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Organic Farming: Making Sustainability Profitable

Abstract

Organic farming improves the soil fertility by providing an ideal soil system for plant growth. It reduces the negative impacts of agriculture on the environment by reducing chemical inputs and soil erosion, conserving water and improving biodiversity. It provides higher income to the farmer by providing a good return of their produce and provides healthy and natural taste of food to the consumer. Organic farming requires more labour workforces than conventional farming. So promoting organic farming can be a good idea to increase the employment opportunities in the country. Organic farming has a greater capacity to mobilize community resources for local development, including more active participation in local government. The aim of this paper is to demonstrate how practices of organic farming contribute to sustainable development while making it profitable for all those who are involved in it.

Keywords: Organic Farming, Sustainability, Profitability.

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Introduction

Agriculture is essential for the survival of mankind. It provides food, fuel, and other ecosystem services. It is an important source of livelihood and plays a very important role in economic development. But agriculture is also causing environmental degradation, climate change, depleting freshwater resources, degrading soil fertility and polluting the environment through extensive use of fertilizers and pesticides.

Sustainable food security means that all the population of the world has access to sufficient and nutritious food. And this food is grown with minimal environmental impact. Sustainable agricultural production management system is aimed to meet the needs of the present without compromising the ability of future generations.

Conventional agriculture fails in achieving these goals in many ways. Agriculture today is not only a leading driver of environmental degradation but also affecting the ecological balance of the earth (Parrott et al. 2002). A study of FAO (2010) found that at present one in six people in developing countries are undernourished due to lack of sufficient access to nutritious food. Given that we are facing challenges in achieving sustainable food security today, we will probably need to double food production by 2050 to feed 9 billion people with increasing demand for meat and dairy products (Foley et al. 2011). We have to produce more at the right locations at an affordable price and also by ensuring livelihoods to farmers while reducing the environmental cost of agriculture.

When it comes to sustainability in agriculture very so often we relate it to the organic farming, which is communicated as the sustainable method to feed the world's fast-growing population. According to Worldwatch Institute "Organic Farming as a way that helps in providing sustainable food security by providing nutritious food and provide employment opportunities in the rural areas. It also helps in decreasing the harmful effect of convention agricultural practices on climate change and conserves the biodiversity. Organic farming can help the socio-economic and ecologically sustainable development, especially in poor countries where per capita income of farmer is very low and where unemployment is very high. As per Willer and Yussefi (2006), organic farming is a method of agriculture that uses the traditional practice of the adapted technologies.

Review of Literature

Organic Farming

Food and agriculture organization (FAO) defines "organic farming is a production management system that uses a unique production process to increase the agro-ecosystem of field, biodiversity cycle and soil biological activity and all this is done by using the waste of crops that are grown in the field without buying any synthetic input for the market".

According to IFOAM, the umbrella organization for organic agriculture movement all around the world, "Organic agriculture is a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved." Augustine et al. (2013) explain "organic farming as an agriculture system that avoids the use of synthetic fertilizers, pesticides, and genetically modified organisms and minimizes pollution of air, soil, and water, and optimizes the health and productivity of interdependent communities of plants, animals, and people." Regnold et al. (2001), in their study, highlighted that "organic farming improves the soil fertility by providing an ideal soil system for plant growth. It also helps in improvement of the physical, chemical and biological properties of the soil and hence, strengthens the health of the soil." US Department of Agriculture (USDA) defined organic farming as a system that is intended to produce agricultural products by the use of methods and materials that preserve the integrity of organic agricultural products until they reach the final consumer. Padel et al. (2008), defined organic farming as a method of agricultural system that gives more importance to environmental protection, animal welfare, food quality and health, sustainable resource use and social justice objectives, and uses the market to support these objectives. HDRA describes organic farming as "farming that coordinates with nature rather than against it and uses innovative techniques to achieve good crop yields without harming the nature and cares for the health of people who live and work in it." It also helps in improving the physical, chemical and biological properties of the soil and thus, builds up the soil health. Stobbelaar et al. (2007) stated that "an organic product is a food product that is produced without using artificial fertilizer or chemical pesticides. They do not have artificial colouring, flavouring or aromatic substances, preservatives, or genetically modified ingredients." Organic farming is one of the established methods to do the sustainable agriculture. Most of the techniques used in organic farming like growing different crop together, mulching and raising the animals for different purposes, are same to various agriculture practice done in India's traditional farming system. Organic farming follows various laws and certification programmes, which prohibits the use of any type of synthetic inputs.

