The Impact of Organic Agriculture on Poverty Reduction

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Abstract

Organic agriculture has become globalized and gained positive views due to its potential to reduce poverty in developing countries in comparison to conventional or industrial agriculture that relies on chemicals and purchased seeds. In particular, the role of IOs, NGOs, and governments in developing countries was important to develop the well-structured organic agriculture in developing countries because of their active assistance to strengthen productivity, promote Research and Development, provide global market access, increase certification of organic products, provide training and education, and monitor the progress of organic agriculture. Three cases studies in China, India, and Uganda show how poor farmers were able to develop the well-structured organic agriculture and succeeded in improving their economic stability, a essential element for poverty reduction, with the strong commitment from the IOs, NGOs, and governments in developing countries. My conclusion is IOs, NGOs, and governments in developing countries should strengthen their long-term commitment to the sustainability of organic agriculture in developing countries.

Keyword: organic agriculture, developing countries, international trade, poverty reduction, price premiums, China, India, Uganda

Abbreviations

APEDA	Agricultural and Processed Food Products Export Development Authority
EPOPA	Export Promotion of Organic Products from Africa
FAO	Food and Agriculture Organization of the United Nations
IFAD	International Fund for Agriculture Development
IFOAM	International Federation of Organic Agriculture Movement
ITC	International Trade Centre
NOGAMU	National Organic Agricultural Movement of Uganda
SKAL	Inspection and Certification Body for Organic Production in the Netherlands
SOA	Society for Organic Agriculture
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Program

The Introduction:

"How successful is organic agriculture on long-term reduction of poverty in developing countries?" Organic agriculture has gained the attention increasingly and recently because of its potentials as a tool for poverty reduction in developing countries. However, a traditional, but negative view about organic agriculture is still prevalent. Mark Bittman, an American food journalist and weekly columnist for the *New York Times* said "the oldest and most common dig against organic agriculture is that it cannot feed the world's citizens" (2011). This implies that people don't believe investing in organic agriculture is not worthy to improve productivity.

In addition to critiques, misconceptions about organic agriculture still exist: 1) "organic food is too expensive" 2) "people can't afford organic products, so promoting them will reduce fruit and vegetable consumption, which are healthy, but expensive when organic" 3) "the organic movement is exacerbating the growing gap between rich and poor by contributing to a two-tiered national food supply, with healthy food for the rich and unhealthy food for the poor" (International Federation of Organic Agriculture Movement [IFOAM] (3), 2008). Therefore, misconceptions had led to intensify negative views about organic agriculture.

Despite the critiques and misconceptions, IOs, NGOs, and governments in developing countries have recognized and emphasized the positive impact of organic agriculture in reducing poverty in developing countries. For instance, "slowly but surely, governments, as well as development cooperatives, are recognizing the contributions that organic agriculture can make to environmental, health, bio-diversity and food security issues" (Mella, Kulinndwa, Shechambo, and Mesaki, 2007). In addition, the United Nations Conference on Trade and Development (UNCTAD) "is interested in organic agriculture because of the many ways in which it can

contribute to trade and sustainable development for developing countries" (Vossenaar and Wynen, 2004).This indicates us how organic agriculture gained popularity and credibility as a tool for poverty reduction, which led IOs, NGOs, and government in developing countries to increase their support to the development of organic agriculture in developing countries.

Olivier de Schutter, the United Nations' special rapporteur on the Right to Food Agro-ecology, said that organic agriculture immediately helps "small farmers who must be able to farm in ways that are less expensive and more productive. But it benefits all of us, because it decelerates global warming and ecological destruction" (Bittman, 2011). In terms of environmental impacts, "existing studies show that organic foods generally contain lower levels of nitrates, antibiotics, and pesticide residues and contain more minerals and vitamins and a more balanced protein profile" (IFOAM (3), 2008). Therefore, this indicates that organic agriculture is seen as a positive and successful method for poverty reduction recognized by experts and prestigious international organizations.

With so much international attention and potential for the development of organic agriculture in developing countries, it is important to ask how exactly organic agriculture successfully reduces poverty by establishing long-term economic stability in developing countries. Furthermore, understanding the growth of organic market and agriculture is important to acknowledge its potentials as a tool for poverty reduction in developing countries.

The Overview of Organic Market:

The organic market is one of the fastest growing segments in the world due to increasing competition among developed countries that already have well-developed organic agricultural system and emerging markets and developing countries. Particularly, an increasing number of health and environmental conscious consumers helped the increase in demand for organic food products leading to the rapid growth of the organic food market.

"Many consumers are linking food purchases to greater awareness of health and environmental issues, and responding to new, aggressive organic food promotion campaigns by major retailers" (Olesen, 1999), as "organic foods have also been found to be as safe as conventional products when it comes to heavy metals and pathogenic microorganism" (IFOAM (3), 2008). Furthermore, this brought a positive spillover effect for organic producers, which helped to open "new market opportunities for producers and is leading to a transformation in the organic foods industry, such as transformation of local networks to global networks" (Lau, Constance, and York, 2008) and new product development and packaging innovations that trigger world demand (1999). Therefore, this indicates how increasing number of health and environmental conscious consumers stimulated the growth of organic market.

In terms of the size of global organic market, "between 1998 and 2002, the compound annual growth rate of organic food market was 17.7%. In 2004, the market for organic products was valued at US$27.8 billion, the largest share of organic products being marketed in Europe and North America, followed by Brazil and Middle East" (Setboonsarng, 2006),which indicates the rapid growth of organic market world-widely.

Despite the negative impact of the financial crisis in 2008 in the world economy, the organic market has shown steady growth. Even though growth has slowed from previous years due to the economic slowdown, the global market for organic food & drink has recovered with revenues projected to approach US$60 billion in 2010 which expanded over three-fold from US$18 billion in 2000 (Triple Pundit, 2010). And, the global organic food and beverages market is expected to grow from $57.2 billion in 2010 to $104.5 billion in 2015 (Markets and Markets [M&M], 2011). Regardless of external factors, such as financial crisis, the steady growth of global organic market strengthens the idea that organic agriculture can serve as a tool for economic development for poor farmers in developing countries with the assurance of their economic stability.

