



ORGANIC AGRICULTURE AND THE MILLENNIUM DEVELOPMENT GOALS

DOSSIER





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***ORGANIC AGRICULTURE AND THE
MILLENNIUM DEVELOPMENT GOALS***

LIST OF ABBREVIATIONS

EJF	Environmental Justice Foundation
EPOPA	Export Promotion of Organic Products from Africa,
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse Gas
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome
IFAD	International Fund for Agriculture Development
IFOAM	International Federation of Organic Agriculture Movements
IPCC	Inter-Governmental Panel on Climate Change
MDG	Millennium Development Goals
NGO	Non-Governmental Organization
PES	Payment for Environmental Services
PGS	Participatory Guarantee Systems
SSA	Sub-Saharan Africa
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WHO	World Health Organization
WFP	World Food Program
WTO	World Trade Organization

FOREWORD

This dossier is the first attempt by IFOAM to document how organic agriculture can contribute to achieving the MDGs. While some studies and projects are beginning to shed light on the topic, there is a lack of long-term data collected and compiled on the subject. It should thus be noted that, although organic agriculture certainly contributes to achieving the MDGs, more research is needed to authenticate and substantiate the contribution. This dossier and the topic of organic agriculture's contribution to the MDGs will be revisited in five years.

EXECUTIVE SUMMARY

Around 850 million people continue to suffer from hunger, and more than 1 billion still live on less than 1 dollar a day. How organic agriculture will contribute both directly and indirectly to achieving the Millennium Development Goals (MDGs) is the scope of this dossier.

In 2000, the member states of the UN adopted the Millennium Declaration which established eight MDGs:

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development.

Although the contribution of organic agriculture to the MDGs depends on local agro-ecological and socioeconomic contexts, in general it provides a long-term solution to poverty and food insecurity. Moreover, it has the ability to empower women, improve human health, promote environmental sustainability and enhance and preserve biodiversity. The contribution of organic agriculture to achieving the MDGs is even greater when entire communities, as well as indirect benefits are considered.

With increasing evidence and awareness of the advantages of organic agriculture and its contribution to the MDGs, a number of measures can be adopted by governments and policy makers to encourage organic agriculture on a wider scale. Included in this dossier are the “Organic Agriculture MDGs” - goals that are meant to widen the horizon of the current MDGs, and provide a perspective on what organic agriculture implies.

INTRODUCTION

DEFINITION OF ORGANIC AGRICULTURE

Organic agriculture, also ecological or biological agriculture, has been well defined in a number of documents, especially by IFOAM:

“Organic agriculture includes all agricultural systems that promote the environmentally, socially and economically sound production of food and fibers. These systems take local soil fertility as a key to successful production. By respecting the natural capacity of plants, animals and the landscape, it aims to optimize quality in all aspects of agriculture and the environment. Organic agriculture dramatically reduces external inputs by refraining from the use of chemo-synthetic fertilizers, pesticides, and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance. Organic agriculture adheres to globally accepted principles, which are implemented within local social-economic, climatic and cultural settings. As a logical consequence, IFOAM stresses and supports the development of self-supporting systems on local and regional levels.” (IFOAM 2000)

Organic agriculture does not, as is widely misunderstood, merely refer to a form of farming that does not use chemical inputs. Rather it implies “understanding 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. Reliance on external inputs, whether chemical or organic, is reduced as far as possible” (LAMPKIN ET AL 1999). Based on agro-ecological principles of diversity and soil fertility management, organic farming implies a degree of awareness of the functioning of, and inter-relationships (between animals, plants, and the environment) within the farm system.

Organic agriculture is the only agricultural production method in the world that is based on international standards. The IFOAM Basic Standards have been democratically developed over the last 20 years (IFOAM 2005a). During the 1990s the CODEX Alimentarius (a joint FAO/WHO body) also developed international organic guidelines, which are very similar to the IFOAM Basic Standards in their scope (FAO/WHO CODEX ALIMENTARIUS GUIDELINES FOR ORGANIC FOOD).

THE MILLENNIUM DEVELOPMENT GOALS

In 1996, world leaders gathered at the World Food Summit and committed to reduce by half the number of hungry people by the year 2015. After a series of international meetings during the 1990s, other major goals were identified within the same time horizon. These commitments were brought together in the Declaration adopted by the UN Millennium meeting in September 2000 and were later restated in the form of eight Millennium Development Goals (MDGs). The Declaration was endorsed by 189 countries. Of course, longer term commitments (>10 years period) for agricultural productivity, physical and institutional infrastructure development, and capacity building are necessary for efforts to achieve scale and impact.

Nevertheless, with the UN Millennium Declaration, the world made an agreement: Poor developing countries committed to good governance and development policies based on sound science and the scaling up of best practices. More specifically, governments of developing countries agreed to review, evaluate, and reform policies for their impact on hunger, remove the constraints that impede progress toward hunger reduction, and make allocations for hunger reduction in national budgets. Developed countries, on the other hand, committed to providing greater financial and technical assistance, market access, and knowledge transfers, and to put in place suitable policy reforms at the global level (UN MILLENNIUM PROJECT, 2005).

