Uganda, IMO Kontrol, Krav, Ecocert).	Inspection and certification services.

2. Civil society organizations

Kenya	Training and research institutions (30 organizations offer organic agriculture training; the International Centre for Insects Physiology and Ecology carries out research on organic pest and disease control).	Training in organic agricultural techniques and research for organic pest and disease control.
	Other promoters (NGOs and CBOs, the Environmental Liaison Centre International, which has supported KOAN).	Promote organic agriculture through community mobilization, capacity-building and networking.
Tanzania	NGOs and Foundations (Kilimo Hai Tanzania, Tanzania Organic Foundation, Sustainable Environment for Economic Development, ZAFFIDE, Envirocare, UHAI, Sunnhemp seed bank, PELUM-TZ, ADP Trust, Matunda-Mema, MAYAWA).	Organize farmers for production, delivery of extension services, fund raising for training and awareness promotion, lobbying and advocacy.
	Organic movement (Tanzania Organic Agriculture Movement).	Lobby governments and unite organic stakeholders for advocacy.
Uganda	NGOs, foundations and trusts (Agricultural Council of Uganda, Kulika Charitable Trust, Send a Cow(U) Ltd., Africa 2000 Network, Sustainable Agriculture Trainers Network, Students Partnership Worldwide, VEDCO, ACODE, Cashfarm (U) Ltd., VECO Uganda, Caritas Uganda, Rural Community in Development, EMESCO Development Foundation, PELUM).	Organize farmers for production, deliver extension services, raise funds for training and awareness promotion, lobbying and advocacy activities.
	Organic movement (National Organic Agricultural Movement of Uganda).	Lobby government and unite organic stakeholders for advocacy, promote training, networking, standardization and research.

3. Government and governmental institutions

Kenya	Kenya Bureau of Standards.	Developed Kenya's Guidelines for Organic Production, Processing and Packaging.
	Ministry of Agriculture.	Little contribution to the development of the organic sector to date. However, interest from the government extension service is overwhelming.
	Public research institutions and Universities (Egerton University, Jomo Kenyatta University and Technologies, Kenya Agricultural Research Institute, Kenya Tea Foundation, Kenya Coffee Foundation and Nairobi University).	Training and research on organic agriculture.
Tanzania	Ministries (of Agriculture and Food Security, of Industry and Trade, of Natural Resources and Tourism, for Regional Administration and Local Government, for Livestock and Water, for Local Government, Marketing, Cooperative and Community Development, for Land and Habitat).	Policy and extension service delivery. Extension services are under the government.
	Government institutions (Sokoine University of Agriculture, University of Dar es Salaam, College of Moshi cooperatives, University College of Lands and Architectural Studies, Agricultural and livestock research and training institutes, Tropical Pesticides Research Institute, Tanzania Bureau of Standards, Board of External Trade).	Training, research, regulatory and marketing promotion.
Uganda	Ministries (Agriculture Animal Industry and Fisheries and Trade, Tourism and Industry).	Policy and extension service delivery. (Extension services are under the National Agricultural Advisory and Development Services). Export promotion, enabling and monitoring trade related issues.
	Government institutions (Uganda Export Promotion Board, Uganda Investment Authority, Uganda Coffee Development Authority, Uganda National Bureau of Standards, National Agricultural Advisory Services).	Research, regulatory, marketing promotion, advice to, and control of, the coffee sector, standard development and monitoring, and extension services.
	Plan for Modernization of Agriculture.	Secretariat monitors general agricultural development.

4. Development partners

Kenya	Hivos, Miserio, Sida, FAO, UK-DFID, GTZ, Biovision, Rockefeller, UNDP, Centre for Development Enterprises, CBI, FiBL, and HIDRA.	Facilitate implementation of projects.
Tanzania	Grolink, EPOPA, IFOAM, and Agro Eco.	Assist sector development through funding, technical assistance, international lobbying and recognitions and consultancy.
Uganda	Hivos, EPOPA, DED, CBI, Agro Eco, IFOAM, Catholic Organization for Relief and Development AID, Agricultural Sector Programme Support, and DANIDA.	Assist sector development through funding, technical assistance, international lobbying and recognitions and consultancy.

Source: Taylor (2006).