Sustainability

In 1984, the United Nations established an independent group of 22 people drawn from member states of both the developing and developed worlds and charged them with identifying the long-term environmental strategies for the international community. In 1987, the World Conference on Environment and Development published their report entitled, 'Our Common Future' (WCED, 1987). Sustainability is a pattern of resources use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present but also for future generations. WCED (1987) defined "sustainable development is the development which meets the needs of the present without compromising the ability of future generation to meet their own needs". Sustainable Development means economic growth without harming the environmental quality and where each activity supports the other activity.

IUCN (The World Conservation Union), 1991 said that "sustainable development's main aim is to improve the quality of life while living within the carrying capacity of ecosystems." Hence, sustainable development does not focus only on environment al issues; it includes other areas namely economy and society as well. The principle of fair use of resources between present and future generations should be taken into account while using the environmental, economic and social resources. According to Allen Prescott who has founded and chaired several influential IUCN-The World Conservation Union projects, sustainability is just another way of saying "the good life" as a combination of a high level of human well-being, and the high level of ecosystem well-being that supports it. We also come across the word sustainability which is nothing but the action-oriented version of Sustainable Development. There are some principles of sustainability which include the protection of nature, long-term thinking, understanding the systems in which we live, and recognizing the limits of the resources, using fare practices, and implementation of innovative methods.

Theoretical Framework

Sustainability

According to thwink.org, sustainability is the ability to continue a defined behaviour indefinitely. Moving towards sustainable development presents tremendous challenge, and man has all the tools necessary for achieving it. However, we tend to forget that in order to survive, we need to adapt to nature and not vice-versa. We should make a system which balances the relationship between the three "Es" – economy, ecology and equality. If all the three "e's" are incorporated in the national goals of countries then it would be possible to develop a sustainable society.

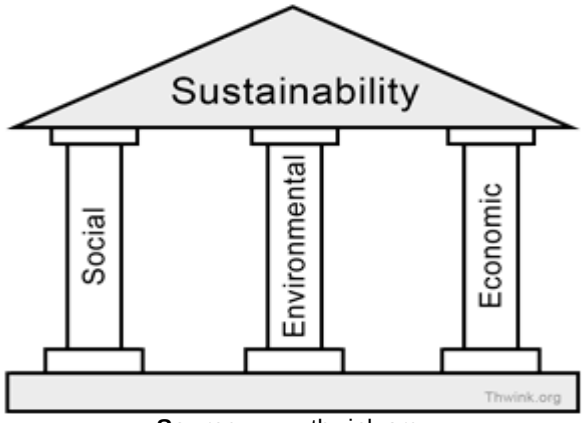
Model of sustainable development

Models can help us understand the concepts of sustainability better. Achieving sustainable development requires more effective, open, and productive association among the people themselves. Models help us gather, share, and analyse information; they help coordinating work; educate and train professionals, policymakers, and the public in general.

The Three Pillar Basic Model of Sustainability

The Three Pillar Model is most well-known models that have three dimensions -Economy, Environment and Society (United Nations World Summit, 2005). The diagram has three interlocking circles with the triangle of environmental

(conservation), economic (growth), and social (equity) dimensions. Sustainable development is modelled on these three pillars. This model is called 'three pillars' or 'three circles model'.



Source: www.thwink.org

The three pillars of sustainability are a powerful tool for defining the complete sustainability problem. If anyone pillar is weak then the system as a whole is unsustainable. In this study, we are taking this three pillars Model as the base to describe how organic farming is making sustainability profitable.