After the formulation of the MDGs and their reaffirmation at the Monterrey Summit in 2002, some encouraging signs to resolve the fight against hunger have emerged (FAO, IFAD, WFP 2005). For example, there has been some progress in East Asia and the Pacific, especially in China, since 1990 (UN MILLENNIUM PROJECT 2005). In South Asia, Central America, the Middle East, North Africa, and West Africa, however, figures indicate that the number of hungry people has actually increased. Sub-Saharan Africa (SSA) is facing the largest and fastest increase in food insecurity worldwide. In fact, around 40% of people in SSA are undernourished, among the highest rates in the world. From these worldwide figures, it is clear that much dedication and work is still needed to achieve the MDGs.

THE MILLENNIUM DEVELOPMENT GOALS AND ORGANIC AGRICULTURE

Although organic agriculture plays an important role in achieving individual MDGs, its impact is far greater when considered holistically due to the interrelationships among the MDGs. In many cases, the positive impact of organic agriculture in achieving one MDG in turn has a positive impact on achieving other MDGs. Thus, the old adage “the whole is greater than the sum of its individual parts” has much relevance to the topic of organic agriculture’s contribution to achieving the MDGs.

Goal 1. Eradicate extreme poverty and hunger

Around 850 million people continue to suffer from hunger and more than 1 billion still live on less than 1 dollar a day. Starvation during famines and disasters, however, represent only 10% of the world’s hungry. The remaining 90% are chronically undernourished. Chronic undernourishment results in underweight and stunted children—as well as high child mortality brought about by associated diseases (UN MILLENNIUM PROJECT, 2005).

There is some reluctance to the idea that organic agriculture could play an important role in alleviating these problems and helping to feed the world. Often, the reluctance has arisen from popular misconceptions about organic farming. For example, many doubts are rooted in the experiences of the north - where the conversion period to organic almost invariably leads to a temporary decline in yields- at least in the early years (IFOAM, 2006).

Despite these concerns, studies have shown that, in the long term, organic agricultural methods can work to increase farmer’s yields. In some cases, organic methods have actually doubled crop yields per hectare for the involved farmers (SCIALABBA & HATTAM, 2002) thus further reducing

poverty and hunger pressures. Higher yields from organic agriculture not only bring higher incomes, also less investment in input on the farm adds to the economic return to the farm. Certified organic products also bring premium prices. All in all, it has been observed that small-holder farmers increase their income after the conversion period from 30-200% (ONDURU ET AL., 2002; PARROT ET AL., 2006).

Increased yields and economic return to the farm are not the only benefits of taking up organic methods. Having a larger variety of crops and adding new productive elements to the farm spreads the risk for crop failure, and investment in knowledge instead of synthetic fertilizers and pesticides builds up the farmer's own possibilities to continuously improve farm management.

Systems that depend upon sustainable use of locally available natural resources and farmers knowledge are far more likely to meet the needs and aspirations of resource poor farmers than those which requires costly or scarce external inputs (PARROTT ET AL. IN HALBERG ET AL. 2006)

In addition, for subsistence farms, non-certified organic farming can play a major role introducing a larger variety of crops, leading to a more staple and diversified outcome and a better diet, where surplus can benefit local access to quality food.

Goal 2. Achieve universal primary education

There is an indirect relationship between organic agriculture and education. When farmers practicing organic agriculture sell their products and get higher yields and incomes (price premium), this extra income is often used to school girls. As a result, the degree of female illiteracy can be reduced in small farmer communities that practice organic agriculture.

Educational opportunities for women, in turn, often lead to an improvement of both the status and incomes of women (MADELEY, 2002). It has been shown that education better equips women to participate in activities that improve agricultural productivity and their economic and social status within the household and the community. In fact, farm yields rise around 22% when women receive the same education as men (IFAD, 2001).

Educational opportunities for women can also play an important role in promoting the health of future generations. Around 43% of the reduction in child malnutrition in developing countries (period 1970 to 1995) is directly related to education received by women (SMITH & HADDAD 2000). The effects of improved education for girls are reflected in the welfare of the next generation: each added year of schooling for a mother results in a 5–10% decrease in child mortality among her children (WFP 2001).

Finally, although organic agriculture is not widely considered to be education in its traditional sense, it nevertheless provides a form of education to those who practice it. Organic farmers must acquire knowledge on key issues that are relevant to organic agriculture, for example, ecosystems, human health, soil-plant interactions and pest management. Moreover, organic farmers may transfer this knowledge to other farmers. In other words, organic agriculture is an important and useful form of education because it enhances knowledge of the local environment, constitutes a learning-by-doing process, and creates a farmer-to-farmer knowledge exchange.

Goal 3. Promote gender equality and empower women

The ancient African proverb “without women we all go hungry” reveals the importance of women in agriculture. They supply much of the labor for agricultural production and perform many activities key to the household economy. In fact, women produce more than half the food in Latin America and South Asia (HAYZER 2003) and 80% in Africa (FAO 1997). Although women work twice as long as men do, there is a real and apparent gender bias with few policies oriented to correct the situation.

Fortunately, many women around the world are taking a leading role in the development of organic (IFOAM, 2006), which has an impact on their empowerment. At the production scale, practicing organic agriculture results in more diversified plots and crops. The diversity calls for women to play a more diverse role in the household economy and to perform tasks of more responsibility (for example taking care of nursing fields, seed-beds, etc.). The added responsibility increases their self-esteem and decision-making power, promoting their empowerment within their family and community. Moreover, because organic agriculture requires specific knowledge and specialized skills, women are exposed to more educational and skills development opportunities.

Organic agriculture’s ability to empower women has further beneficial impacts on food security. The empowerment of women is vital for increasing food output and distribution, and raising nutritional values in rural populations. It has been shown that when women have responsibility over resources, such as land and productive resources, they have a greater capacity to optimize their use, increasing food production and enhancing the nutritional health of their families (MADELEY, 2002).

