7. Managerial skills and certification costs at the farm level

Chapter 6 analysed the knowledge and skills required as well as the costs involved at the support organization level to set up and maintain organic certified producers. The analysis focused on the third party certification for farmer groups under the ICS and the PGS. The current chapter deals with similar analysis for the three certification schemes at the farm level.

7.1 Profile of producers

Organic farmers in the case studies have different profiles. They differ in type of crop, institutional organic development in the country, and particular project characteristics. Organic rice producers in the two Thailand case studies are small-scale, varying from 4.2 to 5.6 ha. In contrast, in both Indian case studies, farmers are usually very small-scale (0.2 to 2 ha), typically growing rice in a monocropping system, and with extremely low literacy. Organic vegetables producers are very heterogeneous in Brazil in terms of farm size (8 to 40 ha), diversification patterns and literacy, most of whom are educated at the middle to high-school level. In the Czech Republic, most of the organic vegetable producers are small-scale farmers (5 to 8 ha), although there are also large-scale farmers (over 50 ha) using diverse cultivation patterns. Large-scale farmers cultivate mostly root vegetables and a limited number of crops, while smallholders grow a wide variety of vegetables in small gardens. Only about 40 farms are considered horticultural, producing a mix of organic vegetables and/or fruits. In Hungary, although the typical fruit- and vegetable-producing farms are under 100 ha and even more typically under 50 ha, there are also large-scale farmers (over 500 ha) producing fruits and vegetables in small fields along meadows and pasture. Farmers' literacy level is usually high in the last two cases.

7.2 Managerial skills

Farmers' necessary capacities depend greatly on the product type and the part of the value chain managed by each farmer or farmer organization. Given the diversity of farmers' profiles, the managerial skills needed are also diverse. For instance, while most of the organic rice farmers produce and sell rice immediately after it has been threshed, some farmers in the Ecovida Network from Brazil add value either by selling fresh fruits and vegetables directly in local fairs or by processing, packaging, loading, transporting and/or marketing processed products. Each one of these activities requires compliance with certification standards.

Farmers should clearly understand the agro-ecological conditions in the farm and be able to manage their activities in accordance with organic principles and requirements. Farmers

should consider the use of renewable resources, exploiting on-farm resources and recycling. They should plan how to eliminate or minimize the application of agrochemicals or other materials, avoiding overload of agro-ecosystems with nutrients. They should also identify how to efficiently manage soil and water resources, reducing the use of fossil energy. In addition, farmers are responsible for delivering their products in accordance with specific harvesting and post-harvesting procedures in order to maintain organic integrity. Differently to "lacking chemicals", as organic is sometimes understood to mean, organic production implies developing farmers' knowledge and skills for better farm and business management.

In the particular case studies of the Czech Republic and Hungary, there are certain compulsory tasks for the organic farmers in the conversion plan: a rotation plan, a manure handling and compost production technology and changes in the number and variety of animals.

There are minimum conditions for an organic farmer to participate in the Organic Farming (OF) and the Agri-Environmental (AE) subsidy schemes. These criteria include a minimum size of land, a soil nutrition plan, registration and compliance with national organic law, and a minimum of one training and two inspections per year (Juhász, 2005; Václavík, 2005).

Managerial skills at the production and post-harvest level

Technology development

Each farmer has to determine the specific production management suitable to his/her farm conditions. Some factors influencing this decision are crop type and variety, soil topography, water conditions, geographical location, and social and market circumstances. Farmers must consider including technology development in the agro-ecosystem for soil fertility management, pest control and pest management. In particular, in rice production, prevention and control of external contaminants are key to keeping organic integrity in the own plots.

Box 7: Understanding agro-ecosystems

Sunstar's experience reports how the process of organic cultivation at the farmer level poses some difficulties: crop rotation cycles used traditionally for years need to be improved; agronomic practices have to be oriented towards the organic mechanism of cultivation; and the natural process of immunization of cultivated crops must be initiated through enhanced supplements in the form of natural agri-inputs.

In the Brazilian case study, although agro-ecological principles are learned in groups under participatory methods, each farmer has to identify the specific production management suitable to his/her farm conditions. Some factors influencing managerial decisions are crop type and variety, soil and water conditions as well as social and market circumstances. The NGOs within the network have accumulated a stock of technological alternatives to assist farmers, which are applied while taking into account their interest and the particular potential and constraints in each farm setting. An adjustment process between the farmer and technological supply is followed where farmers develop managerial skills to properly apply selected technologies.

Source: Katyal, 2005; Santacoloma, 2005.

Fertilizer management

Farmers need to develop knowledge and capacities for effectively managing and recovering soil fertility conditions. They need to know the soil and crop fertilizer needs, the type of alternative fertilizer available at the local level, and type of fertilizers approved by the certification body as well as strategies to recover soil conditions in the short and long term.

