Potentials of Organic Agriculture

Pacific Organic Policy Toolkit
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From a public policy standpoint, organic agriculture is multi-functional[1]. Organic agriculture is increasingly benefiting from public support, in recognition of its multi-functional contribution to societal goals, as well as its market potential. There are a variety of reasons that fall under those two broad justifications for public support. These are the "public goods"" and the "infant sector" justifications. They can be summarized as follows:

1. Organic Agriculture Contributes to Public Goods

An important reason to justify public funds going into supporting organic agriculture, is that this is a way to ensure the production of a variety of "common goods" which are not otherwise produced by conventional agriculture, and are not sufficiently remunerated by the market: those are called "positive externalities" of organic agriculture. Although "young" as a concept, organic farming has proven itself as a practical model for agriculture with many advantages while addressing many of the problems besetting agriculture today. Formal research, ly but increasingly, is confirming the benefits experienced after conversion to organic farming by farmers worldwide.

Greater bio-diversity

The factors known to reduce the diversity of birds, frogs, insects and plants are monocultures, monotonous landscapes and most of all, the use of pesticides. There are numerous reports of species decreasing in number or disappearing in and around agriculture fields. With its diversified production systems, which provide habitat and feed for insects and birds, organic agriculture reverses this trend. The omission of pesticides also allows weed species to exist. Relying on local natural resources and conditions, there is greater interest in organic farming to preserve and use local crops and varieties. These often prove to be more resistant to pests and extreme weather conditions. Hence they provide a better economic security for the farmer. The number of local seed-banks started by organic farmers groups is growing fast throughout the world. Genetic diversity is considered an important factor to achieve better food security.

Reduced nutrient losses and leakage

The basic principles of nutrient re-circulation and integration of animals and crop production lead to environmental benefits in several different ways. With the aim to supply the animals with feed produced mainly on the farm, there is an automatic limit to how many animals a farm can keep and how much manure is produced. The farmer who does not use chemical fertilisers is very careful to use the nutrients

[1] Functioning in several ways to contribute to a goal or set of goals.

available in animal manure as well as green manure as efficiently as possible.

Reduced erosion and better water management

Soil management is fundamental in all types of production. It is the various methods of soil preservation and soil improvement that secure the crop nutrient availability and protect them from pests. Soil building methods and measures against erosion are fundamental and many different techniques have been developed. Soil improvement methods emphasised in organic management like mulching, use of green manure, crop rotation and succession as well as perennial crops and agro-forestry also improve the quality and availability of water.

Lower use of non-renewable resources

Reducing the consumption of non-renewable resources is especially important to turn around the energy consuming agriculture of the North to sustainability. The concept of sun-assisted, biologically based input use and closed nutrient system cycling[2] in organic farming, is proven to reduce the use of fossil fuel. Reduction accrues from the omission of chemical fertilisers and the use of on-farm produced fodder replacing feed produced at long distance from the farm. Diesel fuel for tractors is still used to the same extent as non-organic agriculture, but there is high motivation among organic farmers to develop alternatives.

Safer working conditions

One of the most direct health benefits from the omission of pesticides is a safer working condition for farmers and farm workers. It is known that a large number of people working in the agricultural sector are affected by the use of agro-chemicals. Cancer, lung and skin problems, malformation in newborn babies are some problems due to contamination of toxins and lack of protection.

Quality and human health

There is a substantially reduced risk of chemical contamination of food and water when no pesticides are used. The problem with pesticide contamination of drinking water is growing all over the world, even in countries with low pesticide use and ample water supply like Sweden. Without pesticides in the production system the risk of residues in the food is small, but wind drift and earlier use of persistent pesticides can still contaminate organic fields and the organic products should therefore not be defined as pesticide free.

Nutritional quality of organic products

There have been numerous studies carried out regarding differences between organic and conventionally produced food. Overall, they have not revealed any conclusive difference regarding quality, but in short the surveys shows that organic food normally will have:

[2] The recycling of nutrients within the farm production system without bringing in nutrients from outside the farm.