Additionally, the growth of international trade in organic market is widespread, that the market for organic food and beverages is growing rapidly in most countries in Western Europe, North America, Japan and Australia, as well as in some developing countries (Olesen, 1999). In terms of developing countries, "Asian organic food market is expected to grow at an estimated compound annual growth rate (CAGR) of 20.6% from 2010 to 2015" (M&M, 2011). Different from previous organic market, which developed countries had advantages to access global market access and revenues because of their advanced technology, expertise, and mature market, developing countries now have better opportunities to increase their market share in global organic market.

Despite the rise of developing countries in global organic market, a large revenue distribution gap still exists between developing and developed countries in the organic agriculture sector. Compared to Europe and Northern America (16% and 1%, respectively)

(Appendix A), Africa and Asia have the largest organic producers (34% and 29%, respectively) (Willer, 2009). However, Europe and North America have the majority of most of global revenues, 51% and 46% for Europe and North America (Appendix B), respectively, which indicates that developing countries receive an extremely small amount of revenue in global organic market in proportion to their number of organic producers.

The domination of developed countries in organic food retail can be interpreted as the main cause of the imbalance in revenues and organic producers between developing and developed countries. Market leaders in organic food retail worldwide consist mainly of the multinational supermarket chains, such as Wal-Mart, Carrefour, Safeway, Tesco, Kroger and Royal Ahold N.V., which are mostly North America and Europe companies (Datamonitor, 2009). Furthermore, developed countries with mature markets, including Austria, Denmark, Finland, Germany, Sweden and Switzerland, have 72-90% of organic sales in supermarkets and other mainstream outlets (Källander and Rundgren, 2008). In particular, the mainstream market accounts for almost half of the total sale of organic products in the U.S. (2008). “In Italy 95% of the supermarkets had organic products in 1999, and all the largest retail chains have launched their own private organic labels” (2008). Therefore, supermarkets and companies from developed countries make most of their revenues from organic products, because of their ability to sell large quantities and variety of organic products easily available for many consumers.

Despite the domination of developed countries over organic food retail, the development of organic agriculture still has a great potential to reduce poverty in developing countries, because the growth of global organic market provided a better opportunity for developing countries to participate part of competition with developed countries. Therefore, the incentives to

the development of organic agriculture can be maximized as poor farmers have business and trading opportunities while improving their economic stability simultaneously.

The Benefits of Organic Agriculture:

The majority of population in developing countries does agriculture as their major economic activity. In Uganda, 85% of the population engaged in agriculture production, contributed to 42% of the national Gross Domestic Product (GDP) and 80% of the exports earnings in 2005-2006 (United Nations Environment Programme [UNEP] (1), 2011). Asia's two largest agricultural producers, China and India, have more than half of the world's farmers and two-thirds of the world's poor people (Giovannucci (1), 2005). Therefore, the development of organic agriculture is essential, because it can bring economic benefits for large population in developing countries, mostly poor farmers.

Contrast to developed countries, developing countries have comparative advantages in terms of their land and environment. "A significant proportion of agricultural land in many developing countries is cultivated by traditional methods, with little or no use of agrochemicals" (Vossenaar and Wynen, 2004). Therefore, the development of organic agriculture would create successful and appropriate economic activity for poor farmers in developing countries, because it is easier and efficient for them to switch to organic agriculture by utilizing comparative advantages, including their less damaged lands and environment.

In addition to their comparative advantages, there are many benefits for developing countries to transform their systems from traditional agriculture[1] to well-structured organic agriculture. Specifically, the IFAD and UNCTAD defined major benefits for development of organic agriculture[2]:

1) **Increased Food Security:** Evidence from UNCTAD research shows that, in developing countries, organic agriculture can outperform conventional and traditional systems in terms of yields, cost-effectiveness and diversity. These benefits make organic agriculture of particular benefit to poor smallholder farmers, who may otherwise be at risk of food insecurity, indebtedness and malnutrition (United Nations Conference on Trade and Development [UNCTAD], 2002).

2) **Environmental Benefits:** organic farming leads to many improvements to the natural environment including, reduced pollution and health risks resulting from agro-chemicals and fertilizers, 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, increased agro-biodiversity (2002).

3) **Social and Cultural Benefits:** Organic agriculture has the potential to safeguard rural livelihoods and revitalize smallholder agriculture. As a result, it can be an effective tool for protecting traditional knowledge and reducing rural-urban migration. In addition, the emphasis on farmers' groups and knowledge-based approaches in organic agriculture can lead to strengthened social organizations and norms for managing collective natural resources. Strong networks and links with partners from government, NGOs and organic support organizations help farmers to organize for organic certification, access export and domestic organic markets, and gain knowledge of sustainable organic techniques, crops and markets (2002).

4) **Increased Farmer and Households**:
   A) Given that labor requirements are generally higher than in conventional systems, organic agriculture can prove particularly effective in bringing redistribution of resources in areas where the labor force is underemployed. This can help contribute to

[1] In this research, traditional agriculture means the method without systematic and well-structured agricultural system, such as lack of technology, experts, global interaction that usually doesn't lead to increase their exports and economic security for poor farmers.

[2] Food Agriculture Organization of the United Nations defined organic agriculture. "Organic agriculture as a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people. Finally, "organic agriculture" is not just about production. It includes the entire food supply chain, from production and handling, through quality control and certification, to marketing and trade" (FAO, 2007).

rural stability, especially where labor is abundant and migration occurs (International Fund for Agriculture Development [IFAD], 2005).