Box 8: Fertilizer management

In the Indian case study (Sunstar), different manures are used selectively and not simultaneously. Their application rate depends on soil conditions and crops cultivated. Vermicompost, green manure, and organic manures are worthy of mention. In the Brazilian case study, the use of green cow manure and allowed minerals are good practices that perform better than conventional alternatives. Soil management practices such as non-tillage or minimum tillage combined with gentle soil rotation have also proved to improve soil fertility.

Source: Katyal, 2005; Santacoloma, 2005.

Pest management and pest control

Despite improvement in pest management experienced by organic farmers, it remains the most cumbersome skill to learn. It involves identifying pests in the field and understanding the dynamics of the pest-predator equilibrium and the use of natural enemies, among others (Panyakul, 2006).

Box 9: Pest management

Pests are difficult to manage in organic rice farming because the rice farming agro-ecosystem is very complex, consisting of a large group of natural enemies that help control the pest population. The pest-predator balance is upset when non-discriminative pesticides are sprayed. The key strategy of preventive pest management in rice farming is to avoid all pesticides and encourage natural enemies by providing them with sufficient breeding and living spaces, and alternative food sources. This can be done by leaving natural areas around the farms undisturbed and keeping the patch of natural vegetation within the rice fields, especially along the earth bund in the rice fields.

Source: Panyakul, 2006.

Prevention and control of external contaminants

These particular skills are important for organic rice producers as spraying contaminants is a common practice used for controlling weeds by conventional farmers in the highlands. The risk of drifting is high for rice producers and others who cultivate in the lowlands.

Box 10: Prevention of external contaminants

Organic farmers may adopt measures to prevent possible contaminants through assessing risks and implementing appropriate prevention controls. The greatest risk is that conventional farmers use prohibited substances in the cultivation season. Organic farmers must ensure that the earth dikes of the organic fields are large and strong enough to prevent continuous flow of contaminated water into the organic fields. Also, when neighbouring conventional farms spray their fields with prohibited substances, the organic farmers must install buffer zones to prevent drift. These can be done by planting buffer crops of a different kind or variety to the crops intended for certification. The produce of the buffer crop must be separated from organic produce and cannot be sold as organic.
Source: Panyakul, 2006.

Post-harvest practices

Organic rice producers do not require special abilities for post-harvest, except to deliver clean and selected rice to the group. For vegetable producers this might involve merely washing and storage, as reported in the Czech case study, or selection, cleaning, packing and transport of products to the market place, as in the Brazilian case study.

Box 11: Post-harvesting activities

Most of the farmers plan to periodically harvest their vegetables to be offered as fresh produce in the weekly markets. Occasionally, farmers also process them as bottled vegetables. Similarly, fruit growers have different strategies to handle products after harvesting. Some farmers sell directly in local fairs or specialized organic stores around the villages in the region. Others prefer to store their fruits while harvesting in order to sell all the produce to regional retailers.
Source: Santacoloma, 2005.

Managerial skills in certification

Capacities needed by farmers at this level depend greatly on the certification scheme and farmers' educational level. In the third party scheme, the main skill to learn is documenting and keeping records on the product flow in the farm. This activity may be complicated, tedious and time-consuming for farmers from the Czech Republic and Hungary, but could be relatively simple for organic rice producers due to reduced number of used inputs. In the PGS, organizational skills and the search for alternative market channels are additional skills to be developed.

Box 12: Record keeping and alternative distribution channels

Record keeping in the Indian case studies. Farmers keep a diary for recording their day-to-day farm activities. Since all the farmers are under-educated, the diary is designed so that they can record all their farm activities as desired by organic standards in their own language. This diary is regularly checked and verified against the visual inspection conducted by the supervisors and officer of Sunstar and UOCB.

Alternative distribution channels. In the setting up of alternative certification, farmers participate in a learning process and acquire responsibilities within the farmer group. The farmers' group should endorse the inclusion of new members in the certification process where it is located. This group should submit an application form to an ethical council from another group asking for a formal inspection of the farmer concerned. The farmer is made aware that he/she has to contribute to the certification process by participating in various activities.

Source: Ajay, 2005; Santacoloma, 2005.

Managerial skills in marketing and contract farming

Since organic agriculture is very information-intensive, farmers must be able to clearly communicate the advantages of organic production to the market. All organic products produced on the farms have to be labelled organic, delivered to the market in separate containers, and offered as organic (Václavík, 2005).

In the Sunstar case study (India), farmers are required to develop capacities to enter into contract farming activities. The decision-making process for crop planning, cultivation and procurement involves mutual consent of the parties, business firm and farmers. The crop contract with farmers covers a five-year period. The clauses include crop type to be cultivated, pricing, purchase policy, terms of payment, additional premium, responsibility of the firm and farmers, conditions of non-compliance and termination of contract. The regular discussions between company and farmers are based on the usage of agri-inputs, disease and pest attack, fertility of soil and crop management, among others.

