



Natural Resources and Ethical Trade Programme (NRI)

Organic Agriculture and Sustainable Rural Livelihoods in Developing Countries

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Executive summary

This study was prepared as one component of a wider review by the Department for International Development to examine the contribution ethical trade initiatives can make towards the goal of sustainable rural livelihoods. The experience of organic agriculture projects in developing and in-transition countries is the particular focus of this report.

Most organic projects to date have not been subjected to sufficiently comprehensive monitoring and evaluations to enable their sustainability and impact to be verified. There is a need to collect this information on existing projects and ensure appropriate reviews are performed on new ones.

What is available however is the practical experience of producers, buyers, NGOs and advisors whether involved in private or publicly funded projects. Some information, gathered much more recently, is available from government funded aid programmes. It is possible to identify some characteristics of organic projects which are of significance to small-scale farmers in developing countries and many of these are also directly relevant to private farmers in CEE countries. These characteristics include:

- mixed farming and the use of crop rotations
- more resilient production systems based on a more diverse cultural system
- minimal use of external agrochemical inputs
- emphasis on use of local resources
- recycling of organic wastes
- reduced environmental impact
- low degree of mechanisation
- suitability for the cultivation of small areas
- use of existing traditional skills

For the farmer this can mean more equitable development because of:

- an increase in farmers' self-reliance for food and inputs,
- greater autonomy and self-confidence.
- increased biological and labour diversity, thus spreading risks in the agronomic as well as the financial sense.

In the wider country context, this can mean:

- less dependence on external inputs and technology
- improved foreign exchange balance through import substitution and exports
- potential environmental benefits with reduced cost of rectifying pollution
- an improved image in the eyes of tourists and investors

The additional benefit that these characteristics can be, at least in the long term, funded by and pursued in, the context of certified organic produce commanding premium prices, suggests that organic agriculture should be considered a serious policy option by governments and donors alike.

Some common lessons emerge:

The motivation for implementing organic agricultural systems may be diverse but persuading farmers to make changes and maintain organic systems requires some financial incentive.

Successful initiatives may have diverse origins, but significant impact requires the harnessing of the resources and commitment of numerous stakeholders, both private and public sector on a complementary mission.

The verifying role of organic certification services is both a burden and also a means of delivering truly sustainable agriculture.

Projects based on organic agriculture are more subtle than chemical agriculture and therefore, situation specific. There is then a need for technique adaptation within the project zone. Projects should have a developmental component to them.

Successful organic agriculture is 'knowledge intensive' requiring more design and management from the outset, as opposed to the 'just in time' approach of chemical agriculture. Training, extension and demonstration are perhaps even more critical here than with conventional projects.

Benefits from organic agriculture may not be immediate. Small farmers will require considerable support or incentive over the initial years if the system is to gain momentum and be maintained.

Some agro-ecological situations, such as agro-forestry, will convert more easily to organic systems than others.

Farmers appear to resist conversion to organic agriculture when:

- they have been heavily exposed to the chemical message
- they currently operate high input, high output systems
- previous extension services have been effective
- production is relatively mechanised
- labour costs are high or labour is not available
- the system is thrust upon them

Farmers appear more receptive to conversion to organic agriculture when:

- they have not been exposed to the chemical message
- their farming system is traditional or nil input
- previous extension services have not been effective
- production is relatively labour intensive
- labour costs are low or labour is readily available
- the concept is developed by them or with them

Organic projects must be at least as rigorously identified, designed, implemented, monitored and evaluated as any other development project with strong stakeholder participation. The organic context does not make the project immune to the potential problems with project implementation from misidentification of issues, political influences and weak institutional support. Extra emphasis should be placed on human resource and institutional development, recognising that organic farming is knowledge intensive rather than input intensive.

BACKGROUND

Context of the study

In 1992 at the Earth summit in Rio de Janeiro the governments of the world formally recognised that,

'the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in the industrialised countries'

In formulating Agenda 21 the Summit agreed that action should be taken both to promote sustainable patterns of consumption and production and to make global goals for the environment, development and trade mutually enforcing.

Since 1992, there has been an increasing emphasis and action from governments and businesses and awareness of purchasing choices amongst consumers related to the sourcing, production, manufacture and trade of goods of all kinds. IIED (1997) reviewed some case studies which show some success stories in the manufacturing, tourism, agricultural and forestry sectors of developing countries which appear to have successfully combined profitability with a social and/or environmental benefit.

Britain's Department for International Development (DFID) has an expressed commitment to alleviating poverty in developing and in-transition countries by assisting with the design and implementation of environmentally, economically and socially sustainable initiatives (DFID, 1997).

This study was prepared for the Natural Resources Institute (NRI) in response to a commission from DFID as part of a wider review assessing the contribution ethical trading can make to sustainable rural livelihoods in developing countries and countries in-transition to a market economy.

Ethical trade

Ethical trade is an umbrella term for types of trading relationship where social and environmental as well as economic criteria are used to measure performance. Under this term, initiatives include:

- organic agriculture
- sustainable forest management
- fair trade, and
- ethical sourcing by European wholesalers and retailers

This study focuses on organic agriculture and reviews the available information on the impact it has had on the rural poor in developing and in-transition countries. In many instances combinations of the four types of initiative may act together. Some certified organic products have been registered with fair trade marks and increasingly there is complementarity between standards for organic agriculture and fair trade guidelines. In other situations organic agriculture systems or components of such systems have developed for food security reasons or

to solve specific problems such as soil erosion or reduce water course contamination in the absence of a trade incentive.

Organic agriculture

Organic agriculture has developed and guidelines have been detailed in writing over the last 50 years. Since the early 1990s the term 'organic agriculture' has become legally defined in a number of countries. It has its roots in the variously named biodynamic, regenerative agriculture, nature farming and permaculture movements which have developed in different countries. Numerous adaptations of the guidelines have taken place, but the common understanding is that:

'practicing organic agriculture involves managing the agroecosystem as an autonomous system, based on the primary production capacity of the soil under local climatic conditions. Agroecosystem management implies treating the system, on any scale, as a living organism supporting its own vital potential for biomass and animal production, along with biological mechanisms for mineral balancing, soil improvement and pest control. .. Farmers, their families and rural communities, are an integral part of this agroecosystem. Both sexes are involved on equal terms.'

(UNDP, 1992)

Some would argue that organic farming is the agricultural expression of what was finally recognised in Rio and pre-dated it by about 50-60 years. Though organic practitioners may claim that they saw the future, and they are finally being rewarded by the industry boom in the last 5-10 years, organic agriculture is still considered by many as an interesting niche market to be exploited rather than an agricultural system with wider benefits.

The International Federation of Organic Agriculture Movements (IFOAM) have published and continuously update the IFOAM Basic Standards for Organic Agriculture and Processing. These standards have been adopted worldwide as the framework of guidelines for organic agriculture. The principle aims of organic agriculture as expressed in the most recent revision (IFOAM, 1996) are presented below:

- to produce food of high nutritional quality in sufficient quantities
- to interact in a constructive and life-enhancing way with natural systems and cycles
- to encourage and enhance biological cycles within the farming system, involving micro-organisms, soil flora and fauna and plants and animals
- to maintain and increase long term fertility of soils
- to promote the healthy use and proper care of water, water resources and all life therein
- to help in the conservation of soil and water
- to use, as far as possible, renewable resources in locally organized agricultural systems
- to work, as far as possible, within a closed system with regard to organic matter and nutrient elements
- to work, as far as possible, with materials and substances which can be reused or recycled, either on the farm or elsewhere
- to give all livestock conditions of life which allow them to perform the basic aspects of their innate behaviour
- to minimize all forms of pollution that may result from agricultural practise
- to maintain the genetic diversity of the agricultural system and its surroundings, including the protection of plant and wildlife habitats

- to allow everyone involved in organic production and processing a quality of life conforming to the UN Human Rights charter, to cover their basic needs and obtain an adequate return and satisfaction from their work
- to consider the wider social and ecological impact of the farming system
- to produce non-food products out of renewable resources, which are fully biodegradable
- to encourage organic farming associations to function along democratic lines and the principle of division of powers
- to progress towards an entire organic production chain, which is both socially just and ecologically responsible

It is clear then that the practice of organic agriculture, rather than confining itself to technical issues of agronomy, livestock management and the farm business, is intended to deliver much wider benefits to:

- the agricultural system
- the environment
- society
- the economy
- institutions

Some of these benefits are presented in Table 1.

Table 1 Potential benefits of organic agriculture

Parameter	Potential benefits
Agriculture	Increased diversity, long term soil fertility, high food quality, reduced pest/disease, self-reliant production system, stable production
Environment	Reduced pollution, reduced dependence on non-renewable resources, negligible soil erosion, wildlife protection, resilient agroecosystem, compatibility of production with environment
Social conditions	Improved health, better education, stronger community, reduced rural migration, gender equality, increased employment, good quality work
Economic conditions	Stronger local economy, self-reliant economy, income security, increased returns, reduced cash investment, low risk
Organizational/ institutional	Cohesiveness, stability, democratic organizations, enhanced capacity

These benefits will be recognised by many governments in developed, developing and in-transition economies alike, as components of sustainable development. If these benefits are indeed realisable or stimulated under organic systems, increased support by DFID and other development agencies to initiatives of this sort would be justified.

Aim of this study

The aim of this study is to evaluate field experience of organic agriculture in developing countries to assess whether the expected impact of such projects is indeed seen, and under what circumstances do initiatives either achieve all or some of these, fail completely or continue to flourish. The impact of organic agriculture on the rural poor is the particular focus.

