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Organic Agriculture and Food Security in Africa

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Executive summary

Introduction

Organic agriculture is a sustainable and environmentally friendly production system that offers African and other developing countries a wide range of economic, environmental, social and cultural benefits. When the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF) started its work on organic agriculture in East Africa in 2004, a key question repeatedly raised by public and private sector stakeholders in the region was to what extent organic agriculture can enhance food security in the African context. This paper was developed in response to that question. It examines the relationship between organic agriculture and food security in Africa, analysing organic agriculture's impact on food availability as well as natural, social, human, physical and financial capital in the region. Given the paper's origins, special attention has been given to East Africa throughout the paper, including analysis of 15 case studies. The conclusions and findings are, however, relevant for all African countries as well as many other developing countries around the world.

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 marginalized from product markets.

In the last 10 years, progress in the drive to reduce hunger has been slow and has varied around the world, in sub-Saharan Africa the number of hungry people has in fact increased by 20 per cent since 1990. In the period 2000–2002, the proportion of undernourished people in the total population of Kenya was 33 per cent, in Uganda 19 per cent and in the United Republic of Tanzania 44 per cent. The number of underweight children has also increased in Central, Western and Eastern Africa compared to an overall decline in other developing regions such as Asia, South America and North Africa.[1]

The world therefore still faces a fundamental food security challenge. Despite steadily falling fertility rates and family sizes, the world population continues to increase, and so, in parallel, will the absolute demand for food. Food demand will also shift in the coming decades, as (i) economic growth increases people's purchasing power; (ii) growing urbanization encourages people to adopt new diets; and (iii) climate change threatens both land and water resources.

The conventional wisdom is 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.[2]

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

(i) The extent to which farmers can improve food production and raise incomes with low-cost, locally-available technologies and inputs (this is particularly important at times of very high fuel and agro-chemical prices);
(ii) Whether they can do this without causing further environmental damage; and
(iii) The extent of farmers' ability to trade.

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1 FAO, 2005; von Braun, 2005; UN/SCN, 2004.
2 Treweyas, 2002; Smil, 2000; Tilman et al., 2002; McNeely and Scherr, 2003.

The food security of any region is not simply a question of producing enough food to meet demand; it is also influenced by a multitude of factors, both natural and caused by humans. 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 to acquire it. Furthermore, many of the causes of food insecurity are also symptoms, thus creating a cyclical effect that can result in further food insecurity.

Organic agriculture and food security

Agriculture, by its inherent multifunctionality, has the potential to both influence and address the factors that contribute to food insecurity. Organic agriculture relies on 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[3] thus often reducing many of the factors that lead to food insecurity.

Increase in food availability

In developing countries, evidence from research and from this study shows that agricultural yields in organic systems do not fall, and at least remain stable when converting from systems that use relatively low amounts of synthetic inputs (many of which were by-passed by the earlier "green revolution") such as those frequently found in Africa. Over time, yields increase as capital assets in systems improve, thus outperforming those in traditional systems and matching those in more conventional, input-intensive systems. Food availability increased in all cases centred on food production where data were reported examined in this study. Others, such as Gibbon and Bolwig (2007), have also found that organic conversion in tropical Africa is associated with yield increases rather than with yield reductions.

Organic farming increases access to food on several levels. First, increased quantity of food produced per farm leads to household food security which results in all members of the household having access to enough food. Second, the production and selling of food surpluses at local markets means that farmers benefit from higher incomes, which increases their purchasing power. Third, fresh organic produce becomes 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 were excluded for financial or cultural reasons.

Benefits to the natural environment

The vast majority of the case studies in this research showed improvements to the natural capital base – their local natural environment – with 93 per cent of the case studies reporting benefits to soil fertility, water supply, 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, leading to better carbon sequestration, and increased agro-biodiversity. As a result soils are healthier, are better able to hold water and are more stable, can sustain plant growth better and have a higher nutrient content. All this enables farmers to grow crops for longer periods, with higher yields and in marginal conditions. This of course can make a major impact on reducing the food insecurity of a region.