- Lower nitrate content
- More vitamin C
- Higher solids content
- Higher levels of Omega-3 fatty acids in meat
- Higher rates of secondary metabolites (that up to a certain level have positive effects as antioxidants, antiallergenic, anti-carcinogenic, detoxicants and protectants against uptake of cholesterol)

Some studies also show higher content of iron, magnesium, and phosphorus.
In addition organic foods normally will score higher in sensory assessment (taste).

Storage life of organic products is relatively long since the dry matter content is higher than in conventional products, but on the other hand organic products are not treated with fungicides or pesticides and can thus be damaged by moulds and insects. As processed products only contain certain allowed preservatives and do not contain organic foods, however, require proper storage as they do not contain preservatives and thus can be relatively sensitive to moulds and bacteria, which in turn can produce natural toxins, such as aflatoxins, that can be a severe health risk. It should be noted that most of the research is done in special trials, where the 'organic' products will be taken from an organic plot in such a trial and not from real production systems.

Quality in food production concerns not only the nutritional aspects. It includes hygienic quality, taste, environmental characteristics of the production system, working conditions of the people involved, and ethics. Organic agriculture aims at a high level of care for the product and environment throughout the handling chain. As humans are an integral part of their surrounding environment, it is a natural conclusion that a production system that in the long term is healthy for the environment is also in the long term healthy for humans.

Positive impacts on climate change

Organic agriculture mitigates climate change because it:

- Reduces greenhouse gases, especially nitrous oxide, as no chemical nitrogen fertilizers are used and nutrient losses are minimized.
- Stores carbon in soil and plant biomass by building organic matter, encouraging agro-forestry and forbidding the clearance of primary ecosystems.
- Minimizes energy consumption by 30-70% per unit of land by eliminating the energy required to manufacture synthetic fertilizers, and by using internal farm inputs, thus reducing fuel used for transportation.

Organic agriculture helps farmers adapt to climate change because it:

- Prevents nutrient and water loss through high organic matter content and soil covers, thus making soils more resilient to floods, droughts and land degradation processes.
- Preserves seed and crop diversity, which increases crop resistance to pests and disease. Maintenance of diversity also helps farmers evolve new cropping systems to adapt to climatic changes.

- Minimizes risk as a result of stable agro-ecosystems and yields, and lower production costs.

Governments can support organic agriculture as an effective strategy to reduce greenhouse gases and sequester carbon in the 2015 climate agreement. They should help farmers adapt to climate change by promoting organic agriculture through research and extension services. Developing country governments can include initiatives based on the principles of organic agriculture among their Nationally Appropriate Mitigation Actions.

Rural development and landscapes

Organic agriculture helps to keep people farming in less favoured areas, hence helping to sustain a balanced territorial development of rural economies. It brings innovation in rural systems, requiring high informational level and low technological input. It emphasizes participation and bottom-up approaches, which strengthen solidarity of rural communities. Its labour intensity (compared to conventional agriculture) sustains rural employment and contributes to job creation. Organic agriculture maintains more diverse and attractive landscapes and preserve natural heritage, which provide a basis for recreational enjoyment of the countryside and for tourism development.

Gender Equality

Although women are responsible for over half of the world's agricultural production, and far lower percentage of women own land. Their work is often overlooked in agricultural and rural development initiatives. Organic agriculture can play an important role in increasing gender equality. Organic Agriculture supports gender equality because it:

- *Creates meaningful work.* Due to diverse working tasks, specialized skills, and specific knowledge, women in organic farming often have a more diversified role in the household economy and access to education which increases self-esteem and decision making power.

- *Offers economic opportunities*. Low start-up and production costs and stabilized yields makes organic farming less risky, more affordable and accessible to women, while high-value end products increase their income earning potential.

- *Supports health*: Due to the prohibition of synthetic chemicals, the health of agricultural workers, and thus their ability to participate in income-generating activities and in the community, is not compromised.

- *Encourages biodiversity and traditional knowledge*. Women often held empowering roles as keepers of seeds and traditional knowledge. Control over these resources is strengthened in organic agriculture due to its encouragement of biodiversity and traditional knowledge.

- *Ensures equitable work standards*. Organic standards require that employees have equal opportunity and wages, and access to education and health services. The higher level of social awareness associated with Organic Agriculture also reduces exploitation of women.