If there is evidence that some or all of these benefits are observed as a result of the implementation of organic agriculture, what, if any, 'recipe' of circumstances, design, implementation and funding can be determined?

Can guiding principles be developed to assist the operators, advisors and potential donors and investors to increase the chance of success?

METHODOLOGY

Basis of study

The review is based on the practical experience of organic agriculture initiatives derived from published and grey materials including interviews and contacts with key personnel. The review was prepared over three weeks in May 1998 and consisted of the following steps:

- contact with organic certification programmes worldwide and their licencees
- contact with advisors and consultants working in this field
- contact with development organisations
- collection of documents and resource materials
- selection of case studies for further investigation
- review of project structure and impact
- interviews with key personnel
- summarise the lessons learned

Project selection

Agriculture in developing and in-transition countries exhibits a complete spectrum of approaches from collection of wild products through small traditional farms to large commercial estates, from labour intensive to highly mechanised systems and from locally organised farm cooperatives to foreign owned plantations. Many, if not all, will use some techniques considered to be components of organic management systems. Individual techniques are therefore not limited to organic farmers and may be common in what would be considered conventional agriculture or the various intermediate approaches such as Integrated Pest Management (IPM) and Low-External-Input Sustainable Agriculture (LEISA).

As was pointed out in a recent study commissioned by DFID (Harris et al., 1998) few farmers in sub-Saharan Africa were found to practice a complete organic agriculture system as referred to above and defined in most organic standards. Many however practice component techniques such as green manuring, contour planting, crop rotations, composting etc. combined with a little fertiliser and some pesticides.

This continuous spectrum between conventional high external input agriculture and organic low external input systems presents some problems in evaluating the impact of organic systems. The best system we have for determining the organic integrity of a project is the inspection and monitoring performed by organic certification programmes. Since the context of the DFID review is related to ethical trade, and trade in organic products necessitates organic certification, we have primarily selected projects which have been certified by recognised organic certification programmes and which therefore, allowing for local adaptations, would be considered by most to be true organic systems. This approach tends to limit project type to those developed to produce for export and will exclude initiatives of a domestic nature.

ORGANIC AGRICULTURE IN DEVELOPING AND IN-TRANSITION COUNTRIES

Growth of organic agriculture

The growth and spread of organic agriculture throughout developing and in-transition countries is a very recent phenomenon, largely occurring in the last 10-15 years. One of the largest international organic certification programmes, the Organic Crop Improvement Association (OCIA), certified only 120 farms in 1986, all within the USA. In 1998 it inspects 35,000 farms in seventeen countries with a total acreage of 1m ha, including growers mainly concentrated in Central and South America and Asia (OCIA,1997). Many other certification programmes in Europe (Ecocert, BCS, SKAL, KRAV, IMO, Soil Association, OF&G) the USA, (FVO, QAI and Oregon Tilth) and Australia (NASAA) have developed international services in the last ten years to satisfy demand for gaining a mark of organic integrity that allows products to be traded worldwide. Numerous in-country certification programmes have been developed in Central and South America, Asia and Central and Eastern Europe (CEE).

Countries involved

Few countries have been left out of this development. IFOAM currently has over 600 member organisations, half of which are based in developing and in-transition countries. These members consist of producer organisations, certification programmes, NGOs, research organisations, teaching establishments, private companies and consultants. Table 2 indicates the range of products being produced in developing and in-transition countries in 1998. Central and South America have seen the most dramatic developments led particularly by Argentina. Asia has seen a slower increase (led by India and Sri Lanka and recently China) followed finally by Africa and CEE.

The development of organic agriculture in CEE region has occurred principally in Poland, Hungary, the Czech Republic and Slovakia although there are indications that the situation in other countries such as Lithuania and the Russian Federation is also progressing rapidly. Most CEE countries now have formally constituted organic organisations - the only countries believed to be without are Albania (although there have been some government initiatives), Bosnia-Hertzevina, Belarus, Macedonia and Ukraine.

Value of the trade

Estimating the volumes and value of products traded is difficult as no countries separate organic products in their trade statistics. Segger (1997) estimated total current global trade in organic produce to be US\$11 billion, over US\$4 billion of which takes place in the USA and US\$4.5 billion in Europe. With growth rates of 25-30%, he expected global value of organic trade to reach US\$100 billion by 2006. IIED(1997) estimated that the value of the organic premium to developing countries in 1997 was US\$500 million.

Products

Four main crops have dominated the organic trade from developing countries to date - coffee, cocoa, tea and cotton, with spices, herbs, fruit and vegetables following. Animal products have only recently entered international trade and remain insignificant at present. In CEE countries grains and vegetables are the main products.

Table 2 Main products and developing and CEE countries involved in the organic trade in 1998

REGION	COUNTRY	PRODUCTS	
AFRICA	Burkina Faso	Sesame	
	Ethiopia	Cotton	
	Gambia	Sesame	
	Ghana	Papaya	
	Kenya	Cotton	
	Madagascar	Rum, palm oil, coconut oil, vanilla, essential oils, cocoa, coffee, fruit	
	Mauritius	Sugar cane,	
	Tanzania	Honey	
	Senegal	Vegetables, groundnut	
	South Africa	Avocado, herbs, peaches, asparagus, nectarines, spices	
	Tanzania	Honey, cotton, tea, essential oils, herbs and spices	
	Uganda	Cotton, sesame, cocoa, oils	
	Zambia	Honey	
	Zimbabwe	Vegetables, herbs	
	MIDDLE EAST	Algeria	Dates
		Egypt	Vegetables, garlic, onions, potatoes, cotton, herbs
		Morocco	Potatoes, tomatoes, lemons
Tunisia		Dates	
Turkey		Dried fruit, nuts, cotton, pulses, olive oil,	
CENTRAL AMERICA/ CARIBBEAN	Belize	Cacao	
	Costa Rica	Coffee, tea, bananas, vegetables, sugar, herbal teas	
SOUTH AMERICA	Dominican Rep	Bananas, coffee, cocoa coconuts, mangoes, avocados, fruit puree, sugar	
	El Salvador	Coffee	
	Guatemala	Bananas, coffee, cashew nuts, vegetables, fruit	
	Mexico	Coffee, bananas, avocado, mango, peach, apple, spices cocoa, vegetables	
	Nicaragua	Coffee, neem, cotton, beans	
	Puerto Rico	Banana and banana products	
	Argentina	Fruit and vegetables, rice, oils, textile crops, meats, dairy products	
	Bolivia	Nuts, cocoa, quinoa, grains, dried fruit	
	Brazil	Coffee, tea, nuts, fruit, vegetables, sugar cotton, palm oil, banana products	
	Chile	Soft fruit, kiwi fruit, grapes, asparagus	
	Colombia	Coffee, nuts	
	Ecuador	Bananas	
	Paraguay	Soya beans, cane sugar, molasses, cane alcohol	
	Peru	Coffee, cotton	
	ASIA	China	Honey, sesame, tea, rice, apples, herbs, soybeans, groundnuts, spices
India		Tea, cotton, spices	
Indonesia		Coffee, herbs, spices	
Pakistan		Grains, herbs, spices, fruits, nuts	
Papua New Guinea		Coffee, tea	
Thailand		Vegetables, fruits	
Sri Lanka		Tea, spices, cashew nuts, pineapple, sesame, oils, dried coconut	
CEE		Czech Rep	Grains
	Hungary	Grains	
	Lithuania	Grains, potatoes, vegetables	
	Russia	Buckwheat, potatoes, vegetables	

Source: Personal communication from certification programmes and consultants

Nature of organic initiatives

Previous reviews

Few comprehensive reviews of organic projects have been prepared. One previous review of organic agriculture systems in developing countries (UNDP 1992) brought together 21 case studies in an attempt to document their viability. Twelve of the case studies were export-oriented projects, six were projects designed to revitalize agriculture in marginal or degraded situations to produce food crops and three projects combined food production and cash crops.

The information provided in that study is a useful base for this current review. The following tables provide a summary of the UNDP report adapted to the interests of the DFID by focusing on the origin of the project and its motivations (Table 3).

Table 3 Analysis of origin, motivation and implementation of 21 organic projects (UNDP, 1992)

Country	Start date	Product	Initiation	Main Motivation	Funding	Purpose	Farm type	Organic status
Indonesia	1984	Vegetables	FOR/NGO	Alternatives	Donor	Food/Cash	Small	-
Philippines	~1988	Crops	LOC/NGO	Environment	Donor	Food	Sub	-
India	1988	Tea	LOC/BUS	Market	Private	Cash	Estate	C
India	~1987	Food	FOR/GOV	Alternatives	Donor	Cash/food	Small	-
Egypt	1977	Herbs/Veg.	LOC/BUS	Market	Private	Cash/food	Small	C
Turkey	1989	Cotton	FOR/BUS.	Market	Private	Cash	Small	C
Morocco	1989	Dates	FOR/BUS.	Market	Local	Cash/food	Small	C
Burkina Faso	1989	Sesame	FOR/BUS.	Market	Private	Food/Cash	Small	C
Burkina Faso	1985	Food	FOR/NGO	Environment	Donor	Food/Cash	Small	-
Burkina Faso	1979	Food	LOC/GOV	Env/Social	Donor	Food	Sub	-
Senegal	1989	Food	FOR/NGO	Environment	Donor	Food/Cash	Small	-
Senegal	1987	Vegetables	LOC/NGO	Environment	Donor	Cash/food	Small	-
Tanzania	1980	Food	-	Environment	Donor	Food/Cash	Small	-
Dom Republic	1987	Banana	FOR/BUS	Market	Private	Cash/food	Small	C
Mexico	1985	Vegetables	FOR/BUS	Market	Private	Cash	Small	C
Mexico	1962	Coffee	FOR/BUS	Philosophy	Private	Cash	Estate	C
Mexico	1982	Coffee	LOC/NGO	Social	NGO	Food/Cash	Small	C
Nicaragua	1984	Food	FOR/NGO	Alternatives	NGO	Cash/food	Comm	-
Brazil	1987	Sugar	LOC/NGO	Market	NGO	Cash/food	Small	C
Paraguay	1988	Soybean	LOC/BUS	Market	Private	Cash	Comm	C
Paraguay	1987	Peanuts	LOC/BUS	Market	Private	Cash	Comm	C

No review documents have been published on the impact of organic agriculture in transition countries.