Environment Sustainability

According to Thwink.org, environmental sustainability is the ability of the environment to support a defined level of environmental quality and natural resource extraction rates indefinitely. This is the world's biggest actual problem, though since the consequences of not solving the problem now are delayed, the problem receives too low a priority to solve.

Social Sustainability

According to thwink.org "social sustainability is the ability of a social system such as a country family or organization to work with each other for social well-being and maintain harmony. Symptoms of war, endemic poverty, widespread injustice, and low education rates are found in an unsustainable society".

Economic Sustainability

According to Thwink.org, economic sustainability is the ability of an economy to attain the desired level of economic standard. Since the great recession of 2008, this is the world's biggest apparent problem, which endangers progress on the environmental sustainability problem. Economic sustainability is achieved when most of the population is above the minimum standard of living.

How Organic Farming contributes in Sustainability

Sustainable agriculture refers to the ability of a farm to maintain fertile soil for crops and produce along with livestock and without causing severe or irreversible damage to the health of the ecosystem. Organic farming can contribute to meaningful socio-economic and ecologically sustainable development, especially in poorer countries. Where implementing of organic practices will reduce their input cost as they will use local seed varieties, manure etc. On the other hand, the market for organic products at local and international level has tremendous growth prospects and offers creative producers and exporters in the South excellent opportunities to improve their income and living conditions. According to Suefert (2012) "organic farming reduces the environmental impacts of conventional agriculture, it also increases the productivity of the fields, it reduces dependency on costly external inputs, and promises higher price for organic products".

Organic farming, contributes in sustainability by benefiting the farmers through opportunities to form cooperatives and building of social networks, which enhance their chance to access training, credit and health services.

Environmental Benefits of Organic Farming

Foley et al. (2005) "a sustainable farming system should provide food alongside other ecosystem services such as water flow and water quality regulation, climate regulation, and biodiversity preservation". Organic farming is an agricultural system that is specifically aimed at producing food in a more environmentally friendly way. Organic farming has several environmental benefits compared to conventional agriculture system. Organic agriculture reduces use of pesticides in the production process, it also increases species abundance and productivity (Bengtsson et al. 2005), it reduces erosion of soil, increases fertility of soil, uses a lesser amount of energy and cuts agricultural greenhouse gas emissions (Gomiero et al. 2008), and also reduces nitrogen losses during the cultivation process. Organic farming provides consumers fresh, tasty and trustworthy food while conserving natural life-cycle systems. Organic farming keeps biodiversity and reduces environmental pollutions in air, water, and soil. There is a lot of attention given to organic farming and organic foods nowadays in developed as well as in developing countries due to its environmental benefits for the earth.

Hole et al. (2005) found that organic farming plays an important role in increasing biodiversity of the soil. Regnold et al. (2001) stated that organic farming improves the soil fertility by providing an ideal soil system for plant growth. It also helps in improving the physical, chemical and biological properties of the soil and thus, builds up the soil health. Pimentel et al. (2005) the environmental and health care costs of conventional farming are significant. The excessive application of fertilizers affects the soil erosion and detrimentally disrupts the plant's ecology as well as human health.

Therefore, we may say that Organic farming methods reduce the negative impacts of agriculture on the environment by reducing chemical inputs and soil erosion, conserving water and improving biodiversity. These benefits come with adequate yields and good economic returns.

Economic Benefits of organic farming

Padel and Uli (1994) reviewed several studies on costs and returns of organic farming in various crops in Germany. Their study revealed that the organic farming under German conditions was