Box 13: Selling organics

The ability to clearly communicate the advantages of organic production to the market is very important since Czech farmers were not used to "promoting" their products under the old regime: the government simply bought them. The situation has completely changed today; the communication skills and marketing savvy are now extremely important, particularly in the organic business. The pressure from conventional marketing structures, putting price before quality, is enormous. Successfully competing in this environment requires farmers, particularly smallholders, to have the will and desire to learn new skills, try untried steps and be courageous.

Source: Václavík, 2005.

7.3 Costs and benefits at the farm level

Calculating costs

In order to produce certified organic products, farmers incur costs for setting up and maintaining organic farming activities. Setting-up costs are time-limited costs or one-off investments in order to make changes in the productive system to become organic. Ongoing costs are those incurred to maintain certified organic activities. According to Henson and Jaffe (2007), these costs may also be called "non-recurrent" and "recurrent" costs. These authors discussed the costs of compliance with food safety standards as those "additional costs" that government and/or private enterprise "necessarily" incur in meeting the requirements of a given standard in a given export market (Henson and Jaffee, 2007). In the current study, however, the overall production, marketing and certification costs are calculated. The reason for this is that it is not enough to just introduce additional measures to comply with a particular requirement for organic farming certification, but farmers must transform their overall farming and management systems in order to become certified as organic farmers. These costs may comprise investments, services and input procurement, learning costs and certification fees. The costs are then compared to the benefits in order to estimate the farm profit per hectare. The benefits are calculated by taking the average production per farm per year (kg/ha/year) and multiplying it by the price of the product (US$/kg), including the price premium when appropriate.

Marketing costs may sometimes be shared among the participating stakeholders. In the Thai and Indian organic rice case studies, marketing costs at the farmer level were not relevant because the firm or project organization managed the produce from the farm through post-harvest, processing, marketing and export. In organic fruit and vegetables, farmers manage different marketing activities according to their own resources and capabilities, which may vary the costs in the selected cases.

Type of cost

Setting-up costs

- *Costs of conversion:* These costs vary according to the previous resource management system. The costs to introduce the organic system might be high in terms of learning and financial resources when they had agrochemical intensive system. Costs may be insignificant in systems that have followed agro-ecological principles for a long time. Another factor influencing farmers' costs is the development of organic technology, if locally available and affordable.

- *Productivity losses:* Farmers may incur these costs at the beginning when they should convert from highly chemical input systems into organic systems. Costs could be significant due to lack of knowledge and skills in managing predators, weeds and diseases by using agro-biological measures.

- *Investment in infrastructure:* This is particularly important in organic rice where the improvement of earth dikes is needed to prevent drift and contamination from the surrounding fields. The construction of shady compost or fences to prevent animal grazing green manures is a measure often taken in organic systems.

- *Establishing the ICS*: These are costs for attending training events and monitoring and inspection activities, visits, meetings, courses and field days. These costs also include time spent by family members to attend meetings and travel expenses.

- *Setting up an accounting system:* This entails establishing record-keeping activities and accounting systems, which could be time-demanding activities for some farmers. These costs are related to time and travel by family members in training and updating documentation activities.

- *Transport and marketing facilities:* Transportation vehicles and fair stalls can be owned individually or collectively. Some investments are required for trucks and pick-ups for transport, packaging facilities and agro-processing plants. If there are collective facilities, farmers share the responsibility of transporting, processing, packaging and attending sales according to defined group rules.

Ongoing costs

- *Soil fertility management*: Associated costs may be very high depending on the soil type and measures to be taken. Some examples are costs associated with the purchase of seeds for leguminous used as green manure, major transport costs for vermi-compost or other types of compost, the inclusion of a new crop in rotation, and the use of perennial crops in an intercropping system.

- *Pest management and pest control:* Adequate pest management in organics requires farmers to have intensive knowledge and skills in their own environment. Recommended practices seek to avoid alteration or simplification of the ecosystem by using preventive measures. Manual or mechanical weedding to control weeds is a cumbersome activity with a high cost for farmers. Some minerals provide essential nutrients that help strengthen the plant leaves and fruits against microbiological attacks without leaving toxic residues after their application. Farmers should have knowledge of local available minerals and substances.

- *Certification fees*: These costs are relatively high in the Czech Republic and Hungary case studies where farmers are required to pay fees separately for registration, inspection and monitoring on an individual basis.

- *Training and meetings:* These costs are associated with the number, type and timing of activities planned by the organization and the requirement for assistance. These meetings have a broader scope than those for establishing the ICS. Training provides farmers with knowledge and skills in various matters for improving the organic systems. In the participatory scheme from Brazil, farmers' participation in meetings also facilitates the exchange of information with consumers in events such as fairs, courses and field visits.