Current review

Given the diversity of climates, relief and economic and social structures in various developing and in-transition countries it is perhaps not surprising that the origins of, and rationale behind, organic agricultural initiatives are themselves diverse.

In terms of the rationale for initiation of organic projects there appears to have been an understandable transition through several stages, from personal philosophy of individuals (from the 1920s - 1970s when the organic market was non-existent) through to the interest of governments and large commercial concerns (today, when organic products command significant premia and increasing market share and may provide environmental benefits):

The stages are as follows:

- isolated farms producing for local market and minor export
- projects supported by local and foreign NGOs normally with aims of food security
- projects initiated by foreign buyers as early market entries
- projects supported by foreign NGOs for social reasons with mainly market oriented production
- projects supported by foreign aid donors with combination of goals - few as yet
- large private farms in conversion responding to market demand

Many projects have been initiated to address a combination of problems or opportunities and some, though started to find solutions to one problem, for example rural migration, may develop a new rationale as the project progresses, for example, earning foreign exchange from exports. As projects evolve they also bring in other participants.

In Costa Rica for example, the organic industry developed in the 1980s when some private Dutch and Japanese companies became interested in the potential for organic vegetable production. Later a local organisation, Asociacion Nacional de Agricultura Organica (ANAO) was formed and began to promote conversion to organic farming amongst small and large farmers. The government in Costa Rica has since set out regulations outlining national standards whilst the University of San Jose created an Organic Programme under which research on organic production methods is adapted to Costa Rican agroecology.

MOTIVATION

Economic necessity/Unavailability of inputs

In many developing countries, organic farming, or at least its component technologies, have been promoted in a reaction to the high external input techniques ushered in during the Green Revolution. Though the Green Revolution did undoubtedly bring a large increase in yields to farmers in many countries, it is now accepted that the rural poor did not participate in, nor benefit sustainably from this period. The new seeds and fertilisers required high initial outlay beyond the reach of many small farmers. Numerous projects such as the vegetable project in Indonesia initiated by the Bina Sarna Bhakti Foundation in 1984 and the Finca Esperanzita in Nicaragua for example, were designed to redress this using only local resources and simple technologies (UNDP, 1992). The Association of Better Land Husbandry project in Kenya currently supported by DFID is another example of what has been termed a 'nil-investment' approach to providing both food and income to poor rural people who only have land, their labour but little or no capital (Pretty, 1997). Harris et al (1998) reported that 64-70% of respondents to a postal survey in Sub-Saharan Africa rated limited funds to purchase fertilisers as an important reason for adopting alternative soil management techniques. The emphasis of organic farming systems on using local on-farm based techniques such as nitrogen fixing crops and green manures, recycling nutrients through composting and deep rooting plants, avoiding soil loss through contour planting and locally produced pest control treatments, once introduced (or reintroduced) allows poor, risk-averse farmers to produce food and income for their families.

On a national scale, seeds, fertilisers and sprays may not be available to farmers because of a weak economy, through civil war or foreign embargoes. Civil wars in El Salvador and Nicaragua during the 1980s left large areas of land untended and fallow. After the El Salvador peace accord was signed in 1992, agricultural producers in 'exconflictivas' zones were supported by the Cooperative League of the United States of America in conjunction with the Salvadoran government. The project concentrated on the production of organic coffee by small farmers. CLUSA worked with them to develop cooperatives and acted as the catalyst linking producers with an ever increasing US market for organic products involving companies such as Equal Exchange and Earth Trade. Over 3000 ha of organic coffee is now grown in El Salvador, approximately 6% of total coffee production in the country. Local coffee processing has been introduced to add value and other crops such as cacao, cashew, sesame, vegetables and berries have since been developed. The majority of production is exported but processed organic coffee is increasingly being sold to restaurants domestically (Babington-Smith, pers. comm.).

Case study 7 on Mozambique is a further example in which the financial state of the country meant that fertilisers and pesticides were too expensive for both the country and the farmers. The government supported by an aid donor were the main initiators.

Environmental concerns

In many developing countries food production has not kept up with population growth. Pressure on existing cultivated land has led to soil exhaustion resulting in increased use of marginal hill land with consequent soil erosion and increasing dependency on external fertilisers and pesticides to maintain production in more intensive, shortened rotation systems. Karp et al (1995) provide a review of 24 case studies indicating the types of environmental damage seen as a result of agricultural activity in developing countries:

- soil erosion low productivity, salinity, water holding capacity
- sediment damage reservoir siltation, increased navigation channelsiltation, floods, increase costs of road maintenance, habitat degradation
- over irrigation depletion of groundwater, water logging, salinisation
- agrochemical damage worker health, water contamination, weed choking, cost of mending damage
- soil compaction soil productivity
- deforestation soil erosion etc., crop damage from high wind, loss of genetic diversity
- wetlands drainage decreased water purification service, genetic diversity loss
- air pollution odour, smoke, worker safety

It is notable that few studies give monetary value of environmental damage.

Numerous studies have indicated that organic systems or component technologies have helped to stabilise soils.

In Tanzania, on farm trials revealed that *Leucaena* strips along contour lines reduced soil erosion by 25%, increased gross margins over non-improved systems by 74% and return to labour by 31%. The *Leucaena* provided forage for milk and meat production, thus diversifying food production and income as well.

Increasing population pressure in the peanut basin of Senegal has led to the area almost completely losing its vegetation, loss of organic matter and fertility. An American NGO, Rodale Institute developed and trialled a soil management system with local farmers integrating

erosion control with manure management and composting, use of legumes and livestock. Groundnut yield increased on farm trials by 20% compared to control plots.

Wildlife protection also arises as motivations in some organic projects. In Tamil Nadu in India one of the motivations behind a large private tea estate converting some of its production to organic methods was its location within a tiger reserve in which live a number of endangered wildlife species as well as the tigers. The estate has actively maintained forest cover to protect wildlife.

In Venezuela the government set aside an area in the Cordillera de Merida above Barquisimeto as a protected area and has instructed farmers to convert to organic farming systems or be evicted from their holdings in an effort to assure the long term quality of water available for the city and for irrigation in the valley (Pauwels, personal communication)

Many Central and Eastern European countries suffered serious environmental and resource degradation problems with the development of communist agriculture and now face a number of agri-environmental challenges, including:

- the reversal of existing environmental degradation caused by agriculture e.g. soil erosion and pesticide pollution;
- the amelioration of industrial contamination which continues to impact upon agriculture e.g. heavy metal pollution;
- ensuring that the stabilisation and enhancement of agricultural output respects ecological limits, and does not put additional pressure upon natural resources and the environment.

Throughout the CEE region there is evidence of organic farming playing a distinct and important role in the environmentally-sensitive reform of post-communist agriculture. For example:

- in the Czech Republic, Baltic States and Russian Federation, organic farming is being promoted within environmental conservation (e.g. water protection) zones (see Case Study 6 on Lithuania);
- organic farming is being investigated as a cost-effective policy option for helping address the environmental problems of the Danube Basin and Black Sea (see Project profile 1).

Social concerns

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.

In the southern states of Guerrero, Oaxaca and Chiapas in Mexico the Indian population was largely dependent on intermediaries to supply inputs and market their coffee. Incomes were low at US\$250-400 per year. Three communities came together in 1982 to form a Union (Union de Comunidades Indigenas de la Region del Istmo) in an attempt to improve their income by taking greater control over the marketing of their coffee. They opted for organic production so as to free themselves of the need for buying fertilisers. The Union has been able to develop its own infrastructure for the transport, processing and export of the coffee. Through contact with fair trade and organic certification organisations internationally the coffee is sold at a premium. With this money the Union has developed a public transport system over the mountains, owns a number of shops providing basic provisions and set up a medical insurance system. The Union

has a membership of 37 communities with a total of more than 3000 families. Today the project still flourishes and is one of the longest standing organic projects in a developing country.

In CEE the political fragmentation of the former-communist bloc has been associated with fundamental social and economic change in rural areas. There is a widespread feeling amongst many people living in the rural areas of the CEE countries that the benefits of post-communist reform are felt largely in the towns and cities, and that little has been done to assist the rural economy, including agriculture. New shops selling high quality, high priced imported goods in the major urban centres of the region are in marked contrast to the dereliction of many previously productive rural enterprises. Indeed, rural disaffection was one of the main factors leading to the renaissance of the Communist Party in many CEE countries in the mid-1990s.

Throughout CEE there have been a number of pressures upon the rural economy and the cohesion of rural communities. For example in less-developed countries, such as Romania, agrarian reforms have led to the widespread emergence of subsistence farming and a significant increase in the proportion of the population directly engaged in agriculture (from 28-36%). In more developed economies of the region, reforms have been accompanied by a sharp reduction in agricultural employment (e.g. by about two-thirds in Hungary), although these declines are again less marked in those countries with a traditional small-farm sector (e.g. Poland).