Benefits to community, cooperation and partnerships

Organic agriculture leads to improvements in social capital, including more and stronger social organizations at local level, new rules and norms for managing collective natural resources and better connectedness to external policy institutions. Results from the cases in this study revealed that 93 per cent of those involved cited improvements to social capital as integral to their success.

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[3] Ostrom, 1990; Pretty, 2003.

The formation of farmers' groups and cooperatives and less formal community collaboration has lowered the costs of working, led to increased knowledge transfer amongst farmers, reduced the costs of organic certification and contributed to greater food security.

Strong networks and links with partners from government, non-governmental organizations (NGOs) and organic support organizations such as the Kenya Organic Agriculture Network (KOAN), the National Organic Agricultural Movement of Uganda (NOGAMU), the Tanzania Organic Agriculture Movement (TOAM), and the Export Promotion of Organic Products from Africa (EPOPA) programme are helping farmers to organize for organic certification, access export and domestic organic markets and gain greater knowledge of sustainable organic techniques, crops and markets.

Increase in education, skills and health

Organic farming leads to an increase in human capital, evident in all of the case studies detailed in this report. All have some element of education that increases the knowledge of organic farming methods and the skills of farmers. In many cases there have been direct improvements in the health of individuals and communities as a result of increased knowledge, an increase in food yields and improved access to food. The ability of farmers to use their better understanding of the holistic nature of organic farming to adapt and change their farming systems when faced with new challenges has resulted in these agricultural systems becoming more resilient to environmental and external stresses.

Improvements to infrastructure and markets

Organic farming can also lead to improvements in the infrastructure (communications and transport) through the need to access markets. Access to markets is an essential part of organic farming, (particularly crucial for export) and farmers, NGOs and governments can work together in order to help farmers to earn premium prices for their organic produce. Of the case studies examined, 40 per cent reported improvements in the physical infrastructure and in market access. Access to markets has increased not only for farmers selling their surplus in domestic markets, but also for farmers selling their certified organic produce in international markets.

Increase in farmer and household incomes

Poverty is a major contributory factor to food insecurity, and organic farming has a positive impact on poverty in a variety of ways. Farmers benefit from: (i) cash savings, as organic farming precludes the need to purchase synthetic pesticides and fertilizers; (ii) extra incomes gained by selling the surplus produce (resulting from the change to organic); (iii) premium prices for certified organic produce, obtained primarily in Africa for export but also for domestic markets; and (iv) added value to organic products through processing activities. These findings are backed up by studies from Asia and Latin America that concluded that organic farming can reduce poverty in an environmentally friendly way.[4]

A recent study concluded that certified organic farms involved in production for export were significantly more profitable than those involved in conventional production (in terms of net farm income earnings).[5] The majority of cases examined in this study reported improvements to the financial capital base as one of their successes. Of these cases, 87 per cent showed increases in farmer and household incomes as a result of becoming organic, which contributed to reducing poverty levels and to increasing regional food security.

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4 UNCTAD, 2008; Gibbon and Bolwig, 2007; Twarog, 2006; UNCTAD, 2006.

5 Gibbon and Bolwig, 2007; UNCTAD, 2008.

Main findings and conclusions of the analysis

- Organic agriculture can increase agricultural productivity and can raise incomes with low-cost, locally available and appropriate technologies, without causing environmental damage. Furthermore, evidence shows that organic agriculture can build up natural resources, strengthen communities and improve human capacity, thus improving food security by addressing many different causal factors simultaneously.

- All case studies which focused on food production in this research where data have been reported have shown increases in per hectare productivity of food crops, which challenges the popular myth that organic agriculture cannot increase agricultural productivity. Organic production allows access to markets and food for farmers, enabling them to obtain premium prices for their produce (export and domestic) and to use the additional incomes earned to buy extra foodstuffs, education and/or health care. A transition to integrated organic agriculture, delivering greater benefits at the scale occurring in these projects, has been shown to increase access to food in a variety of ways: by increasing yields, increasing total on-farm productivity, enabling farmers to use their higher earnings from export to buy food, and, as a result of higher on-farm yields, enabling the wider community to buy organic food at local markets.