B) Greater income is the reason most farmers give for converting to organic agriculture, followed by health, ideological and environmental reasons. First movers tend to be farmers using rustic or traditional methods of cultivation and farmers with access to certification and marketing. Organic systems, primarily because of price premiums, are generally more profitable than conventional ones and more than make up for yields or productivity losses that may occur during transition (2005).

To elaborate on Point 4 (B), the rapid growth in organic production has been occurring in developing countries because poor farmers are being attracted by export benefits and substantial price premiums (Setboonsarng, 2006). "Organic products enjoy price premiums of between 10-300%, depending on the product, and different studies estimate that farmers receive between 44-50% of the price premium" (2006), that driving an incentive for poor farmers to switch to organic agriculture. Therefore, this indicates that switching to organic agriculture brings greater economic security for poor farmers because of the economic opportunity and benefit for poor farmers.

Despite economic and social benefits from the development of organic agriculture, there are limitations which would hamper the rapid and widespread development of organic agriculture:

1) The current size of the market for organic food products is small.
2) Products from developing countries will need to compete in markets where there are stringent quality requirements, increasing pressure for subsidies and other support measures, uncertain price premiums and preferences for locally produced food.

3) Several production and export constraints need to be addressed. Another problem is the lack of comprehensive and reliable data on organic production, consumption, and trade (Vossenaar and Wynen, 2004).

However, it is undeniable that the development of well-structured organic agriculture has a great potential for poverty reduction in developing countries, because this brings economic stability and global business opportunities for poor farmers while maintaining their national comparative advantages. By utilizing modern scientific research with traditional farming techniques in a sustainable, efficient farming system, "small farmers, could improve soil fertility, move towards more sustainable forms of production and reduce their dependence on external inputs" (Vossenaar and Wynen, 2004). "In many cases, organic systems are more profitable than conventional ones and more than make up for reduced yields or productivity that may occur during transition, primarily due to price premiums" (IFAD, 2005). Therefore, switching to organic agriculture is essential in establishing economic stability for poor farmers.

The following section contains the successful cases of the development of organic agriculture in developing countries, including China, India, and Uganda with the support from IOs, NGOs, and their national governments. Each case study contains the analysis in the size, growth, and positive progress on organic agriculture, including the growth of exports, price premiums, exports, and diversification of organic products. These case studies support the idea that the development of organic agriculture was successful in reducing poverty in developing countries by strengthening their economic stability.

China:

The organic agriculture sector in China has shown dramatic growth. The domestic organic market in China is valued at approximately US$150 million retail; less than 1% of the total market (IFAD, 2005). The value of exports has expanded from less than US$1 million in the mid-1990s to about US$142 million in 2003. In 2004, the value of exports estimated US$200 million (2005), which shows the tremendous size of Chinese organic sector. In addition, China has the second largest organic land area 3,466,570 hectares, after Australia, 12,126,633 hectares (Helga and Yussefi, 2006). Therefore, this data indicates that China has large organic agriculture market, and its market share in global organic market is increasing rapidly.

The Chinese government played a central role for the development of organic agriculture to reduce environmental pollution and soil erosion and improve agricultural ecosystems and enhance biodiversity (IFOAM (1), 2011). The Chinese government had pioneered China's organic production development, with a focus on certification and standards with development of marketing and extension activities. Furthermore, "11 ministries from the central government of China issued a 'Recommendation to Promote Organic Food Industry Development'", the first central government document to bring forward policies supporting the organic sector with detailed rules for subsidies to organic (2011). Therefore, this indicates how the Chinese government involves actively in establishing well-structured organic agriculture.

Particularly, the Green Food Programs, authorized by Ministry of Agriculture Initiative, is one of the most successful eco-labeling programs in the world, "because of their rate of growth in the past decade, their similarities to organics, and their sheer volume, and are well worth understanding since they set a precedent for organics" (Giovannucci (2), 2007). Throughout the

Green Food Programs, the Chinese government focused on strengthening certification of organic products, including the regulation of inputs, with the objective of reduced use of pesticides, the oversight of production, and the residue testing of the produce involves the regulation of inputs, with the objective of reduced use of pesticides, the oversight of production, and the residue testing of the produce (Paull, 2008).

Furthermore, as part of certification, the Chinese government made a grading system in order to divide different quality of organic products. For example, Green Food Grade AA excludes synthetic pesticides and fertilizers and is now harmonized with organic standards, which provides farmers with a stepped pathway from chemical farming, to Green food Grade A through to organic certification (Paull, 2008).

The size of organic products labeled 'Green Food' is predominant in China. The amount of food labeled "Organic" (9%) is very small part in eco-labeling food compared with Green Food (29%) (They are both organic foods), because "'Organic' is still poorly understood in the Chinese market, "Green Food" is well known and readily available" (Appendix C). Due to the large size of 'Green Food', its sale was close to US$12 billion in 2004, nearly matching the size of the world's largest organic sector: the U.S. The evaluation estimated that China has 600,000-700,000 hectares of certified organic land (all uses) in 2004 and 1,100 companies and farms are being certified (IFAD, 2005). Therefore, this indicates that the Chinese government's strong commitment to the development of organic agriculture was successful in increasing economic stability for poor farmers.

In addition to the increase in Green Food's sales, it is attached with high price premiums. Price premiums of 10-50% are reported for Green food, and 50% to "several times higher" for Organic food (Paull, 2008). "The price premium reported for Green Food peanuts was 12%, and

for certified Organic peanuts was 41%. The price premium reported for Green Food soybean was 10%, and for certified Organic soybean was 110%" (2008). In terms of food production, 'Green food' was valued at US20.7 billion in 2007, tremendously higher than US2.9 billion in 1997 (Paull, 2008). Therefore, this indicates that the Chinese government's central role in the creation of the Green Food Programs was successful in transforming less efficient agricultural system to well-structured organic agriculture system, which helped organic producers to increase their revenues and business opportunities abroad.