Personal philosophy

Personal commitment from key people either in setting up productive farms or in initiating organic movements within a country are often the initial step towards a wider conversion of farmers. This has been true throughout Europe and is seen all over the world. The commitment may arise from environmental, social or ethical concerns and therefore acts through the other reasons for initiation discussed here. Most would agree however, that individual commitment usually backed up by financial commitment is however crucial in the early stages to overcome the doubts that may be in farmers minds about giving up chemicals. Harris et al(1998) noted that some farmers expressed a fear of changing to organic farming methods for fear of crop failure and others considered chemical use a sign of development and a return to manures and compost a backward step.

Cheatle (pers. comm., 1998) has indicated the problems small farmers in Kenya have in complying with full organic standards when they have no way of controlling blight on tomatoes other than spraying fungicides. Farmers' reluctance to give up chemicals is seen throughout the world, since, for many, it is all they have known and non-polluting answers are not immediately available or require more fundamental changes in management

As the concept of organic agriculture has arguably been developed in the North, at least intellectually, if not exclusively in a practical sense, it is perhaps not surprising that the personal commitment or philosophy that initiates organic projects is frequently imported to developing countries from the North. The development of Finca Irlanda in Mexico (UNDP,1992) and the initiation of the Maya Gold chocolate from cacao in Belize (see Case study 1) are good examples of this personal commitment.

Market demand

The first supermarkets in the UK tentatively started stocking organic products in the early 1980s. In 1997 one supermarket sold 182 organic product lines worth £20m, about 7% of their takings (Soil Association research - unpublished). This expansion is paralleled in most European countries. In the USA 1997 retail sales reached US\$4.7 billion continuing growth of

25% year on year for the last five. The largest organic supermarket chain in the USA, Whole Foods Inc. has over 50 stores throughout the country with sales of over US\$1m. Whereas in the past, market demand was a problem or a secondary issue for organic projects, it has now become the main stimulus for many initiatives.

Argentina is a country that has responded dramatically to this growing market. From a certified acreage of 1,500ha in 1992 to over 200,000ha in 1998 (Laura Montenegro,pers.comm.) the expansion has been facilitated by the government's implementation of official regulations and recognition by the European commission that Argentina operates equivalent inspection and certification systems to Europe.

In Baja California Sur in Mexico a joint venture between a US importer and a producers cooperative in Mexico was set up in 1985 to supply off-season vegetables to the US market. This is a highly organised export operation with an astute marketing and sales component. Economically farmers have done well purchasing trucks and enlarging houses (UNDP,1992).

In central and eastern Europe the most significant market-orientated developments are to be found in Poland, Hungary, the Czech Republic and Slovakia - often on the larger 'lowland' farms that are under private, collective or co-operative ownership. Much of the interest in these countries is focused upon the opportunity that organic agriculture offers for 'adding value' to agricultural produce - including

- the market for 'healthy' organic food that is emerging in some urban centres of CEE countries e.g. in Poland.
- the more highly developed and sophisticated market for organic food in Western countries

The latter is currently the focus of many organic producers in CEE countries, and quantities of organic produce and processed products (albeit still relatively small) are routinely exported to Holland, Germany, Denmark, Austria and the UK. Some countries (e.g. Hungary and Slovakia) have made more rapid progress with the development of export markets than others

INITIATION

The small farmer

Generally small growers in developing countries do not drastically change farming practice unless to reduce risk or when they are heavily influenced by outside forces as in numerous aid programmes which frequently involve inducements such as free planting material and inputs such as in the USAID cacao project in Belize (see case study 1).

From a postal survey and field work in Ghana, Harris et al(1998) noted that small farmers who practise unimproved traditional farming in the rural areas were not likely to be interested in alternative techniques. However where attention is drawn to problems or opportunities to improve food security or livelihoods such as in the Association des Femmes Zabre project in Burkina Faso (UNDP,1992) motivation for change is developed.

This was the case in Uganda and Mozambique in projects initiated under the Export Promotion of Organic Products from Africa Programme. As described in case studies 7 and 8, the concept of organic agriculture was essentially a top down initiative in both cases. Acceptance of the project was excellent in Uganda but viewed with some mistrust in Mozambique.

A study by FETA consultants in Zimbabwe looked at the feasibility of purchasing certified organic products from outgrower-peasant farmers. The report concluded that using small

farmers as outgrowers of certified organic produce was not commercially feasible without heavy donor input. (DonGreenburg, personal communication)

The large farmer

Other than some isolated instances of large estates being converted driven by a strong personal philosophy of commitment to environmental protection or social welfare such as the Finca Irlanda in Mexico and the Ambootia Tea Estate in India (case study 4), large farmers and multi-national farm operations have up until recently remained committed to high input farming. In Mozambique the joint venture companies (previously multi-national cotton companies but now part owned by government and part by multi-national shareholders) remained totally unconvinced of the potential for organic cotton production (see case study 7)

Increasingly however, larger farmers are seeing organic production as a good commercial proposition. In South Africa, the organic sector is dominated by large estate farms producing avocados, peaches, nectarines but also some vegetables and herbs. Most of the production is focused on the European market. Many have been encouraged by contact with buyers in Europe who have assisted in obtaining, and sometimes paid for, organic certification.

Local NGOs and private sector

Most organic projects initiated before the world market took off were initiated by local NGOs or the private sector, though often with foreign links. In countries such as Poland, Hungary and Lithuania, the development of organic agriculture has been led entirely by NGOs together with some private sector marketing initiatives. One of the great strengths of this approach is the personal motivation and expertise of key (often pioneering) individuals. However, this can also be a significant weakness leading to over-dependence upon these same individuals, isolation from other groups (including government) and the escalation of conflicts e.g. in Poland the Polish Society of Ecological Farming (PTRE) formed in 1993 as a 'splinter-group' of the original Association of Ecological Food Producers (EKOLAND).

In Kenya there now exists 24 organic NGO farming organisations which have developed, often as splinter groups, one from another. The government remains uninterested despite the apparent activity within the country. Projects such as the DFID supported ABLH project and a Dutch funded project with the Kenyan Institute of Organic Farming have been developed without government cooperation.

A common conclusion of local NGOs is that they can achieve a lot on their own, but sooner or later it is desirable to forge links with local and national government. In Venezuela a foreign NGO has helped with developing organic agriculture, in particular coffee, which has been certified by a UK certification programme. After many years, the government have shown their commitment to organic agriculture by funding a training course for organic inspectors in the UK to be run by the Soil Association in July 1998. A Ministry official will take part on the course.

Government

Examples of where government has taken the lead in developing organic agriculture are unusual. In the Czech Republic and Slovakia (especially), the encouragement and support of organic agriculture has been led principally by government. The reasons for this involvement may be environmental protection (e.g. the Czech Republic) or the demand from export markets (e.g. Slovakia), but the important strength of this approach is the possibility of some (at least temporary) financial assistance for farmers. The problem is that the integrity and motivation of

a purely government-driven initiative has attracted criticism and the concentration of too much influence in the hands of politicians and civil servants was perceived as undesirable. In Slovakia, for example, even the apparently independent farmers' NGO is run by Ministry officials.

In Argentina, the organic movement has been led primarily by commercial producers and processors. The government quickly gave its support to the sector through regulation and preparing legislation and gaining recognition for its inspection and certification system with the EU. The main certification programme in Argentina, Argencert became accredited with IFOAM in 1997.

In China the organic movement has largely been led by individuals and NGOs. Recently however government have given support and their submission for recognition as an approved Third country is currently before the EU Commission (Peter Crofts - pers. comm.).

International 'Partnerships'

Numerous organic initiatives have been started by a combination of local and foreign partnerships, either on a commercial basis between producer and buyer (see case study 3), as small scale NGO social/environmental schemes such as those developed by CLUSA in Central America and the Avalon projects in CEE (see project profile 3) or as large scale aid schemes such as the EU Phare programme (see project profile 1) and the EPOPA programme in Africa (see project profile 2).

In some cases, such as in Estonia and Latvia, the first steps towards establishing an organic movement were initiated by foreign projects and then subsequently maintained by local NGOs with on-going support from their foreign partners (e.g. for product certification and export).

In the Russian Federation, most organic produce is certified and exported by a private business formed by organic specialists from Russia, Germany and the USA. However, many CEE NGOs have become increasingly suspicious of being approached by foreign organisations (e.g. commercial consultancy groups) interested in obtaining resources from national/international funds for 'assisting the development of sustainable agriculture in CEE'. Local partners fear becoming mere contractors with minimal influence upon the direction of projects and relatively little financial benefit for their trouble while their foreign partners reap the rewards of significant project funding.

These patterns of development are clearly simplistic, and the actual nature of projects undertaken and the course of development pursued also depends upon many other factors. For example, organic organisations in different countries differ in the functions they choose to develop first. Although the organic movements of Hungary and Slovakia contrast greatly in the respective roles of NGOs and government, they are both export-oriented and started the development of appropriate certification systems early. In Hungary, some 95% of all organic produce is now exported and the Hungarian certification system is both recognised by the IFOAM Accreditation Programme and included on the EU List of Third Countries (see Case study 4).

Case study 1 - Belize - Cacao

Origin of the project

The Maya Indians in the Toledo district of Belize had been involved in a USAID sponsored cacao project in the late 1980s with Hershey's as the intended buyer. Project participants had been encouraged to plant cacao based on estimated sales prices of US\$1.75 per pound. When the trees came into production, the actual price offered was only 55 cent per lb. The majority of growers abandoned their plots, some moved away to work on the citrus groves in the north and others returned to subsistence farming.