Goal 4. Reduce child mortality

The death rate from disease among undernourished children is much higher than among those better nourished (FAO 2001). The most vulnerable cohort that faces increased risk of mortality are undernourished children under two and children born with low birth-weight. Of the nearly 12 million children under age five who died in 1995, about 70% were affected by one or more of just four conditions: malaria, acute respiratory infections, undernutrition, and diarrhea (UN MILLENNIUM PROJECT, 2005).

Organic agriculture provides a pathway directed to reduce both child malnutrition and mortality. Since the organic farming system is more diversified than conventional farming systems, children have access to more diversified diets, thus providing them with mostly all nutrients and oligo-elements necessary for their growth (AUBERT & LECLERC 2003). Moreover, the avoidance of pesticide or herbicide use reduces the risk for health-related problems that might affect child survival, especially during their first two years.

Goal 5. Improve maternal health

Many low-income women have been malnourished from childhood. They tend to marry early, typically having their first child in adolescence, and have closely spaced births. Often, malnourished girls become malnourished mothers and give birth to low birth-weight babies (less than 2.5 kilograms at birth) who fail to thrive as infants. Once the children pass 18 to 24 months, the opportunities for them to catch up are highly reduced (UN MILLENNIUM PROJECT, 2005).

Women are more vulnerable than men to malnutrition, and they require a higher intake of proteins and vitamins (FAO, 2001). Organic agriculture helps reduce maternal mortality by promoting consumption of better quality and more diversified food. In fact, the food and products derived from organic agriculture have higher iron (Fe), magnesium (Mg), and vitamin C contents, higher quality proteins in cereals, and greater contents of unsaturated oils (AUBERT & LECLERC, 2003). Although there is still a lack of studies on the subject, some increasing evidence has also shown that organic food may prevent the apparition of some diseases and therefore have an important role in health. For example, polyphenols, carotenes, glucosilates, and terpenes have been detected to be 19-50% higher in fruits and vegetables from organic farming than in those of conventional agriculture (ADAMI ET AL. 2003).

Access to safe drinking water is also important for improving maternal health. Households dependent on well or surface water for drinking are more likely to have increased prevalence of underweight children because the water is more likely to be contaminated (FAO 2001). In much of the world, water contamination results from conventional agricultural practices that leach synthetic fertilizers and pesticides into water systems. According to WHO, in the developing world, a minimum of 40,000 people die annually from ingesting pesticides, either on their food or in their water, and a further 3-4 million are severely poisoned in the developing world. The estimation would be far greater if taking into account that many of the rural poor might not be treated in hospitals. Because organic agriculture does not allow the use of synthetics, it can prevent some health problems arising from water contamination.

Goal 6. Combat HIV/AIDS, malaria and other diseases

Since 1985 some seven million people have died of HIV/AIDS in 27 African countries (MADELEY 2002). As for malaria, according to WHO there are almost 300 million acute cases each year, causing more than a million deaths annually. Some 90% of the burden falls on tropical Africa, where malaria is a major cause of mortality and morbidity in children under five years of age.

The consequences of these illnesses have serious consequences for agriculture and food security. HIV/AIDS in particular, reduces the number of males able to work in agriculture. As the illness progresses and eventually causes death, the productivity of the household economy declines, thus feeding the spiral of hunger and poverty (MADELEY, 2002).

Improved nutrition and diets have the potential to prolong the asymptomatic phase of HIV infection (WHO 2003). Good nutrition enhances the immune system and reduces both HIV/AIDS transmission and prenatal mortality caused by a range of diseases. Some studies, for example, have shown that when micro-nutrients are given to HIV/AIDS infected women, their health and the health of their children are improved (KUMWENDA ET AL. 2002; FAWZI 2003).

Therefore, the same reasoning in favor of organic agriculture given for goals 4 and 5 apply here. Improved and diversified diets permitted by organic agriculture have a positive impact in preventing and reducing illness and helping to cure some diseases (PIWOZ & PREBLE, 2000; ROSEGRANT ET AL., 2005).

Goal 7. Ensure environmental sustainability

Mitigation of Environmental Degradation and Global Change

Environmental degradation, especially land degradation processes, cause shortages of food, lower yields, increased incidences of pest and pathogens, soil erosion, loss of fertility, lower forage availability for livestock, and higher dependency on imported staple crops. Environmental degradation, therefore, increases the vulnerability of the poor and the hungry, especially in marginal areas (UN MILLENNIUM PROJECT, 2005).

Other global changes, most notably climate change, are also expected to have serious implications for the poor. Climate change is predicted to cause an increase of strong rainfall events with subsequent flooding and erosion of the most fertile topsoil layer, which fosters desertification.

In other regions, climate change may make areas that were previously unproductive productive. At the same time, however, the social and economic costs and consequences for poor people will cause other problems, for example, regional armed conflicts over natural resources, such as water. (UN MILLENNIUM PROJECT, 2005).

Organic agriculture can play a role in mitigating the impacts of land degradation and global change. Organic agriculture increases the resilience and stability of the production system, thus decreasing the vulnerability of small farmers to natural disasters and others disturbances (ALTIERI, 2002). For example, after Hurricane Mitch hit the lands of Central America, farmers who used traditional cropping methods suffered less damage than their neighbors who used conventional techniques. The sustainable plots had on average more topsoil, greater soil moisture, and less erosion, and experienced less economic losses (HOLT-GIMÉNEZ, 2002).