- *Marketing management:* Market costs include the cost of all the activities from post-harvest and handling until the product reaches the market place. Costs are associated with labour for selecting, cleaning, processing, packaging and/or transport. Packages used for fresh produce are simple and may include wood or plastic boxes. In processed food, packaging is more complex because only organic preservatives are allowed. In addition, packaging must often comply with standards established for conventional foods.

- *Market skills:* A lengthy process for building capacities is required to develop market skills. This process sometimes requires a great deal of voluntary work and enthusiasm in the learning process.

Table 8 shows a general cost structure to produce organic certified products at the farm level. Not all the costs need to be considered in each particular situation. For instances, the following differences in the analysed case studies are to be highlighted:

Costs of conversion and production losses are important in the Czech and Hungarian cases but not in the others. In these countries, farmers who have used conventional means need to follow a conversion plan, which can be costly. It is also important to note the importance of investments in infrastructure for the four organic rice case studies, which are for the construction of earth dikes to prevent drift and contamination. No particular investments are needed in the organic fruits and vegetables case studies.

Next, at the certification level, it is important to observe that the Czech and Hungarian case studies do not incur costs for farmers' organizations. Farmers in Indian case study 1 and Thailand 2 case studies do not pay certification fees because this cost is assumed either by the exporter or the government project, respectively. In the Brazilian case study, certification fees are not required.

Further, in the organic rice case studies, there is a lack of direct involvement of farmers in the marketing costs, with the single exception of the Indian case study 2. The contrary occurs in the fruits and vegetables case studies where farmers participate more directly in the market and incur in direct marketing costs.

Table 8: Examples of setting-up and ongoing costs of organic certified produce at the farmer level

	Setting-up costs	Ongoing costs
At production	Costs of conversion Production losses Investment in infrastructure	Pest management and control Soil management
At certification	Establishing farmer groups ICS establishment Record keeping/ accounting systems Training and meeting	Record keeping/ accounting systems Ongoing training and meeting Visits and inspection
At marketing	Investment in facilities Developing market skills	Marketing management Ongoing development of market skills

In Table 9 the cost structure in the organic certified rice is simplified and the calculation of results presented. The Indian case study 1 has the highest income, while the Thailand case study 1 has the lowest. A closer look at the results, however, reveals that the former case also has the higher ongoing costs, and therefore, the current net income is proportionally lower than in the other case studies. Farmers participating in the Indian case study 1 receive high premium prices, but also require more sophisticated production systems, particularly regarding the use of organic inputs in order to comply with three different certification bodies. Setting-up costs were not estimated as they were either covered by the supportive organization or were negligeable.

Also, it is important to note that the participation of direct certification costs in the gross income ranges from 3.4 to 1.7 percent. An explanation for this result could be the active involvement of the supportive organization in the marketing and certification activities in all the cases, whose associated costs are only partially or not charged at all to the farmers. Training and extension costs for farmers to ensure organic quality and documentation, record keeping, as well as the certification fees from external bodies could be shared by the export firm or leader organization that is part of the ICS and the farmers.

Marketing costs are relevant only in the Indian case study 2. They correspond to transportation costs of paddy from field to warehouses, and service charges to the farmers' federation. The amount of the costs shared by farmers depends on the trade arrangements and on farmers' bargaining skills with the market centres. The setting-up costs at the farm level were not possible to calculate as they refer to dyke construction, which was done collectively.

Table 9: Cost structure in the organic certified rice at the farm level in the case studies (US$ /ha/year)

Case study/ costs	Indian case study 1	Indian case study 2	Thailand case study 1	Thailand case study 2
Ongoing costs	444.00	238.00	213.70	135.00
Production/ongoing cost (%)	100	81.5	91	92
Certification/ongoing costs (%)	0	8.8	9	8
Marketing/ongoing costs (%)	0	9.6	0	0
Gross income	796	678	547	562
Ongoing cost/gross income (%)	55	35	39	24
Certification/ gross income (%)	0	3.1	3.4	1.7
Gross margin	1.79	2.84	2.55	4.16

Note: Exchange rates: Thailand (US$1:40 baht); India (US$1:44 rupees).
Source: Author's calculations

In the organic fruits and vegetables case studies, the results of the three case studies are diverse, as shown in Table 10. Setting-up costs were available only in the Czech and Hungarian case studies, as farmers in the Brazilian case study started out in organic business more than 20 years ago. Setting-costs were particularly high in the Hungary case study if compared to the gross income. It is important to note, however, that these costs in both the Czech and the Hungarian case studies were usually covered by organic farming subsidies programme as part of country agro-environmental measures.