In 1991 Green & Blacks Organic chocolate was launched in London by Craig Sams and Josephine Fairley using certified organic cacao from Togo. In 1992 the company had persuaded Sainsburys to stock the product. That same year however, due to political upheaval in Togo, the cacao became unavailable and the company had to look for alternative sources of cacao.

In 1993 Craig Sams visited Belize and signed a contract with an existing growers cooperative, the Toledo Cacao Growers Association (TCGA) and the process of organic certification was initiated. In 1994 a joint inspection was conducted for organic and fair trade status. Since then, 100% of the cacao output of the TCGA has been sold to Green & Blacks and the relationship continues now.

Green & Blacks provides TCGA with a guaranteed market for their cacao at a Fair-trade mandated price set for the world market in Switzerland, and TCGA provide their product to Green & Blacks exclusively, though they are free to sell to other buyers.

Agricultural impact

Approximately 130 farmers are members of TCGA, with about 100 being active suppliers of cacao for sale. In the past non-members were able to supply but this was disallowed under organic certification requirements. Farmers own from 150 -2000 trees each

In the Toledo district the cacao was established under the USAID programme using hybrid varieties, chemicals and fertilisers. When the world price fell in 1991 the trees were just bearing their first crop. Since that date no chemicals were applied. It is then difficult to say what effect conversion to organic methods has had on yield and quality

Overall output from the district has increased since 1991. As far as the farmers of Toledo are concerned, there has been a dramatic increase in the last five years.

Table 4 Annual sales of cacao by TCGA to Green & Blacks

Year	TCGA sales of cacao - kg
1993	8200
1994	13200
1995	21818
1996	16363
1997	23636
1998	29545 estimate

Source: C.Nesbitt pers. comm.

In the neighbouring districts of Cayo and Stann Creek there are many acres of cacao being left unharvested or ploughed under to make way for citrus. The holdings in these areas are mostly plantation-scale which were created to supply Hersheys. When the price fell the holdings were abandoned.

Apart from greedy children who break cacao pods and suck out the flesh, the main pests are kinkajous and squirrels who also eat cacao. There is a small problem with woodpeckers who poke holes in the cacao pods and then return later to eat the insects who are attracted by the sweet pulp.

Of a potentially more serious nature, there has been a problem of fungus on the cacao pods. Many farmers are concerned that this is the dreaded "black pod disease", however that has not been confirmed. With better shade management and more pruning, there seems to be less incidence of it.

Environmental impact

Organic cacao is an environmentally benign form of agriculture in the tropics. Unlike citrus, banana and sugar, the three major agricultural export crops of Belize which have been produced on a plantation scale requiring removal of forest, cacao benefits from an overstorey, and does not require pesticides or fertilizers to be productive. The overstorey can be home to many species of domestic and migratory birds, and the understorey can provide habitat for a variety of mammals. Due to the fact that the ground is not disturbed or cleared during planting and root structures of other trees remain intact, there is little or no water runoff or soil loss caused by a transition into cacao production from fallow or untouched land.

The contract that was signed between Green & Blacks and TCGA also included a clause that guaranteed a payment of a 5 cents per lb premium to any grower who would plant a mahogany, cedar, mamey fruit or cohune nut tree as part of the shade system on each acre of land. This was established to encourage long term view encouraging wildlife and biodiversity within the cacao groves. As there is little habitat disturbance in planting cacao, the groves retain a desirable high canopy but still use land for agricultural production. This form of cacao production allows economic production alongside watershed and wildlife habitat preservation.

In the Indian reservation at San Pedro Columbia, Toledo District, for example, the only remaining stand of mature trees are over one of the oldest cacao groves in Toledo. This cacao grove is owned by the Pau family who migrated into Belize from Guatemala in the early twentieth century. Most of the rest of the reservation is used for shifting agriculture, traditional slash and burn farming to plant beans, corn and rice. There are a few small farms of cacao in the Columbia reservation besides Mr. Pau's, but these are all less than 10 years old.

Economic impact

Toledo district is often called the forgotten district in Belize. It lies at the end of a long unpaved road. There is little employment available and subsistence farming is practiced by most of the Kekchi and Mopan Mayan inhabitants of the western half of the district. The district is economically marginalised and the Maya of Toledo West are under-represented in the government.

Green & Blacks currently pay the TCGA US\$78 cents per pound for dried and fermented cacao. This is significantly more than the world market price for cacao. Green & Blacks also

pay for organic certification for the Association on an annual basis and the finished chocolate product is levied by the Fair Trade Foundation which again is paid for by the buyers.

In the financial year 1997 the TCGA sold 52,000lbs of cacao to Green and Blacks at US\$78 cents per lb, resulting in US\$39,000 flowing into the TCGA, a 40% increase over their previous income. The Association bought the cacao from the growers at US\$67.5 cents per pound, which pumped US\$ \$35,000 directly into some of the poorest communities in Belize. The remaining US\$4000 was the entire budget for the TCGA for buying year 1997 and paid for miscellaneous expenditures, phone, fax, accountant services, custom brokerage and in-land freight to the port of Belize City for exportation.

The TCGA have been mostly economically self sufficient since the rolling five year contract with Green & Blacks was initiated. It has been the policy of the TCGA to give as much of the money coming in from the sale of the cacao to the farmers as possible and to operate on a fairly tight budget, leaving little for the Association to invest in future development.

The vast majority of the TCGA's members are full time subsistence farmers. They grow corn and beans as staples, and maybe bananas, plantains or other fruits and vegetables for sale in the market. A few are involved in the evolving "eco-tourism" industry, and some do undertake temporary employment in other parts of the country. Cacao is a very important part of the economy of the Toledo West. In many villages, San Jose in particular it is a significant percentage of the annual income for the village. If there were no contract for the farmers, then many would be reluctant to plant more. The TCGA report that many members are young men encouraged to plant cacao on the basis of the Green & Black's contract. The rolling five year contract is then, an important confidence building tool for the farmers and the wider community.

For their part Green & Blacks have indicated they would be willing to purchase double the current amount of cacao.

Social impact

The village of San Jose, which is actually the biggest producer of cacao in Toledo, is remote and very cash poor. Cacao is a significant contributor to the income level of the farmers who grow cacao there.

They have less access to education and health services than any other ethnic community in Belize. The recent introduction of cacao as a cash crop has enabled the farmers of Toledo to integrate more fully with the national economy. The export of cacao by TCFGA has given credibility to the group within the community. Before the introduction of cacao as a cash crop, many of the farmers were on the periphery of the cash economy, and access to education was hampered by lack of currency. Secondary school education for at least the first one or two children has become affordable to an increasing number, though the bias towards sending male children is still obvious.

100 farmers and their families are involved in the TCGA and many have been able to stop the journey north to work on the citrus plantations and have invested the money in secondary education for their children and to save part of their income.

Most of the farmers involved in the TCGA and that tend, harvest and ferment the cacao are men. However in 1996, the first woman joined the managing council.

Institutional impact

The TCGA has approximately 115 members in 9 villages. It is a democratic organization with an Annual General Meeting and monthly meetings of the executive. The executive is comprised of members of the Association. Every two years an election is held at the General Meeting, and a new executive is elected. The villages of San Jose and San Antonio produce the majority of the cacao for the TCGA.

The Executive of the TCGA are comprised of seven officers. They are not paid except for modest stipends of between Belize \$10 or \$20 for each day that they have to work on business related to the TCGA. At the end of the buying year 1997, the Chairman of the TCGA hired the services of an accountant. This was done as the last review of the TCGA by the Fair-trade inspector was unfavourable in regards to the state of book keeping. While the books were in order, the Secretary, the Treasurer and the Chairman live in different villages and the records were not assembled in one place at that time.

The TCGA are currently seeking funding to obtain second hand computers and a fax machine to assist them in linking with Green & Blacks and the certification programmes. This is needed to guarantee that the farmers will keep the high price that they have at this time.

Improved office facilities and business records is one of the requirements for Fair Trade. TransFairs standard for offices is the same for a coop with 100 members as it is with 10,000 members. Whilst the resources available to a co-op with 10,000 members is much more than what is available to a small cooperative like the TCGA, the Fair-trade Foundation requires that TCGA have better facilities.

Government have been mostly unconcerned and uninvolved in the organic project. The TCGA use a government building for their warehouse and office but haven't paid rent on it for three years, which indicates the level of non-interest.

In 1997 Christopher Nesbitt became local liaison person in Toledo, employed by Green & Blacks to assist TCGA in particular the records and office procedures that both certification processes require. One of the next steps for the TCGA as their membership grows is to develop their own internal control and verification mechanisms as a requirement of the organic certification process. This will add to the fixed costs of the TCGA management on one side but will reduce the cost of certification as a result of a reduced annual visit duration. The benefit should be improved organisational capacity for management.

Problems and obstacles to development

The single biggest obstacle to development is land tenure. Since the majority of Toledo's cacao farmers are growing cacao in an Indian Reservation, or, worse yet, on Crown land, they do not own the land the cacao is growing on. Therefore, many are reluctant to grow more than they have now. Farming on Crown land is actually legally considered squatting. If farmers don't have title to their land, many are reluctant to plant permanent crops. Getting title for reservation land is a long and complicated process.

There have been minor internal power struggles within the TCGA, ultimately decided peacefully. There has, on occasions, been a lack of understanding of the reason why certification, both organic and fair-trade, is important to the value of the cacao that the TCGA sell. These are internal discussions which occur from time to time.