2. Organic agriculture is an infant sector with high market potential

Another important justification for public support to the organic sector is the "infant industry argument", which argues that organic agriculture is still a very small sector that has not yet achieved yet the economies of scales that will unable it to efficiently compete (either with conventional agriculture, or internationally on the global organic trade market). Also, increasing consumer demand for organic products means that the sector has high growth potential, but needs some initial support to be able to structure itself to the scale that will allow it to fulfil this demand. Indeed, at early stages of development of the organic sector, there are a number of structural and behavioural obstacles that hinder adjustment of supply to demand. These are particularly:

- The lack of exposure of consumers to organic products means that awareness remains very low;
- The lack of market information and lack of adequate distribution channels.
- The absence of well-functioning professional organizations coordinating the needs of the organic sector;
- The risk averse behaviour of farmers and other actors in the food chain, limiting transition to other systems (even if they are more profitable);
- The fear of peer pressure and social exclusion of farmers if they convert to organic while their neighbours and other members of the professional associations are all conventional;
- The small scale of the sector not motivating research, academia and politicians to give attention to it.

It can take a period of about 20 years of temporary public support in order to invest in research & development, build the organic sector organizations and supporting institutions, and structure the organic supply chain and to achieve mainstreaming of organic products into the normal distribution channels where they become fully accessible to all consumers.

Temporary public investment into the infant sector of organic agriculture is therefore a way to achieve a variety of political objectives, including:

- Ensuring the ability of the market to fulfil upcoming consumer demands;
- Developing an internationally competitive industry that will ensure foreign exchange revenues;
- Transitioning to an agri-food system that more self-sufficient – less dependent on imports of agricultural inputs, and more climate-resilient.

The argument is that once the organic sector reaches a certain size thanks to public support, self-sustained growth follows, in response to increasing consumer demand.

Depending on the relative importance, at the national level, of the various political objectives listed above (whether societal welfare objectives or growth investment objective), different types of public support to organic will be less or more appealing to policy makers.

Links to General Overviews

Multifunctional Agriculture

Multifunctional Organic Agriculture

Regenerative Organic Agriculture and Climate Change (Video):

Part1: https://www.**youtube**.com/watch?v=R3QY7542_P8

Part2: https://www.youtube.com/watch?v=L5ZsVOsWzOA

Links to IFOAM - Organics International publications on benefits of organic agriculture

• *Organic Agriculture and Food Security*.
http://www.ifoam.bio/sites/default/files/organic_agriculture_and_food_security_printcopy.pdf

• *Organic Agriculture and the Global Food Supply*
http://infohub.ifoam.bio/sites/default/files/page/files/global_food_supply_en.pdf

• *Organic Agriculture and Human Health*
http://infohub.ifoam.bio/sites/default/files/page/files/rural_development_en.pdf

• *Organic Agriculture and Gender Equality*
http://infohub.ifoam.bio/sites/default/files/page/files/oa_gender_en.pdf

• *Organic Agriculture and Rural Development*
http://infohub.ifoam.bio/sites/default/files/page/files/rural_development_en.pdf

• *Organic Agriculture and Biodiversity*
http://www.wwf.org.uk/filelibrary/pdf/biodiversity_benefits.pdf
http://www.ifoam.bio/sites/default/files/oa_and_biodiversity_web.pdf

• *Organic Agriculture and Seed Diversity*
http://infohub.ifoam.bio/sites/default/files/page/files/seed_diversity_en.pdf

• *Organic Agriculture's Role in Countering Climate Change*
http://www.ifoam.bio/sites/default/files/ifoam-cc-guide-hq-print.pdf

• *The Role of Organic Agriculture in Mitigating Climate Change*
http://www.infoagro.net/programas/Ambiente/pages/mitigacion/casos/2.pdf

Links to POETCom publications on benefits of organic agriculture for the Pacific

- **Organic Agriculture – Promoting and Sustaining Biodiversity**
- **Organic agriculture: Meeting the challenges of Climate Change.**
- **Organic agriculture: enhancing food security – sustainably**
- **Organic Farming helping achieve the Sustainable Development Goals**