The Czech case study has the higher ongoing costs and gross income figures. However, it is the Brazilian case study that presents the higher profit per hectare as a result of the lower participation of the ongoing costs in the gross income. Most likely, farmers are able to retain higher added value as they are involved in added-value activities in the post-harvest, including agro-processing and marketing planning and management. In fact, they spend more than 50 percent of their recurrent/ongoing costs in marketing activities. In the Hungarian and Czech case studies, this participation corresponds to less than 10 percent of the current costs.

Certification costs vary from nearly 2.5 to 11 percent of the total ongoing costs in the Czech and Brazilian case studies, respectively, while it accounts for nearly four percent in the Hungarian case. The apparently high certification cost in the Brazilian case study is because participation in training and organization activities are taken into account in the certification costs, although they also serve other purposes in the organizational structure. Record keeping and documentation are not significant costs within the certification process for any of the organic fruits and vegetables case studies.

Table 10: Cost structure in the organic certified fruit and vegetables at the farm level in the case studies (US$ /ha/year)

Case study/ costs	Brazil case study	Czech Rep. case study	Hungary case study
Setting-up costs		900	740
Ongoing costs	1 887.00	5 171.00	611
Production /ongoing cost (%)	35	88.7	90
Certification/ongoing costs (%)	11	2.6	4
Marketing/ongoing costs (%)	53	8.7	6
Gross income	3 863	6 850	748
Setting-up cost/gross income (%)		13	98
Ongoing cost/gross income (%)	49	75	81
Certification/ gross income (%)	5.5	2	3
Gross margin	2.04	1.32	1.22

Note: Exchange rates: Brazil (US$1: 2.5 reais); and Hungary and the Czech Republic (US$1.26: 1 euro).
Source: Author's calculations

The gross margin analysis was positive in all the cases, as shown in Table 9 and 10.[22] The higher ratio was for the four organic certified rice and the Brazilian case studies. Financial benefits were calculated by multiplying the average yield per ha by the selling price. Premium prices per kg of product were very relevant revenues in all the case studies. In particular, they were complemented by sales of green manure in the organic rice case studies. In the Brazilian case study, since some farmers processed food, a conversion ratio of yield per hectare of the produce in the region was used for calculation.

In both the organic rice and the fruits and vegetables value chains, there are systems that are the most expensive and yield the highest revenues yet do not necessarily obtain the highest profits.

Although the case studies under third party certification for individuals obtained the lowest profit, the difference could not be attributed to the certification scheme only. The type of produce and market conditions may be also explanatory factors in the income level differences. Resource availability, bargaining and business management capabilities of farmers are also factors explaining profitability differences.

22 The classic cost/benefit ratio was not calculated due to lack of accurate data on fixed costs in some of the case studies.

Non-financial benefits

In addition to the positive gross margin ratio, organic certified farmers are fairly conscious of other non-quantifiable benefits derived from growing certificated produce. Improving overall product quality and farm resources are benefits that provide long-term sustainability. They also **add value to farmers' products.** In the analysed cases, little information and education are available for the final customers, which means a longer period for the acceptance of price premiums for the added value of organic products**.** In the Brazilian case, however, building long-term and direct market relationships with consumers is seen as a more relevant benefit than obtaining premium prices.

The cessation of agro-chemical application contributes to maintaining balanced ecosystems through the reduction of added harmful substances to the ecosystem. In many cases, production costs are cut by reducing the purchase of chemicals and of transport costs.

Soil improvement is a major benefit, which can be observed after a few years of organic production. It also contributes to the increase of **plant and animal species diversity**.

Developing knowledge and skills, and **improving farm management** planning are seen as essential in strengthening farmers' control over the productive process. The ability to produce very good quality that others are not able to match, boosts **self-confidence and helps to improve market and negotiation skills.**

The intermediary organizations also obtain benefits from better market access, knowledge and skills in ICS management, and improved planning capabilities in the supply chain. They all contribute to increase **farmers' self-confidence and social networking** to support better rural societies.

In addition, farmers and NGOs in the Brazilian case study are convinced that they contribute to the **food security and food sovereignty** of local communities. Since farmers participate in all stages of the supply chain, they can also exert more influence on the overall planning process and retain more of the financial advantages than their partners in the other case studies mentioned. Table 11 summarizes the quantifiable and non-quantifiable benefits of organic agriculture at the farm and organization levels.

Table 11: Examples of quantifiable and non-quantifiable benefits or organic certification at the organization and farmer levels

	Quantifiable benefits	Non-quantifiable benefits
At the organization level	Knowledge and skills in ICS management Knowledge in organic production technology	Improvement in general planning (supply chain)
At the farm level	Add-value to farmer's products (premium price) Food security Reduced input costs	Soil improvement Plant and animal species diversity Improved farm resource management Self-confidence Social networking Food sovereignty

8. Conclusions and recommendations

The study confirms that organic small-scale farmers have great opportunities to access modern food chains and export markets due to the added-value attribute of organic produce. In the five countries of the case studies, the participation of smallholders in organic export or domestic markets is relevant.