In addition to mitigating the effects of global change, organic agriculture also directly ensures environmental sustainability. The environmental benefits of organic agriculture has been widely documented and include the provision of ecosystem services, preservation of biodiversity, lower resource use, environmental protection, landscape values, and reduced energy use (Box 1) (HANSEN ET AL., 2000; STOLZE ET AL., 2000; SCIALABBA & HATTAM, 2002; DABBERT ET AL., 2004).

Box 1. Organic Agriculture and energy consumption

“Organic farming approaches for maize and beans in the US not only use an average of 30% less fossil energy but also conserve more water in the soil, induce less erosion, maintain soil quality and conserve more biological resources than conventional farming does” (D. Pimentel, Food production daily, July 15, 2005).

Provision of Ecosystem Services

More specifically, organic agriculture promotes a number of ecological functions and ecosystem services, (for example, nutrient cycling, organic matter dynamics, maintenance of soil structure (thus reducing soil erosion problems), suppression of soil-borne pests due to higher diversity (and therefore predators) and pathogens, and mitigation of CO₂ emissions (Box 2). The benefits of these ecosystem services reach far beyond the individual farm. For example, since organic agriculture reduces water contamination, organic farmers upstream bring positive externalities to people and communities located downstream.

Protection of Biodiversity

Organic agriculture also contributes to ensuring biodiversity, as it favors the development of a diverse and active community of organisms above and below ground. Biodiversity in organic farms also include weeds and pests. These are generally controlled through manual or mechanized removal (e.g., by hoeing or harrowing), crop rotation, inter-cropping (LIEBMAN, 1995), using plants as antagonists, relying on wild or domesticated animals to consume unwanted species (ALTIERI, 1999), and rotational grazing to prevent infestation and contagion. These practices limit the impact of pest outbreaks and the resulting loss of production. The contribution of natural predators like spiders and carabid beetles also helps reduce and mitigate the incidence and damage of insect pest-related problems (Box 3). The multitude of small organisms associated with organic production systems, from pollinators to beneficial predators and soil organisms have been shown to contribute positively to many important ecological processes (LAVELLE & SPAIN, 2001). Soils, for example, contain a great diversity of living organisms assembled in complex communities (WARDLE, 2002) –ranging from the myriad of invisible microbes, bacteria and fungi to the more familiar macro-fauna such as earthworms.

Box 2. Global warming and mitigation of CO₂ emissions with organic agriculture

Organic matter in soils is decomposed under aerobic and anaerobic environments and carbon (C) is returned to the atmosphere as CO₂ and CH₄, respectively. In soils under conventional agricultural practices, 50 Pg (1015 g) of C in the soil has already been released as CO₂ into the atmosphere (Paustian et al., 1997). A 10% reduction in the C pool in the soil and its emission into the atmosphere equals a 30-year period of the anthropogenic emissions of CO₂ by fossil fuel (Kirschbaum, 2000). Organic agriculture can contribute directly and indirectly to reduce CO₂ emissions and mitigate the negative consequences of climate change by preserving soil resources due to reduced tillage, increased surface residues (thus reducing soil erosion and C losses) that will be later incorporated through the combined action of soil invertebrates and soil micro-organisms (fungi and bacteria) and therefore reduced mineralization of organic matter.

A significant proportion of agricultural genetic diversity or local breeds remain in the hands and care of pastoral peoples, and traditional livestock owners in developing countries. Through seed saving, women are also a key component in preserving the “genetic resources” of local varieties. Unfortunately, every week, two local breeds become extinct (FAO, 2003). A reduced diversity in terms of plant breeds or varieties can result in drastically negative consequences for farmers.

Box 3. Biodiversity and organic agriculture

Organic agriculture is a positive step toward reducing the threat that conventional agriculture exerts on biodiversity, since its precepts dictate working in harmony with the biodiversity of the farm and the surrounding areas (Scialabba et al. 2002). Organic farmers in China and India expressed their satisfaction noticing the significant increase in local fauna and that more amphibians, reptiles, and birds were helping to control local pests. Bartram and Perkins (2003) also coincide after reviewing 33 published studies on the differences between organic and conventional farming systems biodiversity. Organic methods are known to control and reduce soil erosion. Organic agriculture bundles both a product and an environmental service, and when organic products are sold at a premium, they create and pay for farmers to conserve natural resources and biodiversity.

For example, in Andhra Pradesh (India), farmers following conventional agricultural practices planted large areas with only one single cotton hybrid after promises of higher yields and income returns. This hybrid resulted more susceptible to pest attacks, and farmers who faced with uncontrolled pest outbreaks and unaffordable loans committed suicide by drinking the insecticide intended for their cotton fields (RSBP 2001, op. cit. in MADELEY 2002).

Fortunately, organic agriculture encourages the conservation and expansion of traditional, locally bred, indigenous varieties and breeds. In organic agriculture, genetic diversity is a basic insurance against crop and livestock pest outbreaks and diseases. It can thus play a role in ensuring genetic diversity.

Goal 8. Develop a global partnership for development

Properly functioning markets are critical in ensuring that people are able to earn an income, obtain the inputs they need to raise crop yields, and sell their produce at fair prices (UN MILLENNIUM PROJECT, 2005). Fortunately, organic agriculture provides farmers in developing countries with markets for trade and sustainable development opportunities (UNCTAD, 2006). In fact, many developing countries have already taken advantage of organic export opportunities, with 80-85% of organic produce allocated to exportation channels (UNCTAD, 2006). Although, systematic data on international trade in organic products is limited (UNCTAD, 2006), the size of the world certified organic agriculture market is estimated to be in the range of US \$23-25 billion (UNCTAD/WTO data), with a yearly market growth of 5-20%. The consumer demand for organic products is on the rise and major food retailers have introduced organic products.