Glossary

Agrochemicals:

Agrochemicals—alsocalledagrchemicals—refer generically to all chemicals used in agriculture. The most commonly used agrochemicals are synthetic fertilizers and pesticides, including, but not limited to, insecticides, fungicides and herbicides. These substances are widely

used in industrial agriculture because they are thought to increase yields and reduce risks of crop failure due to undesirable pests, animals, or plants, albeit with undesirable effects on human health and the environment.

Biological control:

Biological control is an important component of the pest management systems used in organic agriculture. These systems are a substitute for the agrochemicals that control pests related to pest control. Biological control can be defined as, “the practice of using beneficial organisms—such as insect

predators or parasites of pest insects, pest disease agents, insect-eating birds and bats—to keep pest populations at a tolerable level” (Source: Eicher, A. 2003. *Organic Agriculture. A Glossary of Terms for Farmers and Gardeners*. <http://ucce.ucdavis.edu/files/filelibrary.1068.8286.pdf>).

Codex Alimentarius:

“The Codex Alimentarius Commission was created in 1963 by FAO and WHO to develop food standards, guidelines, and related texts such as codes of practice under the Joint FAO/WHO Food Standards Programme. The main purposes of this Programme are protecting health of the consumers and ensuring fair trade

practices in the food trade, and promoting coordination of all food standards work undertaken by international governmental and non-governmental organizations” (Source: Codex Alimentarius, 2009. Welcome Page, WHO/FAO Food Standards. http://www.codexalimentarius.net/web/index_en.jsp).

Conventional agriculture:

According to the FAO and the World Commission on Development and Environment, conventional, or industrial, agriculture, “has large farming units, is highly capitalized and relies on large inputs and subsidies. It is found mainly in the developed world or in specialized enclaves in the developing countries.” This definition is similar to one proposed by Edwards and Demaine in 1988, “[industrial monoculture] is based on agro-industrial inputs. Initially developed in 1850, it only began to replace the traditional mixed farming system in Western Europe in 1950. Its major features are improved genetic varieties, chemical fertilisers, herbicides, pesticides, pharmaceutical chemicals, feed

concentrates, pelleted feed and mechanisation. Most [industrial] farms raise only a single species because of increasing technical complexities and economies of scale” (Source: FAO. 1999. *The FAO field programme and agricultural development in Asia and the Pacific*. <ftp://ftp.fao.org/docrep/fao/005/ac621e/ac621e00.pdf>; Edwards, P. and H. Demain. 1988. *Rural Agriculture: Overview and Framework for Country Reviews*. Bangkok: Agriculture and Aquatic Systems Program, School of Environment, Resources and Development, Asian Institute of Technology and Regional Office for Asia and the Pacific. <http://www.fao.org/docrep/003/X6941E/x6941e04.htm>).

Crop rotation:

Crop rotation can be defined as, “the practice of planting a sequence of different crops and cover crops on a specific field. Crop rotations can be used to help build soil fertility, reduce insect pest pressure, and

suppress weeds” (Source: Eicher, A. 2003. *Organic Agriculture. A Glossary of Terms for Farmers and Gardeners*. <http://ucce.ucdavis.edu/files/filelibrary.1068.8286.pdf>).

East African Community:

The East African Community (EAC) is a regional intergovernmental organization linking and integrating Burundi, Kenya, Rwanda, Tanzania, and Uganda. The EAC Treaty was originally signed by Kenya, Tanzania and Uganda in 1999. Burundi and Rwanda joined

the EAC in 2007. The EAC aims to strengthen regional cooperation between the member governments in a wide range of sectors, including the political, economic and social fields.

Indigenous knowledge:

The concept of indigenous – or traditional – knowledge has varying definitions and debates surround the many characteristics of indigenous knowledge (IK). One definition is, “...the knowledge that an indigenous (local) community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge – technologies, know-how skills, practices and beliefs – that enable the community to achieve stable livelihoods in their environment. A number of terms are used interchangeably to refer to the concept of IK, including Traditional Knowledge (TK), Indigenous Technical Knowledge (ITK), Local Knowledge (LK) and Indigenous Knowledge System (IKS). IK is unique to every culture and society and it is embedded in community practices, institutions, relationships and

rituals. IK is considered a part of the local knowledge in the sense that it is rooted in a particular community and situated within broader cultural traditions. It is a set of experiences generated by people living in those communities. IK is based on, and is deeply embedded in local experience and historic reality, and is therefore unique to that specific culture; it also plays an important role in defining the identity of the community. It has developed over the centuries of experimentation on how to adapt to local conditions. It therefore represents all the skills and innovations of a people and embodies the collective wisdom and resourcefulness of the community” (Source: UNEP. 2009. *Indigenous Knowledge in Africa*. <http://www.unep.org/IK/Pages.asp?id=About%20IK>).