- In Brazil, small-scale farmers provide a large number of fruits and vegetables for local and regional markets. Their share is 15 percent of the organic market in the country.

- In India and Thailand, organic produce is produced mainly by small-scale farmers engaged in high-value crops cultivation, such as herbs and species, fragrant rice, and fruit and vegetables. Business companies and NGOs are the main players marketing these products mainly for export but also for domestic markets. The organic fragrant rice – Basmati from India and jasmine from Thailand – is produced for export mostly by small-scale farmers.

- In Hungary and Czech Republic, most of the organic production is done by large-scale farmers engaged in the production of cereal and industrial crops for exports, while small-scale farmers produce most of the fruits and vegetables for local markets.

Export markets have been a driving force for growth of certified organic produce from developing and transition countries. In the five studied countries**,** access to export has played a role in the growth of organic certified agriculture:

- Hungary shows a strong export focus, with 90 percent of the organic product exported mainly to Europe, and with a small but growing domestic market.

- Brazil has strong parallels with Hungary, as 85 percent of its organic product is exported, to the EU, US and Japanese markets, and it has a very dynamic domestic market.

- Although with less concrete government support, Thailand has shown a recent increase in organic exports, with only vegetables and cereals available on the domestic market; organic rice is an important export, especially to the European market.

- Rice production is also important in India, with markets in the EU, the United States, Canada and Australia, but with more focus needed on export and domestic markets.

- The Czech Republic only exports ten percent of its organic produce, but strong government support is encouraging an increase in the sector.

An enabling environment is required to support institutional development and to set up norms and standards in order for the organic agriculture and market to grow. In the selected cases, countries have developed policies and defined standards and norms on organic production and trade. They have set up institutions that had been part of the national assurance system, such as accreditation and certification bodies that follow specific international standards and agreements. Such policy and institutional developments have been put in place although driven by different forces:

- The Czech Republic and Hungary had achieved equivalency status under EU Commission decisions until their accession in the EU in 2004. Their legislation on organic products is currently subordinated to the EU Regulation. Their legislation aims at the regulation of organic agriculture and marketing as a whole system. In addition to a strong institutional development in quality assurance, both countries maintain subsidy programmes compatible with the agri-environmental measures implemented in the EU subsidies policies for rural development.

- In Thailand, policies and institutions for organic produce are in place for producing safe food and support exports. A significant institutional development is the accreditation by IFOAM of ACT in 2001. ACT consists of producers' organizations, NGOs, consumers and other stakeholders and is the first Asian organic certification body that can offer internationally recognized organic certification services.

- In India, the government established steering committees and a National Programme for Organic Production (NPOP). Their main aims were to enhance quality assurance systems required for export markets of certified products. Recently, national certification bodies have been recognized as equivalent by the EU and the conformity assessment system considered sufficient to ensure conformity by the USDA-NOP, therefore facilitating export to US and EU markets.

- In Brazil, in the organic policy and regulations concern different types of organic certification and conformity assessment procedures, including participatory certification. This development resulted from a long history of participation of the organic movements, both from the private and public sector. Implementation of the organic law aimed at providing a basis not only to allow the country to export, but also to develop a strong organic domestic market.

Domestic markets represent an unexplored potential for the expansion of organic agriculture in the studied countries. Health concerns drive the increase in domestic demand for organic, but the price premium attached to the segment is generally more affordable to urban, educated and more affluent consumers. Education and awareness-raising is needed both to drive the growth of the organic market and to avoid confusion over labelling issues.

- The organic market segment in Hungary is driven by the urban educated class and those who can afford the organic price premiums. Organic shops and markets are predominant. However, with the expanding organic market, Hungary is experiencing a great increase in the retail sector share.

- This is also the case in the Czech Republic where spending and demand is increasing, although starting from a small baseline; this trend is being fuelled by information and economic growth. Multiple retailers have over two-thirds of the domestic organic market share.

- The strong urban consumption is also echoed in Brazil, where the huge domestic market potential, especially regarding health concerns, will drive future growth. Individual sales and specialized stores remain key channels in the country; however, there are potential opportunities offered by supermarkets, but this entails a stringent procurement system.

- In Thailand, health issues are also a key component of the domestic organic market, but uncertainty remains with labelling issues. Organic fresh fruit and vegetables are sold through the same marketing channels as the other countries, with rice sold through dedicated organic channels, conventional rice traders and the fair-trade network.