Certification costs may arise as a problem in 1998. The fair trade guidelines insist that the organic certification cost must be covered by the TCGA rather than the buyer. This is considered to be a component part of the organisations empowerment process and an acceptance of responsibility for its own affairs. It is notable that the fair trade certification fee is not required to be covered in this way, being collected on a levy of sales of the final product in the destination country.

The majority of the farmers in the TCGA are passive organic growers at most managing the trees and surrounding forest by pruning and hand weeding. They use no chemical inputs, either pesticides for pest control or herbicides for controlling competition from other plants, and they don't use fertilizers to boost production. Some are experimenting with dolomite and hauling pig manure from a developing hybrid pig project nearby to the groves. Continued organic certification will depend on the development of more active management systems to ensure that soil nutrient depletion does not occur.

Sources

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Case study 2 - Dominican Republic - Bananas

Origin of the project

This project was previously reviewed in UNDP (1992). New information was collected from Plantaciones Tropicales SA.

Alex and Wilson Rood founded Plantaciones Tropicales SA in Dominican Republic as an integrated production and processing operation. The company encouraged and assisted in the development of cashew and mango orchards in the Azua valley, 100 km west of Santo Domingo in the south west of the country. Originally the project was set up as a low chemical input system but in 1988 the owners saw the potential for organically grown produce as an export and registered with a US based organic certification programme. They entered the European market via an American trading company Mercantile Food Company which traded grains with Schwartzbrot in Hamburg, who were the first importer of organic bananas from the Canary Islands. As a result of these market connections the programme expanded into coconuts and bananas.

Agricultural impact

The project was set up as a commercial venture over 100 ha contracting small farmers with between 3-4 ha each to produce mainly bananas but also plantains, pasture (and livestock), maize, sorghum, cassava and vegetables are included in the rotation. Plantaciones Tropicales now co-ordinate the production and export of organic mangoes, cacao, coffee and coconut as well as banana.

Though the organic system does require greater labour, the difference between the no-input traditional system and the organic approach is not great, so has not been so difficult for farmers to accept. That there is no need to buy expensive chemicals is considered an advantage. The lack of a strong extension service in the region was also considered an advantage in that the alternative chemical message was less strong.

In the Azua valley, high input, traditional and organic banana systems operate together which has allowed the possibility for comparisons between the approaches. The data is presented in Table 5.

The management considers that the returns are equal to any conventional bananas grown on the north coast, especially in the summer months when drought hits yields of conventional plantation badly. The increased organic matter of the organic system and the increased mulching appear to provide more drought resistance and more stable yields. Growers are increasing their acreage by planting new areas as well as new growers wanting to grow for Plantaciones Tropicales.

Environmental impact

This is a private investment project with a social and environmental edge. No formal environmental monitoring has been undertaken. The owners noted that one observable benefit is that there are no plastic bags thrown about the banana farms, as these are not used as in the conventional system for reducing thrip, mite and wind scarring. All the local manures available are being composted and used on the farms compared to previous dumping to contaminate streams. There is zero use of pesticides, chemical fertilizers and a more controlled use of water.

Table 5 Comparison of three management systems for producing bananas in the Dominican Republic

Parameter	High input	Organic	Traditional
Production in tonnes	36	27	16
Fertiliser			
N (kg)	400	-	-
P (kg)	100	-	-
K (kg)	400	-	-
Compost (t)	-	2	-
Chicken manure (t)	-	2	-
Manure (t)	-	56	-
Fertiliser cost-US\$/ha			
NPK	602	-	-
Compost	-	231	-
Chicken manure	-	75	-
Manure	-	157	-
Insect pest & disease control			
US\$/ha/yr			
Benomyl, Maneb			
Diazinon, Mertect	110	-	-
Neem			-
Unskilled labour - man days	321	468	156
Labour cost - US\$/ha/yr	1000	11504	502
Gross income - US\$/ha/yr	11800	12460	727

Source: UNDP, 1992

The Azua valley is a semi arid region with alluvial soils. With irrigation conventional banana production can be high yielding. An irrigation system does exist in the valley but has been poorly managed and farmers find it difficult to obtain water from laterals when required.

Organic techniques such as maintaining constant soil cover and high return of organic matter have encouraged good water infiltration and reduced evaporation which assist in reducing water requirement.

Economic impact

Over 300 farmers receive a weekly stable income from the bananashipments which have been developed to Holland, which was not the case before the project started in the Azua valley. Previous agricultural initiatives had been discontinued due to white fly in the tomato and melon projects. Organic bananas obtain a 30-40% premium on the farm gate price of conventional fruit.

On an average farm of 3-4 ha, 50% under banana, this represents an annual operating margin of US\$18690 - 24920.

Social impact

The project provides donations for the rural clinics in each area, and support vaccination programs, as well as emergency assistance when necessary. Socially the owners feel that the project unites the growers as a group focused on organic agriculture and training sessions required for development encourage meetings and creates a sense of identity. During the ten years existence of the project new roads have been cut into the area partly funded by the company.

The communities of Ansonia, Finca 2c, finca 3, finca 4 and finca 7 are the main beneficiaries, which involves 335 small farmers, previously primarily at the subsistence level and more than 1,500 family members. All family members work and have a guaranteed market for their produce.

Food production from crops and animals that have been integrated into the rotation are available for the families.

Institutional impact

The project has been a founding member of the JAD, (Junta Agroempresarial Dominicana) the largest federation of agricultural associations, producers, exporters, agro-industries in the Dominican Republic. Within this Junta an Organic Committee has been set up in which all organic growers, producers, exporters participate. Local institutions like the Endrhi (irrigation supply), the IAD (land reform department) are all institutions that we work closely with and coordinate efforts to improve conditions for profitable production.

Alex Rood commented, 'In general this organic banana project has benefited more than 6,000 people, all who either work, grow and or indirectly participate, or are dependents of people in the organic banana projects that are established. Today there are now three new companies involved in growing and exporting organic products, as well as many more growers and associations of grower in developing organic agriculture because of our initiatives. Crops include cacao, coffee, passion fruit, pineapple, mango and coconut. Producers are all marketing their products directly to the industry. We feel very happy about these accomplishments as well as optimism for the future of the organic industry in the Dominican Republic overall'.

Problems and obstacles to development

The project is for the most part a great success as it has been able to transform and educate a large number of small rural growers into organic farming. More and more growers want to participate into the program on a daily weekly basis. The obstacles have been financing and technological innovations as the owners have not been able to invest in improving the transporting of banana stems via cableway which will increase exportable volumes immediately. Currently the stems are transported by truck.

Buyers in Europe see organic bananas as an exciting product with a definite future but are somewhat constrained by the small quantities available, which increases handling costs. Losses are higher in transit and the supermarket buyers are only slightly more lenient in their specifications for organic fruit. Most organic producers are smallholders at present, such as in the Dominican Republic situation and are generally less experienced and professional in their

handling of the product. Price to the consumer is mainly influenced by the extra costs of handling and shipping organic fruit rather than the farm gate premium.

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Case study 3 - Egypt - Cotton, Vegetables and Herbs

Origin of the project

SEKEM was founded by Dr Ibrahim Abouleish in 1977 with integrating aims of producing environmentally sound products by adapting biodynamic agriculture to the Egyptian situation and, at the same time cultivating Egyptian consciousness and community. Dr Abouleish was supported by a group of European partners, mainly from the German organic movement. The project has developed production of a wide range of herbs, fruit and vegetables, milk and meats, much of it for export and has diversified from primary production into packing for export and retailing within Egypt. Sekem is a private business contracting farmers to grow for it. Organic cotton production commenced in 1991 on an area of 30 acres in the Gharbia region in the Nile Delta.

In addition to the main farm over 150 farmers are currently involved in the Sekem project covering 5000 acres distributed between the Aswan dam in the south to Alexandria in the north. The farmers are organised as the Egyptian Biodynamic Association (EBDA). Much of their production is packed and exported by Sekem. Sekem provides the farmers with training and advice, some inputs, quality control and takes care of organic certification and guarantees to buy at a fixed price. A local certification initiative has also been undertaken supported by a foreign certification programme.

Agricultural impact

After the initial 30 acre trial area proved successful 300 acres of organic cotton were grown the following year. In 1996 over 1000 acres were grown. In Egypt, the majority of cotton is produced by small farmers normally in rotation with other crops. Some mechanisation is used for preparing seedbeds and manure spreading, otherwise much of the work is manual. Table 6 illustrates a comparison of costs between conventional and organic systems.

Table 6 Cost comparison between conventional and organic cotton production in Egypt

Activity	US\$ per ha			% of total cost	
	Conventional	Organic	Difference	Conventional	Organic
Seedbed preparation	74	74	0	4	4
Fertiliser	148	204	56	8	11
Seeding	71	74	3	4	4
Irrigation	126	126	0	7	7
Thinning	16	16	0	1	1
Weed control	71	71	0	4	4
Pest management	327	282	-45	18	15
Harvesting	282	282	0	15	15
Supervisor	18	29	11	1	2
Land cost	706	706	0	38	38
Total cost	1.839	1.864	25	100	101

Source: El-Araby, A. & Elzakker, B. van (1997)

Seedbed preparation, irrigation, thinning, weeding and harvesting are performed similarly with similar costs for conventional and organic production. Weeding is performed by hand in both systems, although Sekem report reduced weed problems in the organic system due to varied rotation. However this does not translate into financial savings as the weeding is charged on a per acre basis.