In order to sell their products in organic markets, organic farmers need to produce to the standard of and be certified by the particular certifying bodies whose labels have consumer confidence and recognition in that market. In doing so, organic farmers gain experience in the certification process and access to domestic and global markets. A particular example related to verification of organic produce is the Participatory Guarantee Systems (PGS), which not only guarantees the credibility of the organic product, but is linked to local and alternative marketing approaches. There are many PGSs that serve farmers and consumers throughout the world and subscribe to the same ideals that guided the first pioneering organic farmers. Although a different approach is used, a PGS shares a common goal with a third-party certification system; it provides a credible guarantee for consumers seeking organic produce. The direct participation of farmers and even consumers in the process is not only encouraged but required (IFOAM, 2005b).

SUMMING UP

The contributions of organic agriculture to achieving the MDGs are both direct and indirect, and cover social, economic, human and environmental dimensions.

MDG No	Millennium Development Goal	Key Contributions to Organic Agriculture (direct and indirect)
1	Eradicate extreme poverty and hunger	Increased yields (productivity increase) in low-input areas, higher incomes (premium prices), diverse and nutritious diets from organic products, food insecurity problems reduced, hunger pressure reduced, lower costs (for inputs)
2	Achieve universal primary education	Better livelihoods, more self-confidence, extra income used to school children (especially girls), increases in attendance and levels of education, organic agricultural practices foster knowledge of local environment, learning-by-doing processes, and farmer-to-farmer knowledge exchange
3	Promote gender equality and empower women	Active and diversified role of women, increased responsibilities and decision-making for women, more self-confidence in women, community participation and rural development promoted, marginalized groups favored (also reducing migration to cities and the number of slum dwellers in city suburbs)
4	Reduce child mortality	Healthier and safer food (elimination or less exposure to toxic pesticides), improved livelihoods, diversified diets, quality of community health improved
5	Improve maternal health	Healthier and safer food, care of children improved, quality of community health improved, health problems reduced (reduced exposure to chemicals and pesticides)
6	Combat HIV/AIDS, malaria and other diseases	Healthier and safer food, strengthening of the immune system, increase in protection of human health

MDG No	Millennium Development Goal	Key Contributions to Organic Agriculture (direct and indirect)
7	Ensure environmental sustainability	Increases in biodiversity and genetic diversity, improved sustainability and resilience of the system, build-up of soil fertility, decrease in soil degradation (erosion), natural resource management improved, water-use demand optimized, water run-off and soil erosion reduced, positive externalities and ecosystem services enhanced (PES), water contamination reduced, farmers as guardians of unique breeds, traditional and indigenous knowledge preserved
8	Develop a global partnership for development	Fostering collaboration between government and organic agriculture agencies and institutions, effectiveness of stakeholders involvement, participatory guarantee systems (IFOAM), capacity-building at the farmer level, reliable institutional support systems, business and marketing skills developed, responsible and fair trade, increased awareness about organic produce in farmers and consumers (PGS)

THE HOLISTIC VISION OF ORGANIC AGRICULTURE

Organic agriculture integrates well a number of important issues through its holistic vision and systemic approach, addressing simultaneously a range of economic, social, political and environmental issues. As such, organic agriculture offers solutions, both direct and indirect, to achieving the often intertwined MDGs. For example, when crop diversity is increased, both women and men have more diversified and equal roles. As a result, women are empowered and self-confident, and are therefore more likely to attain education and send their children to school. The more diversified diets bring better nutrition and reduce the risk of mortality and illness for themselves and their children. A higher diversity of organic food consumption results in better management of childhood illnesses, thus contributing to a reduction in child mortality (ROSEGRANT ET AL., 2005).

Organic agriculture not only provides benefits at the individual farm scale, but also at higher scales. For example, at the community level it promotes erosion control, reduces surface runoff, increases soil fertility and biodiversity, and reduces the use of toxic chemicals. It provides downstream communities with a cleaner, healthier and more-abundant water supply and neighboring communities with all the advantages of a healthier, less-polluted environment (including positive externalities and ecosystem services). This is not only an improvement for human health, but also for the fauna and flora associated with the on-farm and off-farm environment.

MDGs AND ORGANIC AGRICULTURE – SOME EXAMPLES FROM THE FIELD

The relationship between organic agriculture and MDGs may differ locally. Significant improvements will be detected in one or several objectives, while in other cases slight or no significant changes will be obtained. Therefore, there will be trade-offs between promoting organic agriculture and the different MDGs, either focusing on poverty reduction, improvement of health, environmental sustainability, and market relationships and financial issues. Some recent examples from the field with a focus on the MDGs are included below.

Organic agriculture in Vietnam

In some areas of Vietnam peasant communities are settled in desert sands along the sea coast, and desert hilly land and submerged water lands in the river deltas. These peasants are poor and have to cope with the harsh natural conditions. These fragile ecosystems are the fundamental causes of poverty, maternal and child malnutrition, and lack of jobs for women. The problem of the unfavorable environment is addressed by practicing organic agriculture, which leads to a substantial increase in job opportunities for women and higher incomes for their households. Women are also responsible for the education of their children. Therefore, organic agriculture has resulted in the reduction of hunger in the area, an improvement in gender equality, and has ensured environmental sustainability (Van Troung, EEI, pers. comm.)