- In India, although health concerns are a major factor influencing organic purchases, consumer awareness is still low. The domestic organic market is still in the early stages of development, needing organization and increased market focus.

Market strategic choices are on the basis for the selection of the certification scheme to be followed. The proliferation of standards and regulatory international bodies sometimes makes the selection of the type of certification scheme confusing and costly.

- The access to EU and US markets using local certification bodies may be troublesome. Under EU regulation, for instance, markets are opened for products from countries listed as *third countries*, or through certification granted under imports derogation. Since only six countries are listed as *third countries*, it is very common that the exporter would comply with requirements determined by the importer, such as the selection of certification body, and consequently, the type of standards to be followed.

- It is believed that the harmonization of procedures and standards could eventually have far-reaching benefits for international trade in general, particularly the equivalence between certification bodies.

- In the participatory certification or PGS, standards rules and procedures are defined collectively inside the network. In Brazil, this alternative certification is legally recognized provided that there is well-established organizational control. In many other countries there are also alternative certification systems for organic produce that work fairly well for local and regional markets. The participation of 14 countries in the first meeting on alternative certification held in Brazil in 2004 showed the relative importance of these alternatives in the mainstream organic market.

A value chain management approach needs to be considered when calculating the costs associated with supplying certified organic products

Decision-makers at all levels need to work closely together to ensure that quality product assurance is continuously maintained. Regardless of the scheme, complying with organic

standards and procedures involves making managerial decisions at the production, processing, certifying and marketing levels. A modern and transparent organizational structure should be developed along the chain in order to ensure lasting organic quality.

- In the Thailand and India organic rice chains, producers are vertically integrated or linked in the supply chain targeting export markets. In the organic vegetable chains, producers in the Ecovida Network are horizontally linked in a fairly short supply chain targeting local and regional markets. In Hungary and the Czech Republic, producers participate individually in short supply chains driven by a promising domestic demand.

- Drivers in the organic rice chains are either exporters or NGOs that provide most of the business and technical support services required by the farmers; public/private schemes may contribute with technical development and provide technical advice, as in the TOPS case study (Thailand), or participate in the ICS, as in the UOCB case study (India).

- In the Brazilian Ecovida Network, farmers, consumers and technicians participate together in the quality assurance system with support from non-government and occasionally governmental organizations, which offer a wide range of technical, business and commercial services.

- The organic vegetables chains in Hungary and the Czech Republic are in early stages and there are no farmers' organizations; quality assurance systems are rigorously controlled by social and governmental organizations.

The set-up and ongoing costs of organic certified schemes involve the development of skills and knowledge at different levels to comply with the certification procedures. Private and public organizations and NGOs providing support to farmers' groups to get certified, need to develop their managerial and business skills to implement business and marketing plans together with measures for enhancing farmers' capacities to ensure the organic quality attribute of their produce.

- In the cases where the supportive organization was part of the ICS, all technical and business services, inputs and the implementation of the ICS were provided by the lead organizations, which assumed the overall costs. Costs turned out to be high when an organization targeted different export markets demanding different certifications and subsequently, increasing its costs per farmer.

- In the BRFO-GNEN case study (Thailand), by applying an ICS, the costs were much lower, presumably due to lower transaction costs in the stakeholder relations. Farmers are vertically integrated in the organic chain, and financial and technical services are provided by the supportive organization. Costs may also differ according to the previous experience and efficiency gains regarding past efforts of the organization in dealing with certification.

- Networking activities to strengthening horizontal and interdependent relationships among stakeholders could be very costly, as shown in the Brazilian case. However, these activities – where consumers make up part of the quality assurance system – were given the same

priority as technological development in enhancing agro-ecological systems and in creating long-lasting local markets.

The gross margin analysis at the farm level is positive for all the case studies analysed, although some slight differences are found between them. Such differences could not be attributed to the certification scheme only, but the particular conditions in which they work must also be taken into consideration needs. Farmers need to develop skills to manage organic technology or else productivity losses may be incurred. Other variables that may explain profit difference are the type of produce, i.e. fresh or processed produce, and the targeted market, i.e. for export or local markets. Export markets can be highly profitable for farmers when participating in a vertical integrated value chain with well-defined social responsibilities. Other variables that explain profit differences are the farmers' bargaining and business skills in the organic value chain, which in turn depend on assets availability and on the quality of natural resources, capital, network, skills and knowledge.

In all the case studies, the organic value chain stakeholders viewed the certification process as positive. The certification process is perceived as having financial and non-financial benefits that together promote the improvement of resources and product value addition, promoting sustainable rural development. It enhances skills and knowledge of staff and farmers to cope with the growing organic trade, which still expands and offer competitive prices and social responsibility. Improving overall product quality and farm resources are benefits that provide long-term sustainability. The production of safe food for families and local communities is highly valued. The cessation of agro-chemical applications contributes to maintaining balanced ecosystems through the reduction of added harmful substances to the ecosystem. It also contributes to increasing the diversity of plant and animal species. The intermediary organizations also obtain benefits from better market access, knowledge and skills in ICS management, and improved planning capabilities in the supply chain. All of these contribute to raise farmers' self-confidence and social networking to support better rural societies.