equally profitable with conventional farming. Lower yields for arable crops were compensated by reduced costs of inputs and premium prices for most the crops. Many farmers' explained that financial stability was the main reason for converting to organic farming. Introduction of support schemes for conversion and continuing organic farming also made a significant impact on the profitability. John (1994) reviewed the various field experiments conducted on organic farming in Canada. Many sample farms recorded yields that were the same or slightly below conventional farms. Even though some market regulatory problems exist in case of organic products, the prices for them were higher (about 30%) than the conventional products. Overall, the study concluded that 72 percent of farmers were strongly convinced that organic farming is as profitable as conventional. Kshirsagar (2008) studied the impact of organic farming on economics of sugarcane cultivation in Maharashtra. The study collected data from two districts covering 142 farmers, 72 growing Organic Sugarcane and 70 growing Inorganic Sugarcane. The results concluded that organic sugarcane cultivation enhances human labour employment by 16.9 percent and its cost of cultivation is also lower by 14.2 percent than inorganic sugarcane farming. Although the yield from organic sugarcane was 6.79 percent lower than the conventional crop, it is more than compensated by the price premium received and yield stability observed on organic sugarcane farms. Overall, the organic sugarcane farming gave 15.63 percent higher profits than inorganic sugarcane farming. Valkila (2009) in his study found that organic farmers often receive higher and more stable prices for their products. Input costs were low under organic farming and with a 20 percent of premium prices of output, the net income increased progressively from the fourth year under organic farming.

Social Benefits of Organic Farming

The productivity of land, incomes and the cohesiveness of society are closely linked in rural communities anywhere in the world. Where land becomes unproductive, rural depopulation occurs which may further exacerbate productivity and alter the gender or age balance of a community. Organic production can generate social capital and can be empowering to small producers as they organize into cooperatives. Valkila (2009) in his study highlights "organic cooperatives often foster social networks provide training and extension services, as well as access to health and credit programs". Organic farming uses the local resources and integrates traditional knowledge, and many elements of organic management that are reminiscent in traditional farming methods in developing countries. Rural areas may also benefit from the creation of employment in labour-intensive organic farming (Bray et al. 2002). Thapa & Rattanasuteerakul, (2011) state that Organic farming also enables the participation of women who have not as much of access to the formal credit market as men and often not able to purchase the agricultural inputs. Lockeretz (1989) in his study concluded that lower production levels in sustainable system may reduce economic benefits for farmers in the short term. However in long run they get financial benefits as production method improves. This came out from the philosophies and social movements that give most importance to the rural community development. Lasley et al, (1993) highlighted that organic farming contributes to rural vitality in a large scale. Kleinschmidt et al. (1994) in their study concluded that if large number of farmers follow organic farming practice, total family income would more than double, compared with the scenario where all the farmers used conventional practices. Flora (1995) in her study of four communities in USA found that those with more sustainable farming practices had a greater capacity to mobilize community resources for local development. They more actively participate in local government, and also create their own community economic development structure. MacKinnon (2006) found that organic farmers are less dependent on off-farm income, they sell their produce directly to the market, through which they are more connected to community development compared to when they sell through brokers or export it to other countries. Jansen (2000) stated that labour demands are generally higher on organic farms, although they vary considerably from enterprise to enterprise and from activity to activity. In the conditions of good pricing, wages are higher in organic systems as well.

In developing countries where three out of four people live in rural areas and where more than 80% of rural people live in households that are involved in agriculture, improving poor farmers' livelihood is central for addressing rural development (Word Bank 2007). Studies of (UNCTAD & UNEP 2008) have suggested that organic farming could contribute substantially to farmers' food security and improve farmers' livelihood". Studies also highlight that organic farming requires more number of labour workforce than conventional farming practices. So promoting organic farming can be a good idea to increase the employment opportunities in the country.

Organic food can feed us and keep us healthy without producing the toxic effects of chemical in our food. Organic food contributes to better health through reduced pesticide exposure for all and increased nutritional quality. In order to understand the importance of eating organic food from the perspective of toxic pesticide contamination, we need to look at the whole picture from the farm workers who do the valuable work of growing food, to the waterways from which we drink, the air we breathe, and the food we eat.

Conclusion

The study shows organic farming is a motivating option for sustainable development because it offers a unique combination of low external inputs and technology, environment conservation and input/output efficiency. Organic farming provides a variety of development benefits, including increased productivity in low-input agriculture, empowerment of women, increased community organizational capacities, and decreased exposure to pesticides in farming communities, improved soil fertility in areas

where land degradation is an issue, and reduced vulnerability of farmers to market price fluctuations. Organic farming is a feasible option for sustainable agriculture, rural development, providing a fair return on labour and employment, developing the economy and sustaining the environment for future production.

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