Compared to the use of superphosphate, ammonium nitrate and potassium sulphate in conventional systems, soil fertility is maintained in the organic system through the use of compost and the growing of leguminous greenmanures in the rotation. Rock phosphate and wood ash are also applied. Conventional seeds are treated with Ridomil or Captan against soil borne pathogens, whereas in the organic system they are treated with a *Trichoderma* preparation with not much difference in cost.

The biggest difference in conventional and organic systems lies in pest control. In conventional systems, young cotton plants are treated with malathion. Egg masses of leaf worms are collected by school children and later chemically sprayed with dimethoate. Spraying is done with aircraft, motorised dusters and backpack sprayers. In the organic system the absence of insecticides is expected to increase the activity of natural predators. Populations of the pink and spiny bollworm are monitored with pheromone traps. In the event of an attack, mating disruption pheromone treatments are used. Where necessary bollworms can be additionally sprayed with spores of *Beauveria bassiana*, a fungal disease of the insect.

Lastly the cost of supervision under the organic system is higher to cover the extra organisation and training involved in implementing relatively new techniques, trap monitoring etc.

Conventional cotton yields are 2800kg of seed cotton per ha. In the first two years of organic cotton production, yields were lower at 2400kg per ha but on the well established organic farms a yield of 2600kg per ha is average.

In addition to cotton about 600 tonnes of herbs are produced and dried or steam distilled. Over 6000 tonnes of fresh produce is produced and packed for customers in Europe with some being sold domestically.

Environmental impact

No formal environmental monitoring has been undertaken in the project. However the Egyptian Ministry of Agriculture is enthusiastic estimating the reduction in the level of pesticide application to be 20% and have recently stopped aerial spraying. The Ministry have adopted organic agriculture in a recent project on desert reclamation. The application of compost as opposed to raw manures and soluble fertilisers is likely to have reduced nitrates in water courses which are used for irrigation, swimming and for drinking water, though there has been no formal monitoring of this.

Environmental benefits are likely to accrue as much from the development of new processing techniques introduced under the supervision of organic certification. The new washing techniques with less environmentally damaging detergents and the reactive dye technology allow very low concentration of dyes and easy recycling.

Economic impact

The higher cost of the organic production system arises from a higher cost of inputs, notably compost preparation and application and pest management. Labour costs were recorded as less in the organic system. This is relatively unusual in comparisons of organic and conventional systems where lower input costs and higher labour costs normally characterise the organic system. This is in part due to the intensive labour usage in conventional Egyptian agriculture.

The farm gate price of organic cotton, at US\$1.16 per kg, is 15% higher than conventional cotton giving a gross profit of US\$1152 per ha compared to US\$976 per ha for conventional. In 1997, 600,000 garments based on 150 designs were produced in association with a German partner Anatoura. Over 60% of these garments are exported.

Differences in the procedures and cost of handling the organic cotton are seen during preparation of the cotton into garments during the washing, dyeing and printing stages. Detergents used in organic systems cost US44 cents per kg against US28 cents per kg for conventional. Dyeing and printing processes are also specialised and more expensive in the organic system with the net result that the cost of preparing fabric under an organic system has costs 28% higher than conventional. The small scale of cotton production, processing and clothes manufacture convert into a 62% higher cost for a manufactured item such as a T-shirt for Egypt. Farm gate premia are not usually the cause of high premia at the consumer level.

Sekem have focused on adding value not only to cotton but to their herbs as well by manufacturing herbal teas in bags and medicinal products which are sold in domestic pharmacies. Sixty million tablets were manufactured in 1997.

Social impact

The Sekem project was set up as a social development initiative but also as a private business. The project employs 2000 people and each day the management and staff of each enterprise meet to discuss the days activities and are encouraged to discuss their work.

For the purpose of continuous development, 10% of working hours are assigned to training. Sekem set up a school to realise the integration of science, religion and art. Worker participation and development is a stated policy issue at Sekem.

About 300 pupils are educated at primary and secondary level. A vocational centre was set up in 1997 and now offers 3 year courses in biodynamic agriculture, metalwork, carpentry and business administration.

A Sekem medical centre also cares for about 17000 people in the project using mainly natural treatments

Institutional impact

Sekem have set up a training/advisory service which is supported by a German biodynamic agricultural advisor who visits the farms several times per year. At present this is paid for out of the profits from exports. The required certification means that all farmers must keep good records of their farm resulting in a better understanding by farmers of their operation and also a better basis for future development.

The close links forged with the marketing organisations has meant that the farmers have a good understanding of market needs and expectations. Sekem pride themselves on the transparency of operation.

Out of Sekem and the expansion of organic agriculture in Egypt has grown two local certification programmes which are discussed below.

It may also be argued that organic agriculture has applied pressure on the agricultural industry and the textile industry and provided the opportunity to look for alternatives to traditional practice both in terms of biological control in the field and less environmentally damaging methods of processing the cotton.

Problems and obstacles to development

Sekem is generally viewed as a model project with admirable results but has had its problems. It has been founded and developed by committed individuals and, for this reason the business has flourished over 20 years. The dominance of the individuals has been seen by some as overbearing and their enthusiasm perceived as over protective. Essentially farmers are contracted to produce for Sekem and are bound by the terms of the contract. In 1995 some farmers who wished to take more control over their cropping and export of cotton have split away forming the Union of Growers and Exporters of Organic Biodynamic Agriculture. Within this organisation producers are free to set up their own marketing arrangements. In reality though, Sekem dominate the organic sector to the extent that few other marketing arrangements are available.

Sekem's recent initiative to develop a certification programme, the Centre for Organic Agriculture Research in Egypt (COAE) has also caused concern locally over the independence of inspection and certification leading to a further split in the movement and the setting up of another certification programme, the Egyptian Centre for Organic Agriculture (ECO). Both are however supervised by the Institute for Market Ecology (IMO) in Switzerland.

Sources

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Case study 4 - Hungary - Export based organic agriculture

Origin of the project

Hungary has one of the best developed and highly regulated organic sectors in Central and Eastern Europe with a total of some 8,500 hectares under organic management and certified by Biokultúra, Hungary's principal organic organisation. Founded in 1983, Biokultúra has administered its own standards and certification scheme since 1991. The scheme has been accredited by IFOAM and is approved for 'third country' organic imports into the EU.

Agricultural impact

Commercial organic production began in 1986 with the formation of Natura GT, a co-operative organisation with 2,000 ha. Natura was totally export oriented using the Dutch certification organisation, SKAL, to access the EC market - notably the Netherlands and Germany. At this time there was no discernible demand for organic food from domestic consumers, while producing for the organic export market was up to 30% more profitable than conventional agriculture. This emphasis upon foreign sales has continued to the point that 95% of all Hungarian organic produce is now exported

Environmental impact

Whilst the expansion of organic production has been very successful and undeniably brought a range of environmental benefits (especially in terms of reduced agrochemical usage), it is argued that the potential benefits of organic production for the regeneration of rural areas in Hungary are currently much more questionable.

Economic impact

In Hungary it is considered that any economic benefits which have accrued for local communities are unlikely to be sustainable because of the intrinsic vulnerability of the organic sector to the vagaries of the export market.

Social impact

Hungary has taken a very gradual approach to economic reform and its agriculture is still largely based upon co-operatives which average 4,000 ha in size and occupy about 70% of agricultural land. With such limited land reform most certified organic production is also very large-scale and its additional profitability over conventional agriculture therefore actually benefits relatively few members of the rural community.

Institutional impact

With the emphasis upon exports the domestic market has been neglected and has consequently grown very little and with minimal market infrastructure. Associated with this is a general lack of awareness of organic food which further limits any potential demand there may be. This includes sales of organic food in urban areas as well local purchases from local farmers (which has implications for encouraging smaller-scale producers into organic production).

Problems and obstacles to development

The weaknesses of the organic sector in Hungary is recognised by a number of local NGOs and there have been several attempts to harness organic farming and growing within local rural development initiatives. These range from the emergence of eco-tourism as an alternative small-farm enterprise (i.e. local farmers provide accommodation and produce fresh vegetables or eggs for paying guests) to the development of eco-village's such as those established by the Galgafarm Association, Ormánság Project and Gyúrúfú Foundation.

The Ormánság is a small region in south-west Hungary on the Croatian border. It is approximately 60,000 hectares in area and traditionally supported a thriving locally-based economy. With the collectivisation of agriculture in the region, much of its social and cultural structure was destroyed along with the loss of landscape and natural flora and fauna.

Since the re-establishment of a local government in 1990, attention has focused upon restoring the local society via a programme of 'sustainable rural development' - the Ormánság Project. Central to the Project is a 70 hectare organic farm aiming to demonstrate the economic viability and environmental, social and public health benefits of organic farming for the region.

It is reported that several farmers in the region have switched to organic husbandry and that there is a small, but clearly distinguished, local market developing for organic produce. The Project has been supported by the Hungarian Government and several charitable Foundations.

Source

Mark Redman

Case study 4 - India - Tea

Origin of the project

The Ambootia Tea Estate is situated at 950-1450m above sealevel and consists of 350 ha. It is one of 83 gardens which constitute the Darjeeling tea industry and dates back to the estates established by the British in 1856. In the 1980s and 90s the estate, like many others had suffered declining yields. Total production of Darjeeling had fallen from 14.5m kg in 1990 to 11 million in 1995. Production on the estate itself slid from 206tonnes in 1989 to 171 tonnes in 1991 despite optimum use of chemicalfertilisers and pesticides. Deforestation had led to serious soil erosion culminating in a landslide that took many worker houses with it. In 1986 the workers invited a past manager to take over ownership in an attempt to revive the estates fortunes. A commitment to long term sustainability led the management to convert to organic and finally to biodynamic systems. As in many similar projects,Ambootia was registered with TransFair International in 1994.