India:

The agricultural sector in India accounts for 18.6% of the GDP and involves 60% of the total labor force (International Trade Centre [ITC], 2011), which indicates the importance of agriculture as major economic activity in India. Due to the fact that 60-80% of India's agriculture still uses very little chemicals which could easily be converted to organic agriculture, the importance of conversion to organic agriculture has acknowledged. Throughout many conversions to organic agriculture since the 1990s, a total 12,000 organic farms operated in India in 2003 (2011) and the certified organic farming area recently surged to 2.5 million hectares (Giovannucci (1), 2005). In addition, organic farming and 332 new organic certifications were issued during 2004, mainly cultivated by smallholder producers (2011). Therefore, this indicates the rapid growth of organic agriculture in India.

During the conversion to organic agriculture, NGOs, domestic institutions, and the Indian government played crucial roles to develop the well-structured organic agriculture, because they acknowledged. In terms of NGOs' support, SKAL[3] has been active in India since 1990,

[3] The SKAL of the Netherlands is an independent, nonprofit organization. It has been designated by the Dutch Ministry of Agriculture as the sole Inspection Authority in the Netherlands, which is used by the operators who are

providing inspection and certification services in coffee, tea and other sundry agricultural export products which gave a good access to the European market (Jha, Unknown). Moreover, both Society for Organic Agriculture (SOA) and Society for Employment Welfare and Agricultural Knowledge (SEWAK) had involved in developing marketing strategies for organic products and in training programs and documentation of indigenous agricultural practices (Jha). Therefore, this indicates that NGOs involved in establishing well-structured organic agriculture in India by strengthening certification, developing marketing strategies, and providing training programs.

At the same time, there has been an effort to make strong networks among different organizations and farmers that helps to circulate information for the development of organic agriculture. In 1994, a national level conference was organized by at Cochin by UPASI (Upasi Tea Research Foundation) on organic farming and environment (Jha). Furthermore, Indian members of International Federation of Organic Agriculture Movement (IFOAM) came together for a networking workshop organized by Institute for Integrated Rural Development (IIRD) in April 1995 at Aurangabad, covering promotion of training and education, development of standards, market development, lobbying and image building for organic agriculture (Jha). Therefore, NGOs play crucial roles to create strong networks among different NGOs that are essential to share information and useful resources for the development of organic agriculture.

The India Bio-Organic Tea Association has also formed to promote organic and bio-dynamic tea production. “The Bio-dynamic practitioners in different parts of India are also

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producing, preparing or importing from the third world countries. SKAL standards are based on IFOAM basic standards and attaches more importance to informing licenses on the applicable rules of production. SKAL has been active in India since 1990, providing inspection and certification services in coffee, tea and other sundry agricultural export products. Since SKAL is a recognized inspection body in the EU, its certification gives a good access to the European market. SKAL also helps in identifying importers of organic food in Europe (SKAL, 2009).

consolidating their efforts by forming the Association of the Bio-dynamic movement in India. The Bio-dynamic movement has great scope in India as our country [India] is a land of traditions and several concepts of bio-dynamic agriculture are in our systems" (Jha). Therefore, this indicates how domestic institutions helped to develop in R&D and technology sector, which is crucial for the development of well-structured organic agriculture.

In addition to the involvement of NGOs and domestic institutions, the Indian government had recently evolved some intensive programs to encourage organic agriculture. The Indian government created institution of prizes for individual farmers practicing organic farming to promote export of organic agricultural products through Agricultural and Processed Food Export Development Authority (APEDA) and Commodity Boards (Jha). Therefore, this indicates the Indian government's effort to increase incentives for farmers in order to promote export of organic agricultural products.

The rapid growth of organic agriculture shows us the strong involvement of various NGOs, domestic institutions, and the Indian government was successful. India's 2003 organic exports were officially estimated at US$15.5 million (Giovannucci (1), 2005). Throughout the conversion to organic agriculture, its exports have doubled between 2003 and 2006 to US$28.8 million (Giovannucci (2), 2007), which mainly exported to Europe (Netherlands, United Kingdom, Germany, Belgium, Sweden, Switzerland, France, Italy, and Spain), the U.S., Canada, Saudi Arabia, the United Arab Emirates (UAE), Japan, Singapore, Australia, and South Africa (Narayanan, 2005). Therefore, this indicates how the size and sale of organic agriculture have increased dramatically due to the conversion to organic agriculture with the support of NGOs, domestic institutions, and the Indian government.

Particularly, the organic cotton industry has shown a successful conversion from traditional and conventional agriculture to organic agriculture. During first and second years under conversion, there were huge deficits in conventional cotton, by -8,250 and -5,250, respectively, with small income (Appendix D). However, after India's farm was completely converted to organic agriculture, the deficit over conventional cotton decreased dramatically, in turn, converted to surplus from third year to sixth year, -1,500 and 7,500, respectively. The price premium and net income of the organic cotton have increased exponentially and simultaneously. The price premium and net income for third year was 12,500 and 7,000 rupees, however, the price premium on sixth year was 20,000 and 7,500 rupees, respectively. Even though the initial step of conversion has caused deficits, the development of organic agriculture was successful in brining economic security for poor farmers with the increase of price premium, income, and surplus.

In terms of productivity, "the yields of organic cotton started rising from third year. Cotton yields under organic, conventional, and the mixed systems were 898, 623, and 710 kg per hectare respectively at the end of the fourth year of the cultivation" (Narayanan, 2005), which shows how organic agriculture was successful to increase productivity that is crucial for poor farmers to earn higher revenues. Therefore, this shows that the conversion to organic agriculture was successful in increasing productivity, one of the essential elements to improve economic stability for poor farmers.