Organic agriculture and market incentive processes in China, Sri Lanka and East Africa

In China, market-incentive processes have been the general catalyst for farmers converting to organic. Small farmers are often encouraged by export trade companies to convert to organic in order to take advantage of premium market prices on certain crops (e.g. tea). Farmers expand the land allocated to traditional methods of cultivation (organic), thus improving the environmental sustainability of the region (HALBERG ET AL. 2006). This example highlights a clear and direct relationship between market incentive processes and environmental sustainability.

In Sri Lanka, farmers have obtained higher incomes from conversion to organic agriculture. This has allowed them to increase the amount of schooling for their children. This, in combination with diversified diets based on homegrown food, has also led to improved health of the community (HALBERG ET AL. 2006).

In Uganda and Tanzania, organic producers sell their products with prices 30-200% higher than conventional producers (FORSS, K. & M. LUNDSTRÖM, 2004). The benefits of organic agriculture for Africa are numerous (Box 4), from increasing yields and conserving water in semi-arid areas and combating desertification, to debt reduction for farmers, strengthening of social systems and maximization of environmental services.

Box 4. MDGs, Organic Agriculture and Africa

“The ecological, social and economic benefits of organic agriculture for the people of Africa are many. We hope that governments and intergovernmental agencies, particularly the United Nations, will also recognize organic agriculture’s potential for Africa and make the necessary investment. Organic agriculture is an agricultural system that can make positive and permanent changes on a human scale, utilizing resources effectively.” (Gerald A. Herrmann, IFOAM President).

Organic urban gardens in Cuba

In Cuba, many of the daily foods people eat are grown in intensive organic gardens derived from thousands of poor and under-utilized areas, mainly around Havana. Intensive organic gardens have been developed in urban areas since the early 1990s to combat shortage of food in the cities due to the lack of fuel to transport food from rural areas. Nowadays, there are more than 7,000 urban gardens that produce sufficient fruits and vegetables for all Cubans. The productivity of the city has increased from 1.5 kg/m² to nearly 20 kg/m², thousands of jobs have been created, and pests are effectively managed due to the area’s incredibly high amounts of biodiversity and natural predators (ALTIERI ET AL., 1999).

CONCLUSIONS AND RECOMMENDATIONS

In summary, although more in-depth studies and projects need to be conducted, it is clear that organic agriculture positively contributes, either directly or indirectly, to achieving the MDGs. More specifically, it contributes directly to the MDGs of food security and hunger reduction (MDG 1), empowerment of women (MDG 3), improved health (MDG 4, 5, 6) environmental sustainability (MDG 7) and economic development (MDG 8). Indirectly, organic agriculture contributes to education (MDG 2), both formal and informal, either because children will go to school or because they will learn more about their resources and the environment they are living in.

Of course, the effects of organic agriculture on the MDGs will also depend on the scale that is considered. For small poor farmers, organic is an effective risk management tool that reduces input costs, diversifies production, and improves local food security (MDG 1). For rural communities, it provides improved incomes, better resource management (MDG 7), and more labor opportunities, thus reducing the number of possible slum dwellers in the city suburbs. Organic agriculture also reduces environmental contamination (MDG 7) in communities through the elimination of chemical inputs, and minimizes the public health costs of pesticide poisoning thus allowing medical attention to be diverted to other health issues (MDG 6) (IFAD, 2005).

With the increasing evidence and awareness of the advantages of organic agriculture and its contribution to the MDGs, a number of measures can be adopted to encourage organic agriculture on a wider scale. The following recommendations are provided for governments to enhance organic agriculture's impact on achieving the MDGs:

- Include OA in economic development plans
- Include OA in national poverty reduction programs
- Include OA in overall programs of environmental protection and sustainable natural resource management
- Issue policies for the promotion and development of OA in cooperation with private sector
- Assist in developing "value added products" at farm and community levels
- Assist in developing innovative and adequate marketing strategies to avoid marginalization of small producers
- Assist private sector in maintaining the organic integrity through standards and certification, which meet the needs of the market, but are adequate to the needs and means of the organic producers
- Promote and increase investment and research in organic agriculture projects at different scales, from local to regional
- Provide financial support and incentives to farmers growing organic produce, especially in the initial conversion period
- Facilitate accessibility of farmers to loans and credits
- Favor policies that implement adoption and scaling-up of organic agriculture
- Establish policies that favor diversification

- Develop regional organic standards that are transparent, easily understandable, and harmonized with importing countries
- Develop local food markets on organic produce
- Raise consumer awareness about the benefits of organic agriculture and sustainable consumption.
- Implement policies that favor organic foods in the diets of children at school
- Encourage farmer-to-farmer exchange and participatory approaches in organic farming through local farmer associations.
- Create organic agriculture farmers' organizations, including women, with public and private support
- Support policies for gender bias reduction and women empowerment
- Promote and support training of local leaders in organic agriculture
- Support and invest in the creation of data bases and technical information on organic farming accessible to farmers
- Eliminate barriers and difficulties faced by farmers and producers in distribution channels of organic produce
- Establish mechanisms of additional income through PES program due to provision of positive externalities at the off-farm level
- Protect the rights of farmers as unique guardians of local breeds and avoid privatization of genetic resources

A conceptual framework and a list of possible indicators of achievement to evaluate the contribution of organic agriculture to the MDGs must also be further elaborated.