An additional benefit from the participatory certification is that it stimulates the creation of a sustainable, local consumer base for the development of a robust local market. Farmers and NGOs are convinced that they contribute to food security and food sovereignty of local communities. Since farmers participate in all stages of the supply chain, they can also exert more influence on the overall planning process and retain more of the financial advantages than their partners in the other mentioned case studies.

8.1 Recommendations

Specific priority measures have been identified to reduce participation costs and increase the performance and competitiveness of small- and medium-scale farmers in certified organic food chains:

For supportive organizations (government, trader and NGOs):

Intervention strategies on technology development should be implemented with a long-term view: Two major areas of intervention have been identified. First, pest control

and management remains a critical aspect to be addressed by technicians and farmers. Links with research and agricultural development centres should be set up in order to explore cost-effective technologies for pest management and control. Another important area that requires further intervention is appropriate technologies to add value and extend shelf-life of organic produce. It is advisable to establish links with technology development institutions specialized in agro-processing technologies in order to investigate these specific technologies.

Establishment of financing mechanisms: The case studies clearly show the need for investment support to organic development projects at the initial phase. The first two years are the most critical for organizations in establishing projects to ensure their sustainability.

Support to market development: Specific initiatives should be in place to support market development. From the different studies, there is consensus on the three major areas to develop: strengthening of value chain linkages, development of information technologies (IT) and development of local markets. Promoting value chain integration will allow long-term connections between producers and processors, wholesalers and retailers. This may include organizing meetings to encourage formal and informal contacts to understand the common requirements and problems. Appropriate interventions in terms of building longer-lasting alliances should then be encouraged by catalytic actors.

Supporting IT development will help the producers obtain market information and develop e-business possibilities. One example is the home-delivery system, which links producers directly with farmers through producers' webpages. In developing local markets, information and market communication are pillars of a long-standing strategy. Encouraging consumers to connect to the sources of food will help to create a culture of local food communities. The Ecovida Network case study is a good example of this initiative. A comprehensive and well-structured programme for developing domestic markets should have three main aims: first, it should inform public opinion through intensive communication; it should increase the variety and volume of goods; and finally, it should improve and widen the marketing channels participating in organic trade.

Another market component is the establishment of a proper framework for an agri-input supply system that provides information and networking among development organizations, traders, producers and government institutions.

Strategies to reduce costs of training activities: The need to improve efficiency and reduce costs of training activities can be satisfied through joint training among institutions and experience sharing through networks. Training will include not only production, but also marketing and processing activities. Promoting group certification among organic farmers will lead to reduced expenses due to economies of scale in training, monitoring and certification activities.

For governments:

Support institutional development and set up norms and standards at the national level in order to facilitate the inclusion of small-scale farmers. This consists in setting up institutions that make up part of the national quality assurance system, such as accreditation and certification bodies that follow specific international standards and agreements.

For development agencies including FAO:

Investigate and disseminate cost-effective technologies that farmers can use to meet certification requirements, particularly in the areas of technology development. FAO could contribute with platforms of information exchange on technological alternatives to address problems of pest management, organic post-harvest technologies and marketing of inputs.

Help countries to incorporate small-scale farmers in the organic supply chain: FAO could help member countries in developing and transition countries to identify lucrative markets and the required certification scheme for small.scale farmers.

Provide training on management and market development: FAO through training of trainers, could train actors along the organic food supply chain in order to increase transparency and better linkages between them, and improve their specific managerial skills for better planning and market development.

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Organic certification schemes: managerial skills and associated costs

This paper studies alternative certification schemes for organic products in order to draw conclusions regarding the institutional support and technological development required for compliance with organic standards. It discusses third party certification, for both individuals and farmer groups, as well as participatory certification. Case studies from developing countries and countries in transition engaged in organic rice and organic fruit and vegetable production are examined. Issues analysed include the organizational structure and marketing strategies in the organic supply chain. The paper also discusses the institutional development that is needed to provide business and technical services and establish the quality assurance system. Organizational, managerial and business skills required by the lead stakeholders in the organic chain are analysed as well as the costs that they incur for effectively managing organic projects. Similarly, the managerial skills required at the farm level are considered as is the use of cost-benefit analysis. The paper also reviews the legal and institutional framework that facilitates organic production and certification.

The paper is aimed at staff of government, private and non-government organizations working at the policy level and in the field, and at donors' organizations that support organic production and certification.

TC/D/.....E/1/06.07/1000