In addition to the success of organic cotton industry, tea growers in India have gained the greater global market access. In Darjeeling, a Himalayan town in the Indian state of West Bengal, many tea growers have succeeded to increase their exports to foreign countries, mainly to

Germany, Japan, and the U.S., which helped to increase their revenues, after market premium of over 80% were realized for organic tea in the beginning of the 1990s (Jha). Furthermore, "the Samabeong factory in Darjeeling, was one of the first to convert to organic and has yields equal to or even greater than its pre-organic period" (Oxfam, 2002). The conversion to organic agriculture helped tea growers to enlarge their business opportunities globally.

Therefore, the growth of global market access, price premiums, and exports of organic products indicates that the development of organic agriculture was successful in strengthening economic stability for poor famers in India, which is essential for their poverty reduction. Furthermore, NGOs, domestic institutions, and the Indian government played crucial roles to create well-structured organic agricultural system in India by providing global market access, information, technology, training programs and education, strengthening networks among different organizations and certification of organic products.

Uganda:

Uganda is well-known as its successful and advanced development of organic agriculture in Africa, because it "has the most developed sector of certified organic production in Africa" (ITC, 2011). A recent study of the certified organic sub-sector in Uganda reveals a high performance in terms of growing export volume, revenue and product diversity (Gibbon, 2006), similar to the case of Tanzania. Although still small and far below the global demand, the size of organic land area in Uganda has grown to 122,000 hectares, relatively large compared to the population and economy sizes (Helga and Yussefi, 2006). In particular, IOs, NGOs, and the Ugandan government strong commitment played important roles for high development of

organic agriculture in Uganda with its advantages, “the abundance of land and the lack of extensive use of chemical products” (Vossenaar and Wynen, 2004).

In terms of NGOs and IOs’ involvement, the Export Promotion of Organic Products from Africa (EPOPA) provides well-structured and extensive support in organic cotton production in Uganda (United Nations Environment Program and United Nations Conference on Trade and Development [UNEP and UNCTAD], 2008). Furthermore, the EPOPA created strong network with organic growers or farmers “to organize for organic certification, access export and domestic organic markets and gain greater knowledge of sustainable organic techniques and crops and markets” (2008).

In addition, the National Organic Agricultural Movement of Uganda (NOGAMU) acts as the umbrella organization that brings together all stakeholders in the organic sector in Uganda (Willer and Kilcher, 2011). Furthermore, the NOGAMU makes partnerships with NGOs at a regional level and international consultancy companies to provide organic trainings and technical support, and private export companies that are involved in the mobilization of farmers (NOGAMU, 2010). Therefore, this indicates that NGOs played a crucial role to established well-structured organic agriculture in Uganda by creating network among farmers and different organization.

In the case of the Ugandan government’s involvement, it has promoted policies which would help to strengthen certification of organic products and set up appropriate standards for organic products, which is essential to increase global sales and transform agricultural sector in Uganda as they meet international standards. In 2004, the Uganda Organic Standard was adopted, while in 2007, as part of the East African Community, Uganda adopted the regional standard, the

East African Organic Products Standards (EAOPS) developed under a joint United Nations Environment Program (UNEP)-United Nations Conference on Trade and Development United Nations Conference on Trade and Development (UNCTAD) initiative (UNEP, 2011).

Furthermore, the Ugandan government released a *Draft Uganda Organic Agriculture Policy* to support the development of organic agriculture by providing mechanisms for individual farmers to improve productivity, add value and access markets which are keys to achievement of the Poverty Eradication Action Plan objectives (UNEP, 2011)[4]. Therefore, there have active involvement of IOs, NGOs, and the Ugandan government in the development of organic agriculture.

The rapid growth of organic agriculture shows the support of IOs, NGOs, and the Ugandan government was successful. Uganda increased its average crop yields, by 54 cents with the increasing organic agriculture lands by 0.68 hectares (Appendix E), which is essential to increase productivity. Therefore, this shows how average crop yields have increased dramatically due to the growth of organic agriculture in Uganda.

In terms of the organic cotton industry in Uganda, it has succeeded in increasing its productivity which is essential to reduce poverty. For example, "organic cotton production achieves yields of 1,000-1,250 kg/hectare of seed cotton giving approximately 300-320 kg of cotton lint" (UNEP and UNCTAD, 2008). Thus, "recent studies have reported that organic

[4] According to United Nations Environment Program's website, the strategy put in place to implement the policy is based on interventions in nine policy areas: the promotion of organic agriculture as a complementary agricultural production system; the development of a system of standards; certification and accreditation: the promotion of research, to enable technology development and dissemination; support to the development of local, regional, and international markets for organic products; the generation of information; knowledge and skills through education and training; the improvement of post-harvest handling practices; preservation, storage and value addition; the sustainable use of natural resources; and participation of the special interest groups such as women, youth, and the poor and vulnerable (UNEP, 2011).

farmers have started to obtain high cotton yields compared to conventional farming systems" (2008). Therefore, this indicates us the importance of conversion to organic agriculture in developing countries in order to reduce poverty throughout strengthening their economic security in organic agriculture.

In addition to the increase in the size of crop yields and productivity, "organic cotton received premium prices, on overage of a 20% organic premium on export, which translates to a 15-20% premium of farm-gate prices" (UNEP and UNCTAD, 2008). In addition, "studies commissioned by UNEP and UNCTAD indicate that in 2006 the farm-gate prices of organic pineapple, ginger and vanilla were 300%, 185%, and 150% higher, respectively than conventional products" (UNEP, 2011). Therefore, this indicates that the development of organic agriculture in Uganda was successful to improve economic stability for poor farmers.