The Organic Agriculture MDGs

Formulated here are the "Organic Agriculture MDGs" intended to provide governments with plausible goals for organic agriculture that would make a significant contribution to reaching the MDGs. It is hoped that they will widen the horizon of the current MDGs, and provide a perspective on what organic agriculture may imply.

1. Increase the proportion of organic food in diets by 2015
2. Human induced soil erosion to be halted by 2015
3. Increase biodiversity, ecosystem health, and resilience by 2015
4. Increase the creation and maintenance of diverse market channels for small farmers to deliver organic products by 2015
5. Increase and support the active role of women in organic agriculture by 2015
6. Increase the proportion of economically and socially just relationships among organic agriculture stakeholders by 2015
7. Promote organic extension services, including training
8. Strengthen financial issues favoring the adoption of organic agriculture

REFERENCES

- ALTIERI, M.** (1999). The ecological role of biodiversity in agroecosystems. *Agriculture, Ecosystems, Environment*, 74: 19-31.
- ALTIERI, M.** (2002). Non-certified organic agriculture in developing countries. In N. Scialabba and C. Hattam (Eds.) *Organic Agriculture, Environment and Food Security. Environment and Natural Resources Series No. 4*. Rome: Food and Agriculture Organization of the United Nations. pp. 107-138.
- ASAMI, D.K., Y.J. HONG, D. M. BARRETT & A. E. MITCHELL** (2003). Comparison of the total phenolic and ascorbic acid content of freeze-dried and air-dried marionberry, strawberry and corn grown using conventional, organic and sustainable agricultural practices. *J. Agric. Food. Chem.* 51(5) : 1237-1241.
- AUBERT, C & B. LECLERC** (2003). *Bio, raisonnée, OGM. Quelle agriculture dans notre assiette? Terre vivante, L'écologie pratique*, INRA, Mens, France, 128 p.
- BARTRAM, H. & A. PERKINS** (2003). The Biodiversity Benefits of Organic Farming. *Proceedings of the OECD Workshop on Organic Agriculture*, September 2002. Paris, OECD.
- DABBERT, S., A.M. HÄRING, & R. ZANOLI** (2004). *Organic Farming: Policies and Prospects*. Zed Books, London & New York.
- EJF** (2003). *What's your poison? Health Threats Posed by Pesticides in Developing Countries*. Environmental Justice Foundation, London, UK. 28 pages
- FAO** (2001). *The State of Food Insecurity in the World: 2001*. Rome.
- FAO, IFAD, WFP** (2005). Millennium Development Goal No. 1. Eradication of poverty and hunger. Background paper for the High-level Dialogue on Financing for Development and the ECOSOC High-Level Segment Roundtable Dialogue on the Eradication of Poverty and Hunger. New York, 27 June – 1 July 2005. 10 pages.
- FAWZI, W.W.** (2003). Micronutrients and Human Immunodeficiency Virus Type 1 Disease Progression among Adults and Children. *Clinical Infectious Diseases* 37(2): 112–116.
- FORSS, K. & M. LUNDSTRÖM** (2004) An evaluation of the program “Export Promotion of Organic Products from Africa”, phase II. Final report. Swedish International Development Cooperation Agency, Sida. 54 pages.
- HALBERG, N., ALRØE, H.F., KNUDSEN M.T. AND KRISTENSEN E.S** (2006) *Global Development of Organic Agriculture: Challenges and Prospects*. CAB international.

- HALBERG, N., S. SETBOONSARNG, Q. YUHUI, & S. VAHEESAN** (2006). International Experiences on Organic Agriculture and MDG's. Preliminary findings from Asian Development Bank Study in Asia (Draft).
- HANSEN, B., E.S. KRISTENSEN, R. GRANT, H. HØGH-JENSEN, S.E. SIMMELSGAARD & J.E. OLESEN** (2000). Nitrogen leaching from conventional versus organic farming systems - a systems modelling approach. *European Journal of Agronomy* 13:65-82.
- HEYWOOD, V.H. & I. BASTE** (1995). Introduction. In: V.H. Heywood. (Ed.), *Global biodiversity assessment*. Cambridge University Press, Cambridge, U.K. pp. 1-19.
- HOLT-GIMÉNEZ, E.** 2002. Measuring farmers' agroecological resistance after Hurricane Mitch in Nicaragua: a case study in participatory, sustainable land management impact monitoring. *Agriculture Ecosystems and Environment* 93:87-105.
- IFAD** (2001). *Rural Poverty Report: The Challenge of Ending Rural Poverty*. Rome.
- IFAD** (2003). *The Adoption of Organic Agriculture Among Small Farmers in Latin America and the Caribbean Thematic Evaluation*. Report no. 1337. Rome.
- IFAD** (2005). *Organic Agriculture and Poverty Reduction in Asia: China and India focus*. Report no. 1664. Rome.
- IFOAM** (2005). *The IFOAM Norms for Organic Production and Processing*. IFOAM, Bonn.
- IFOAM** (2005a). *The I-GO Program*. http://www.ifoam.org/partners/projects/i-go/i-go_goal4.html
- IFOAM** (2005b). *Participatory Guarantee Systems. Case studies from Brazil, India, New Zealand, USA*. IFOAM, Bonn. 55 pages.
- IFOAM** (2006). *Organic Agriculture and Food Security. Dossier*. Bonn. 40 pages.
- IPCC** (2001). In: Houghton, J. T., Ding, Y., Griggs, D. J., Noguer, M., van der Linden, P. J., Dai, X., Maskell, K., and Johnson, C. A. (Eds.) *Climate Change 2001. The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, 881pp.
- KUMWENDA, N., P.G. MIOTTI, E. TAHA, R. BROADHEAD, R.J. BIGGAR, J.B. JACKSON, G. MELIKIAN & R. D. SEMBA.** (2002). Antenatal Vitamin A Supplementation Increases Birth Weight and Decreases Anemia among Infants Born to Human Immunodeficiency Virus-Infected Women in Malawi. *Clinical Infectious Diseases* 35(5): 618-24.
- LAMPKIN, N., C. FOSTER, S. PADEL & P. MIDMORE** (1999) *The Policy and Regulatory Environment for Organic farming in Europe*. In Dabbert et al (Eds.) *Organic Farming in Europe: Economics and Policy* Vol. 2. Stuttgart-Hohenheim University.