Integrated assessment:

Integrated assessment is defined by UNEP as an interdisciplinary process of combining, interpreting, and communicating knowledge from various scientific disciplines in such a way that the system-wide cause-effect chain associated with a public project, programme or policy can be evaluated for the benefit of

policymaking. Specifically, this approach is intended to achieve both the substantive and procedural integration of assessment and planning as follows:

- substantive integration of environmental, social and economic objectives (analyses and issues) of proposed development

interventions and policy options, examined against an explicit framework of sustainability goals, principles and criteria;

- procedural integration of assessment procedures (analytical tools for environmental, social and economic dimensions) within the larger process of sustainable development planning and decision-making, in order to achieve maximum synergies among them and to avoid delays and conflicts.

Both substantive and procedural integration aim to avoid negative trade-offs and strengthen positive interactions (realise opportunities for synergy) between environmental, social and economic issues, in a broad spatial and time perspective (Source: UNEP. 2009. *Integrated Policymaking for Sustainable Development: A Reference Manual*. <http://www.unep.ch/ETb/publications/IPSD%20manual/UNEP%20IPSD%20final.pdf>).

Integrated pest management:

According to the World Bank, “IPM refers to a mix of farmer-driven, ecologically based pest control practices that seek to reduce reliance on synthetic chemical pesticides. It involves (a) managing pests (keeping them below economically damaging levels) rather than seeking to eradicate them; (b) relying, to the extent possible, on non-chemical measures to keep pest populations low; and (c) selecting and applying pesticides, when they have to be used, in a way that minimizes adverse effects on beneficial organisms, humans, and the environment.” In general terms it is a strategy of pest management that focuses on the long-term prevention of pests or their damage through a combination of techniques such as biological control,

habitat manipulation, modification of cultural practices, and use of resistant varieties. In organic agriculture organic pesticides are used, under strict guidelines, only when monitoring indicates they are needed to remove the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment” (Source: World Bank. 2009. *Pest Management Guide Book: Integrated Pest Management*. Washington, DC: The World Bank Group. <http://go.worldbank.org/F98SD7NLZ0>; Eicher, A. 2003. *Organic Agriculture. A Glossary of Terms for Farmers and Gardeners*. <http://ucce.ucdavis.edu/files/filelibrary.1068.8286.pdf>).

Livelihood:

“[A] livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with, and recover from, stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities

for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term” (Source: Chambers, R. and G. Conway. 1992. *Sustainable rural livelihoods: practical concepts for the 21st century*. Brighton: IDS Discussion Paper No. 296, pp.7-8).

Multi-cropping:

Also referred to as multiple cropping, companion cropping and intercropping, multi-cropping is typically defined as “the practice of planting two or more mutually beneficial crops in

close proximity, typically as alternating rows or numbers of rows. (On a small scale, this is often called companion planting). Benefits can include insect or weed suppression,

structural support, or shade” (Source: Eicher, A. 2003. *Organic Agriculture. A Glossary of Terms for Farmers and Gardeners*. <http://ucce.ucdavis.edu/files/filelibrary.1068.8286.pdf>).

Organic agriculture:

Organic agriculture is based on the principles of health, ecology, fairness and care. While the use and development of organic practices have a long history, it is only during the last century that its principles have been standardized, and only during the last two decades that certified organic production has gained increasing recognition. The IFOAM defines organic agriculture as, “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.” As such, it refers to a conception of the “farm as an organism, in which all the components — the soil minerals, organic matter, microorganisms, insects,

plants, animals and humans — interact to create a coherent, self-regulating and stable whole” (Giovannucci 2006). Among the many practices associated with sustainable agriculture, organic agriculture is one of the strictest regarding the use of synthetic inputs, which it tends to avoid completely. Organic farms can be either certified or non-certified and in effect, many farmers around the world practice organic farming without receiving formal certification. Many traditional agricultural practices are either *de facto* organic or very nearly organic, farmers may not realize that organic certification could be applied to their production. (Source: IFOAM. 2009. Definition of Organic Agriculture. http://ifoam.org/growing_organic/definitions/doa/index.html; Giovannucci, D. 2006. *Salient Trends in Organic Standards: Opportunities and Challenges for Developing Countries*. Washington, DC: World Bank and USAID).