In terms of export growth, "certified organic exports increased from US$3.7 million in 2003-2004, to US$6.2 million in 2004-2005, before jumping to US$22.8 million in 2007-2008", which shows us tremendous growth of exports growth (UNEP, 2011). Due to the increases in volumes (from 47.1 metric tons to 115.6 metric tons), "organic exports in 2009-2010 totaled US$ 36.9 million, a double-digit growth, up from US$ 30.1 million, representing an overall growth of 22.7% in value, compared to the previous period" (Willer and Kilcher, 2011). Furthermore, speedy export growth of certification of organic products helped to expand organic agriculture industry, including a doubling of certified companies in late 2005. Therefore, this indicates us that the Uganda's organic agriculture was successful in reducing poverty by strengthening global trade.

In addition to the export growth and price premiums, the development of organic agriculture helped to improve diversification and quality in organic products, which helps organic producers in Uganda to compete in the world organic market. For instance, "a significant product diversification has also taken place within the organic sub-sector. In Uganda, traditional cash crops – cotton, coffee, cocoa – were the first to get certification, starting in the mid 1990s, and are still the mainstay of the sector" (Bolwig and Odeke, 2007). Furthermore, the Bolwig and Odeke concluded that,

> The price that the farmers receive for their cash crops is 15% to 40% higher. Many farmers report a significant increase in productivity due to more intensive crop management measures. The farmers also produce their own food organically. The higher prices are not achieved by the organic qualification only but also by better quality products and in some cases, by more direct trading structures (2007).

Therefore, the development of well-structured organic agriculture is essential to reduce poverty, because this helps to improve certification and diversification of organic foods and access to global organic market.

The development of organic agriculture also leads to create the cycle of reinvestment. Firstly, income from organic cash crop farming can be reinvested in food production thereby increasing household food supply and other economic activities, such as livestock rearing and business, with additional effects on household income, or in children's education that is known to improve food security and child nutrition (Bolwig and Odeke, 2007). Secondly, "the technologies and skills acquired through participation in an organic export operation, such as use of biopesticides and organic soil fertility management, may be applied in food crop farming thus

raising food crop yields and/or reducing the cost of production" (2007). Therefore, the positive spillover effects from the development of organic agriculture will help to strengthen economic stability of poor farmers, throughout international trade, reinvestment, children's education, and food security.

The case of the development o organic agriculture in Uganda indicates that the role of IOs, NGOs, and the Uganda government was crucial to build well-structured organic agriculture, which leads to the growth in export, price premiums, and revenues. This supports the idea that poor farmers can strengthen their economic stability, a crucial element for poverty reduction, throughout the development of organic agriculture with to the support of IOs, NGOs, and the Uganda government.

The Limitations and Challenges:

Despite the fact that IOs, NGOs, and governments in developing countries were important actors to develop the well-structured organic agricultural system in developing countries, there are limitations and challenges that they need to resolve:

1) The lack of adequate the technical advice on production technology. "Since organic farming is primarily knowledge intensive rather than chemical intensive in terms of application of agro-chemicals, it is difficult to establish a one-size-fits-all approach because conditions will vary in different zones" (Giovannucci (1), 2005).
2) The lack of availability for market information and promotion
3) The lack of the availability of reliable institutional support systems that can initially help provide the many components that farmers find difficult to access, including initial financing for certification and input production and marketing (2005).

4) The maintenance of mainstream production and trading opportunities to ensure a larger number of producers in developing countries can take advantage of such markets (Jha).
5) The insurance of production and exports can be maintained and expanded in the long run, independent of continued donor support (Jha).

In the case of Uganda, the fair trade is necessary to protect organic producers from unfair payments. Due to the fact that 76% of the organic pineapples were sold in the conventional market, the average price received per pineapple was only slightly higher for organic farmers than for conventional ones (Helga and Yussefi, 2006). This indicates that the key factor here was volume rather than price. Therefore, the unbalanced payment in proportion to their production needs to be resolved throughout the enforcement of fair trade and prevention of the sales of organic products in conventional market.

In India, the increase in variable costs is a challenge. In the case of organic tea industry, apart from yield declines with organic cultivation for about 7-10 years depending on the condition of the garden, variable costs increase by 50%, such as labor inputs increase by about 30% per year throughout conversion to organic agriculture (Jha). In addition, the lack of diversification and R&D in organic tea caused to limit increasing the sales (Jha). Due to the lack of rapid progress on the certification of organic products, “a number of organic products are sold informally under local credence systems and not tracked via certification though certified sales were estimated at US$22.7 million” (Giovannucci (2),2007). Therefore, the role of IOs, NGOs, and the Ugandan government is essential to strengthen the certification of organic products to keep track of organic products, adjust variable costs, and develop R&D and technology.

Similar to the case of India's, increasing labor and production costs are challenges for organic producers in China. The subtotal salaries for manager, workers, and others have increased gradually (Year 1: 241,200 yuan, Year 2: 243,612 yuan, Year 3: 246,048 yuan). At the same time, the subtotal for operation and maintenance have increased gradually (Year 1: 42,210 yuan, Year 2: 42,632 yuan, Year 3: 43,058 yuan) (Appendix F). Therefore, the role of the Chinese government is important to balance the increase in both size of its organic agriculture and costs.

The Conclusion:

To answer the question in the introduction, organic agriculture was successful in reducing poverty in developing countries with the support from IOs, NGOs, and governments in developing countries. Due to successful cases, there are positives views, such as "in the long run, more sustainable production is possible, even for high-input farming systems" (Willer and Yussefi, 2006), and the increase in demand for organic food and products and sector develops technological innovations and economies of scales are likely to reduce costs of production (IFOAM (3), 2009).

The cases of China, India, and Uganda, share two common points: 1) the development of organic agriculture helped to strengthen economic security for poor farmers, a crucial element for poverty reduction compared with traditional agriculture. 2) the role of IOs, NGOs, and governments in developing countries was crucial to build well-structured organic agriculture in developing countries. Therefore, these support the idea that organic agriculture has a strong potential to serve as a catalyst for poverty reduction in developing. Furthermore, this indicates that IOs, NGOs, and governments in developing countries should increase their assistance in the

development of organic agriculture, because many developing countries have large sections of their populations below the poverty line which makes it difficult for an organic agriculture to develop.