- Organic and near-organic agricultural methods and technologies are ideally suited for many poor, marginalized smallholder farmers in Africa, as they require minimal or no external inputs, use locally and naturally available materials to produce high-quality products, and encourage a whole systemic approach to farming that is more diverse and resistant to stress.

- The recent food-price hike and the contribution rising fuel prices have made to it highlight the importance of making agriculture less energy and external input dependent. Enhanced transition to sustainable forms of agriculture in general, and organic agriculture in particular, needs to be part of an effective response strategy to escalating food prices.

- Certified organic production for the export market, with its premium prices, can undoubtedly reduce poverty among farmers, which is a major contributor to food insecurity. However, monocropping farming systems for the export market, whether conventional or organic, still leave farmers vulnerable to export price fluctuations and crop failure. Where organic farming principles are adopted as a holistic approach for the whole of an integrated agricultural system, "organic" can be synonymous with "sustainable", and increased food security in a region is more likely to occur, while also building up natural, human and social resources.

- Organic agricultural systems are making a significant contribution to the reduction of food insecurity and poverty in areas of Africa, and to an improvement in rural livelihoods. There is the potential to do more in this area with enabling policy and institutional support.

- Organic agriculture is not directly and specifically supported by agricultural policy in most African countries; indeed, it is sometimes actively hindered by policies advocating the use of high-input farming management practices. If organic agriculture and its associated positive side-effects are to be scaled up, an enabling policy environment is critical.

- Integrated organic agriculture, whether certified or non-certified, is more management- and knowledge-intensive, and so necessitates building the learning and cooperative

capacity of individuals and groups. This requires investment in developing the social capital at the local level if organic agriculture is to spread.

- Much more is now known about intensive, high-input farming systems than is known about sustainable organic systems. Thus more information on agro-ecological technologies is needed. However, this calls for a shift of emphasis in research and science budgets, and for the creation of better linkages between scientists, agricultural training and extension providers and farmers.

- Partnerships between farmers, farmer groups, NGOs and civil society organizations (CSOs), organic movement organizations, governments and certifying bodies at all levels foster successful organic agriculture. In order to facilitate the spread of organic agriculture there is a need to work at all levels: local, national and international, as well as to encourage more links between governments, NGOs and the private sector.

- Improving agricultural sustainability through adoption of organic agriculture in Africa may not be a solution to all the food problems, but considerable progress has been made in recent years. Whether organic farming will result in enough food to meet current and future needs in response to continued population growth and development in African countries can never be totally certain, but is certainly a step in the right direction. The present situation of widespread food insecurity means that conventional farming systems are clearly unable to fulfil the current food needs in Africa. The results observed in the transition to organic agriculture are highly promising for food security in Africa. Evidence indicates that productivity in organic agriculture can grow over time.[6] With further specific support, the benefits to food security and related improvements to natural, social and human capital, could spread to much larger numbers of farmers and rural people in the coming decades.

- These conclusions are confirmed by the findings and recommendations of the recently released report of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) panel, an intergovernmental process, supported by over 400 experts under the co-sponsorship of the FAO, GEF, UNDP, UNEP, UNESCO, the World Bank and WHO (issued on 14 April 2008) stated strongly 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 growing population and climate change while avoiding social breakdown and environmental collapse." The authors found that (i) progress in agriculture has reaped very unequal benefits and has come at a high social and environmental cost; and (ii) food producers should try using "natural processes" like crop rotation and use of organic fertilizers. The authors call for more attention to small-scale farmers and utilizing sustainable agricultural practices, and specifically mention organic farming as an option several times.[7]

[6] Borlaug, 1994a and b; Avery, 1995.
[7] IAASTD, 2008.