- LAVELLE, P & A. V. SPAIN** (2001). *Soil Ecology*. Kluwer Academic Publishers, Dordrecht, The Netherlands. 688 pages.
- LIEBMAN, M.** (1995). Polyculture cropping systems. In: Altieri, M. A. (Ed.). *Agroecology: the science of sustainable agriculture*. Westview Press, Boulder, Colorado, USA. pp 205-218.
- MADELEY, J.** (2002). *Food for all. The need for a new agriculture. Global issues in a changing world*. The University Press Ltd, Dhaka. 191 pages.
- ONDURU, D.D, J. M. DIOP, E. VAN DER WERF & A. DE JAGER** (2002). Participatory on-farm comparative assessment of organic and conventional farmers' practices in Kenya. *Biological Agriculture and Horticulture* 19: 295-314.
- PARROT, N., J. E. OLESEN, & H. HØGH-JENSEN** (2006). Certified and non-certified organic farming in the Developing World. In: Halberg N, Knudsen MT, Alrøe HF and Kristensen ES (Eds) *Global Development of Organic Agriculture: Challenges and Prospects*. CABI publishing. Chp 6. 153-176. Available on-line at: <http://ecowiki.org/GlobalPerspective/ReportOutline>
- PAUSTIAN, K., O. ANDREN, H.H. JANZEN, R. LAL, P. SMITH, G. TIAN, H. TIESSEN, M. VAN NOORDWIJK, M., & P.L. WOOMER.** (1997). Agricultural soils as a sink to mitigate CO₂ emissions. *Soil Use Manage.* 13: 230-244.
- PIWOZ, E. & E. PREBEL** (2000). *HIV/AIDS and nutrition: a review of the literature and recommendations for nutritional care and support in sub-Saharan Africa*. United States Agency for International Development (USAID), Washington, DC.
- PRETTY, J.** (2002) Lessons from certified and non-certified organic projects in developing countries. In N. Scialabba and C. Hattam (Eds.) *Organic Agriculture, Environment and Food Security*. Environment and Natural Resources Series No. 4. Rome: Food and Agriculture Organization of the United Nations. pp. 139-162.
- ROSEGRANT, M. W., C. RINGLER, T. BENSON, D. XINSHEN, D. RESNICK, THURLOW, J., M. TORERO & D. ORDEN** (2005). *Agriculture and achieving the Millennium Development Goals*. World Bank. Agriculture and Rural Development Department. International Food Policy Research Institute (IFPRI), Washington, D.C. 93 pages.
- SCIALABBA, N., C. GRANDI & C. HENATSCH** (2002). Organic Agriculture and Genetic Resources for Food and Agriculture. In: *Biodiversity and the Ecosystem Approach in Agriculture Forestry and Fisheries* Proceedings of satellite event to the 9th Regular Session of the Commission on Genetic Resources for Food and Agriculture. Rome: FAO Inter-Departmental Working Group on Biological Diversity for Food and Agriculture.
- SMITH, L., & L. HADDAD** (2000). "Overcoming Child Malnutrition in Developing Countries: Past Achievements and Future Choices." *Food, Agriculture and the Environment Discussion Paper 30*. International Food Policy Research Institute, Washington, D.C.

REFERENCES

- STOLZE, M., A. PIORR, A. HÄRING, & S. DABBERT** (2000). The environmental impact of organic farming in Europe. *Organic Farming in Europe: Economics and Policy*, vol. 6. University of Hohenheim, Germany.
- UN MILLENNIUM PROJECT** (2005). *Halving Hunger: It Can Be Done*. Sánchez, P., (Eds.) Task Force on Hunger. Earthscan, UK. 245 pages.
- UNCTAD** (2006). *Trade and Environment Review 2006. Environmental requirements and market access for developing countries: Developing pro-active approaches and strategies*. United Nations Publication, NY. 275 p.
- WARDLE, D.** (2002). *Communities and Ecosystems. Linking the aboveground and belowground components*. Princeton University Press, Princeton, NJ. 392 p.
- WFP** (2001). *School Feeding Works: An Annotated Biography*. Rome.
- WHO** (2003). *Nutrient Requirements for People Living with HIV/AIDS: Report of a Technical Consultation*. Geneva.

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OUR GOAL IS THE WORLDWIDE ADOPTION
OF ECOLOGICALLY, SOCIALLY AND
ECONOMICALLY SOUND SYSTEMS THAT
ARE BASED ON THE PRINCIPLES OF
ORGANIC AGRICULTURE.



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