In order to build well-structured organic agriculture rapidly and efficiently, IOs, NGOs, and governments in developing countries should focus on strengthening their roles. Here is a list of responsibilities that they have to implement (IFAD, 2005).

1. Governments in developing countries should serve to integrate broad and relevant knowledge sources into organic initiatives, and not just provide general information. Investment in a knowledgeable extension service is critical. Governments in developing countries and IOs should facilitate the acquisition of adequate technology and training, especially for extension service agents and farmer groups.
2. In addition to the support from NGOs and IOs, governments in developing countries should develop a fund for farmers to access for the initial financing needed for certification and for the investments required to establish organic systems.
3. Governments in developing countries should formally acknowledge experienced farmers and knowledgeable elders as “innovative farmers”, because they can smooth the transition and reduce risks with their specific crops and agro-ecological conditions. Furthermore, governments should stimulate them such as offering special training or tax incentives if their properties serve as model farms to teach others.

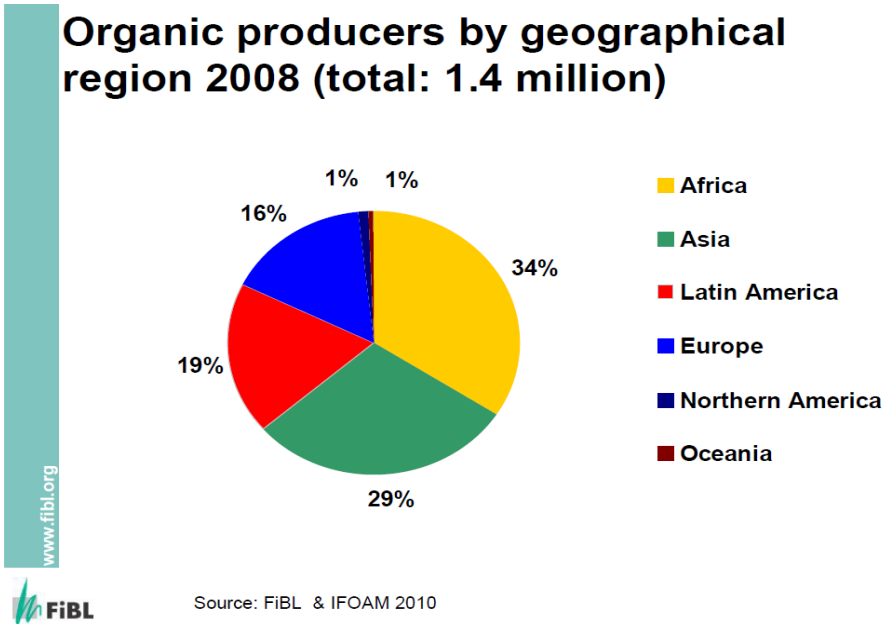
4. NGOs and governments in developing countries should focus on providing farmers good access to other external sources of knowledge about the application of organic methods, especially linkages to broader sources of research and knowledge about organic methods from international research institutions and organically oriented organizations in other countries. The Internet access and the establishment of farmer-friendly databases through the relevant government agencies are necessary to provide good access for farmers.
5. Many market-oriented organic farmers have some support systems for certification and marketing to induce their adoption of strict organic practices. The most difficult hurdle for small farmers to surmount is the lack of adequate technical advice (extension) on production technology. Therefore, NGOs, IOs, and governments in developing countries should provide adequate market information and technical advice on production technology.
6. Both NGOs and governments in developing countries should focus on improving marketing strategies, training and education for farmers. Governments should provide initial impetus to establish organic trade fairs for marketing and the exchange of ideas.
7. Given that labor requirements are generally higher than in conventional systems, organic agriculture can prove particularly effective in bringing redistribution of resources in areas where the labor force is underemployed. Therefore, NGOs, IOs, and governments in developing countries should monitor the distribution of resources in areas, because this can help contribute to rural stability, especially where labor is abundant and migration occurs.

In the domestic level, governments in developing countries should focus on increasing domestic consumption of organic products. The organic products are not attractive to domestic consumers in China, because their prices are often 3-5 times higher than that of conventional food, even though improving living standards had led to an increase in demand for organic products (Källander and Rundgren, 2008)[5]. Due to high organic product prices, China's organic products are not affordable for many domestic consumers excepts elite shoppers, like the situation in emerging markets, including Malaysia, Singapore, Thailand, Philippines (Giovannucci (2),2007). Therefore, it is important for the Chinese government to adjust price for organic products in order to make them affordable for many domestic consumers.