Price premium:

There are various definitions for price premium, according to its use in the business, finance, or insurance realms. With respect to organic products, and as used in this synthesis, price premium refers to the difference in price

between organic and conventional products. That is, it is the additional sum that consumers are willing to pay for organic products, on top of the price of conventional goods.

Smallholder farmers:

Smallholder farmers are generally referred to as farmers who cultivate small plots of land. There is no consensus on the maximum land area that can constitute a small farm. However, the FAO notes that, “[t]he definition of smallholder differs between countries and between agro-ecological zones. In [areas] with high population densities, they often cultivate less than 1 hectare of land, whereas they may cultivate 10 hectares or more in semi-arid areas, or manage 10 heads of

livestock.” (Source: FAO. 1999. *The FAO field programme and agricultural development in Asia and the Pacific*. <ftp://ftp.fao.org/docrep/fao/005/ac621e/ac621e00.pdf>).

Social capital:

While its origins are disputed and interpretations vary, social capital is used by the UNEP-UNCTAD initiative in the following context: “[s]ocial capital produces a mutually beneficial collective action, contributing to the cohesiveness of people in their societies. The assets comprising social capital include norms, values and attitudes that prompt

people to cooperate; relations of trust, reciprocity and obligations; and common rules and sanctions that are mutually agreed or handed down. These are connected and structured in networks and groups.” (Source: Hine, R. and J. Pretty. 2008. *Organic Agriculture and Food Security in Africa*. New York and Geneva: UNEP-UNCTAD CBTF).

Traditional agriculture:

Generally associated with pre-industrial methods of farming, traditional agriculture can be defined as “an indigenous form of farming, resulting from the co-evolution of local social and environmental systems.” From an historical perspective, “these traditional farming systems have emerged over centuries of cultural and biological evolution and represent accumulated experiences of indigenous farmers interacting with the environment without access to external inputs, capital, or modern scientific knowledge.

Using inventive self-reliance, experiential knowledge, and locally available resources, traditional farmers have often developed farming systems with sustained yields.” Many traditional farming practices are, *de facto*, organic or near-organic practices. (Source: Altieri, M. 2002. *Traditional Agriculture*. Berkeley: Department of Environmental Science, Policy and Management, University of California. www.cnr.berkeley.edu/~christos/articles/traditional_ag.html).

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Around the world, evidence is mounting which suggests that sustainable forms of agricultural production present viable alternatives to existing (and unsustainable) farming practices.

Sustainable agricultural systems offer various opportunities, including: competitive economic returns, the supply of essential and life-supporting ecosystem services, the creation of decent jobs and livelihoods, a smaller ecological footprint, increased resilience to climate change, and enhanced food security.

This publication summarizes the analysis, results and recommendations of the UNEP-UNCTAD CBTF's initiative in East Africa: Promoting Production and Trading Opportunities for Organic Agriculture. It makes use of available evidence and data to demonstrate the potential of the organic sector in East Africa (and in other developing countries) to contribute to poverty reduction and sustainable development and to take its role at the forefront of the eventual transition to a Green Economy. The region, like much of the developing world, already has a comparative advantage in the production of organic products.

The report also identifies the challenges facing the sector and encourages decision makers in both the public and private sectors to reshape the future of agriculture by introducing policies and making the necessary investments to increase supply-side capacity and overcome trade barriers.

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United Nations Environment Programme
P.O. Box 30552 Nairobi, 00100 Kenya
Tel: (254 20) 7621234
Fax: (254 20) 7623927
E-mail: unepub@unep.org
web: www.unep.org



**For more information,
contact:
UNEP DTIE
Economics and Trade Branch
Division of Technology,
Industry & Economics**
Chemin des Anémones 11-13
1219 Geneva
Switzerland
Tel: +41 22 917 82 43
Fax: +41 22 917 80 76
www.unep.ch/etb
www.unep-unctad.org/cbtf/

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