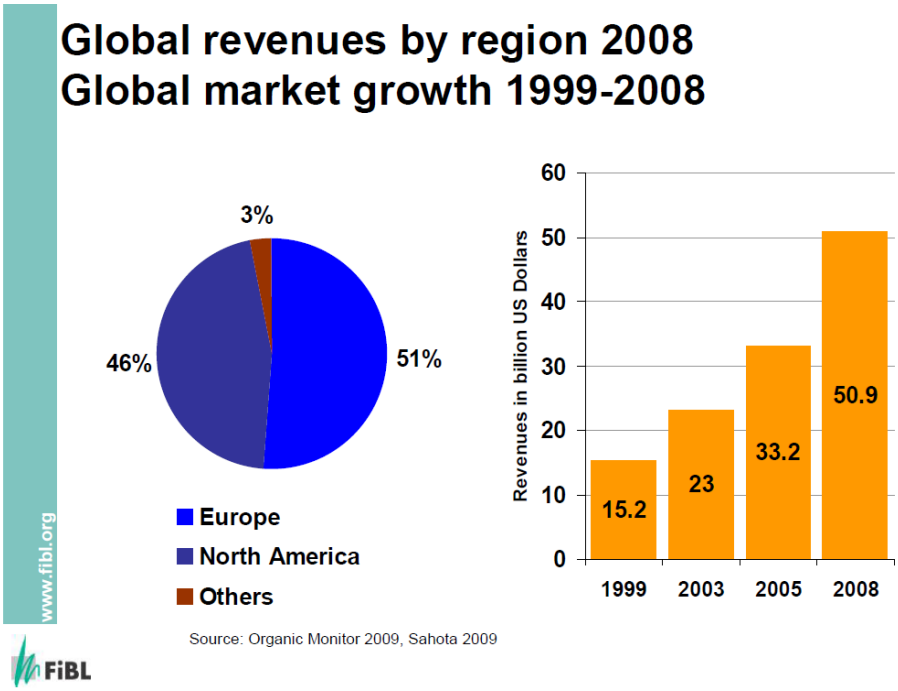
Despite the successful development of organic agriculture in some developing countries, more extensive study is needed to determine whether the development organic agriculture can be successful in reducing poverty in every state, because it is difficult to determine the impact of organic agriculture based on only three samples (China, India, and Uganda). It is important to analyze and examine more case studies in various developing countries and individual levels, such as looking at income distribution to each poor farmer and their happiness and satisfaction with the development of organic agriculture in relation to the growth of export and price premiums. However, the future of organic agriculture is bright, because the strong commitment of IOs, NGOs, and governments in developing countries will help to develop the well-structured organic agriculture by using their capability efficiently and increasingly.

[5] Furthermore, "even Korea has a notable retail market for environmentally-friendly agricultural products that is estimated at $800 million (2005)" (Giovannucci (2),2007). Korea's domestic retail market for processed organic foods is estimated at $160 million for 2005 (2007).

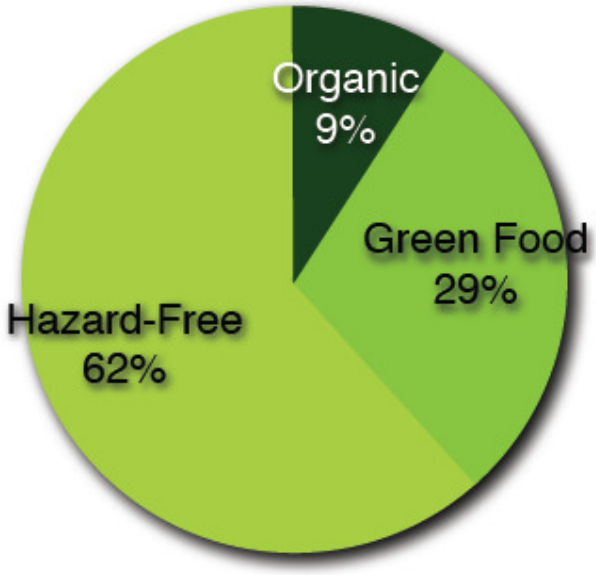
Appendix A: Organic Producers by Geographical Region 2008 (FiBL, 2009)



Appendix B: Global Revenues by Region 2008 and Global Market Growth 1999-2008 (FiBL, 2009)



Appendix C: Three Styles of China Eco-Labeling, by Hectares (Paull, 2008)



Appendix D: Yield and Income from Organic and Conventional Farming Systems (Narayanan, 2005)

Year	Status	Yield (Qtls/ha)	Premium 20%	Total (Rs)	Net Income (Rs)	Surplus/ Deficit over conven-tional cotton
	Conventional	10.00	20000	0	9000	0
First Year	Under conversion	5.00	10000	0	750	-8250
Second Year	Under conversion	5.75	11250	0	3750	-5250
Third Year	Organic	6.25	12500	2500	7000	-1500
Fourth Year	Organic	7.5	15000	3000	1050	1500
Fifth Year	Organic	8.75	17500	3500	13500	4500
Sixth Year	Organic	10.00	20000	4000	16500	7500

Source : Sharma, PD, 2003.

Appendix E: Agricultural Productivity Performance of Organic and Near Organic Agriculture in Africa (UNEP and UNCTAD, 2008)

Region	Number of countries represented	Number of projects analysed	Number of farmers in projects (million)	Number of hectares under organic and near-organic agriculture (million ha)	Average change in crop yields compared with beginning of projects (per cent)
Africa (all countries with data)	24	114	1,900,000	2.0	+116
East Africa	7 (Kenya, Malawi, Tanzania, Ethiopia, Uganda, Zambia)	71	1,600,000	1.4	+128
East Africa (countries focused upon within this study)	3 (Kenya, Tanzania and Uganda)	44	1,300,000	1.2	+120
Kenya	1	18	1,000,000	0.5	+179
Tanzania	1	9	27,000	0.06	+67
Uganda	1	17	241,000	0.68	+54

Note: Variations in the increases in yields do not necessarily mean that organic agriculture is more or less inherently successful by country. Rather yield increases vary depending on the type of project and the crops/livestock produced.

Appendix F: Workshops, Seminars, Dissemination, and Education Detailed Costs (yuan)

(IFOAM (2), 2005)

	Base Cost			
	Year 1	Year 2	Year 3	Total
Total Investment Costs	600,398	924,917	920,092	2,445,406
II. Recurrent Costs				
A. Salaries				
Manager	72,360	73,084	73,814	219,258
Workers	144,720	146,167	147,629	438,516
Others	24,120	24,361	24,605	73,086
Subtotal Salaries	241,200	243,612	246,048	730,860
B. Operation and maintenance				
Stationary	10,553	10,658	10,765	31,975
Diskette and film	10,553	10,658	10,765	31,975
Maintenance and operation of equipment	10,553	10,658	10,765	31,975
Others	10,553	10,658	10,765	31,975
Subtotal Operation and maintenance	42,210	42,632	43,058	127,901
Total Recurrent Costs	283,410	286,244	289,107	858,761

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