Agricultural impact

Fertility is approached through the use of leguminous greemanures and compost production. Soil erosion is reduced by contour planting, maintaining soil cover and cutting, rather than eradicating, weeds. The emphasis on ecological diversity has helped develop natural predator populations. An increase in the number of ladybirds which feed on aphidstrips and red spider mite has meant that, the regular problems associated with these pests are a thing of the past. The soil is more moisture retentive than under conventionahmanagement which has led to a more stable yield in the dry weather.

Environmental impact

As part of the management plan to increase diversity providing more habitats for predators and reduce soil erosion 50,000 trees are planted each year. The management and workers believe that the discontinuation of the use ofagrochemicals has led to a healthier environment through less water contamination and a better air quality. Respiratory diseases are reported to be down since chemical use stopped. The premiums obtained through organic and fair trade status have enabled the estate to undertake a systematic landslide rehabilitationprogramme which had previously been put off due to lack of funds.

In addition the estate has gained approval from the government for two hydroelectricity schemes of 100 kilowatts which when operational will provide up to 70% of the seasonal requirement. This development will reduce dependence on polluting fossil fuels having a small though important impact on a wider scale.

Economic impact

The move from a high to a low external input system has meant an increase inlabour requirements of 35% providing increased income to the workers. The emphasis on developing a largely closed system has led to the production of herbs required in the production of the biodynamic preparations. The collection offbiomass and cow manure for compost production involves a large number of workers. The estate makes and applies 2100tonnes of compost every year, mostly unmechanised. The work load is spread more evenly over the year leading to an increase in full time as opposed to part time work.

To produce more compost the estate has encouraged workers to keep cows. The milk provides a further source of income to the workers.

No figures were obtainable on economic performance of the estate overall, but it continues to thrive having recently developed a new range of exotic teas including white, green, oolong and souchong.

Social impact

As a result of the decline of the estates the workers suffered a number of lockouts between 1981-86 causing disruptions to workers livelihoods. The cooperation between management and workers in rebuilding the estate has engendered a combined commitment and respect and a sense of stability hitherto unknown in the tea industry in India. This has been stimulated by the fair trade registration. The fair trade and organic evaluations set out guidelines, make suggestions and monitor implementation of issues from compost systems to worker involvement in the running of the estate.

All statutory labour requirements are met and a joint body of workers and management decide upon welfare schemes using the product premia. Sports and recreation centres have been built to foster community spirit and investments in education have seen a reduction in the student teacher ratio, an increase in the availability of computers and the introduction of a scholarship scheme. An efficient garbage collection scheme has been introduced to maintain hygiene around the estate.

Institutional impact

The estate is owned by workers and management and run on a cooperative basis, which has led to a strong organisation. The manager of the estate is the founding chairman of the Bio Organic Tea Association in India which has assisted in promoting the organic message to government. The government produce promotional organisation, APEDA, recently attended BioFach in Frankfurt to promote India's ever widening production of organic products.

Problems and obstacles to development

The main problem has been in surviving the conversion as on top of the bad state of the estate before 1986, heavy investment was required in the early years. The first steps involved rejuvenation and pruning of the tea plants, increased planting and increasing temporary and permanent shade trees. During the years subsequent to the adoption of the organic system, yields fell from 487kg per ha in 1994 to a low of 404kg per ha in 1996, a 17% reduction. This drop along with increased costs put pressure on the estate but was balanced by the improved market access and premium prices achieved by the organic and fair trade status. Fair and assured prices kept the estate viable.

Source

Bansul, S. (1997)

Case study 6 - Lithuania - Groundwater Protection in the Karst Region

Origin of the project

Following the restoration of independence in 1990 Lithuania embarked upon programme of radical agricultural reforms. Instead of 1,200 huge Soviet kolkhoze' farms, land has now been returned to a range of owners from several hundred relatively large (200 ha) state farms to 166,000 private farmers with some 7-8 ha. Furthermore, almost 400,000 villagers have 2-3ha which were given to them as a form of social security.

The inevitable reductions in agricultural output accompanying reform have also led to a fall in environmental pollution from agriculture. Nonetheless there is concern that as the Lithuanian economy improves, agricultural production will become more intensive and levels of agricultural pollution will increase again.

A total of 0.7 million ha (11% of total area) are already designated as 'state protection areas' and subject to restrictive legislation on agricultural activities - this includes 5 National Parks, 30 Regional Parks and 300 managed reserves of different types. However, in anticipation of further problems a national 'pilot project' was developed and endorsed in 1993 by the Lithuanian Ministries of Agriculture and Environmental Protection with the aim of developing an appropriate and cost-effective incentive scheme for groundwater protection in one of Lithuania's most sensitive areas - the northern Karst region (Birzai and Pasvalys districts).

Karst is a term applied to forms of limestone which are particularly susceptible to groundwater pollution. The Karst region of northern Lithuania has suffered greatly from the pollution of drinking water supplies. Restrictions on agricultural production in the region were first introduced under Soviet rule in 1982, but proved unsuccessful. Another option proposed for the area was afforestation, but in view of the high density of rural population and the fertile soils this was dismissed and another alternative was sought.

The new programme covers 29,400 ha (with an additional 165,900 ha designated, but not currently in the scheme) and aims to reduce both point source and diffuse pollution through the encouragement of more sustainable farming methods, including 'integrated' systems (not defined) and organic agriculture.

Agricultural impact

The Karst programme is an integrated agri-environmental scheme that has contributed significantly to the expansion of organic agriculture in Lithuania. From nine farms established in 1993 the sector has grown to stage at which in early 1998 there were a total of 106 certified organic farms (1,630 ha) in Lithuania, of which 27 farms (350 ha) were in the Karst region. These farms are predominantly grassland with arable plus some fruit and vegetables. Total production in Lithuania is dominated by organic grain (60%) followed by potatoes and vegetables.

Environmental impact

Though there has been a documented improvement in the quality of water since the start of the project, the data do not allow allocation of benefits to the organic systems.

Since 1989 the amount of fertilisers used has dropped to 10% of its former use. This is more due to poverty and poor availability of inputs as much as a positive move to organic systems. However the government have emphasised organic farming in a law, 'Ecological Agriculture and Order of Financing' Law No. 1-734, 1994.

Economic impact

The expenses of certification and investment in organic agriculture are supported by area payments by government paid over three years at variable rates depending on the crop (700 Litas/ha for fruit and berry crops, 350 Litas/ha for vegetables and 150 Litas/ha for cereals and grassland). Organic produce from the scheme does not receive a premium price (certified products in Lithuania are generally sold at a 10-20% premium), instead all produce from the scheme is sold under a Tatula 'eco-label' through local markets. So although the scheme has significantly increased the area under organic management it has had minimal impact upon the national market for organic foods.

Social impact

In the Communist era, farms and villages were reconstructed for intensive development of agriculture. At independence in 1990 land reform commenced and numerous private farms have been set up. Development through organic management is intended to bring the farms back into production creating livelihoods for people in the rural areas

Institutional impact

The total budget (not officially verified) for the programme is an estimated 4 million Litas (£0.7 million). The programme is part-funded by the Swedish environmental agency, SIDA, and as the national economy continues to improve the Lithuanian government's intention is to expand the programme.

The programme is implemented locally by the Tatula Foundation - an NGO comprising representatives from local farmers, food processing enterprises, agricultural companies etc. The Foundation aims to combine both economic incentives for pollution control and promotion of the market for 'ecological' products. It therefore:

- a) organises ecological monitoring, advisory services, demonstration farms etc. to support preventive measures against agricultural pollution;
- b) allocates a range of interest free credits, grants and other subsidies to assist:
 - farmers to adopt more environmentally-friendly farming practices and methods, including conversion to organic agriculture;
 - farmers, food processors and other agri-food enterprises with the marketing of 'ecological' products;
- c) organises and funds the processing, marketing and certification of local 'ecological' products.

The government have also supported a research programme at the Lithuanian University of Agriculture to look at aspects leaching under different farming systems, conversion, weed, pest and disease control and varieties for organic production.

Problems and obstacles to development

The Karst programme is widely praised and serves as a useful model for a national agri-environment scheme. The principal criticism of the programme is that (understandably at the time) it was implemented in a very 'top-down' fashion with minimal consultation with interested parties, especially NGOs such as GAJA - the Lithuanian Association of Ecological Agriculture. There are also concerns that the scheme has encouraged an excessive dependence upon state subsidy for encouraging more environmentally-friendly farming methods and has consequently failed to fulfill its stated intention of exploiting the full financial incentive of subsidies plus market price (although it is debatable how realistic an objective this is under current circumstances). Related to this are concerns that organic farming is now too closely associated by politicians and the public with special protection areas, such as the Karst region, and that its broader applicability to sustainable, integrated rural development in other areas will be overlooked.

Source

Mark Redman

Vida Rutkoviene - pers. comm.

Case study 7 - Mozambique - Cotton

Origin of the project

Mozambique still remains in considerable turmoil after its 15 year civil war despite demobilisation of Frelimo and Renamo forces and the holding of elections in October 1994. Most of the rural population migrated to the safety of the cities during the troubles leaving the countryside empty. Land mines remain a discouragement for return. The new government had launched a campaign to re-introduce cotton production in several areas. Their aims were to:

- provide income opportunities for the returning population
- reduce dependency on external inputs such as fertilisers and pesticides
- increase cotton yields of the small farmers
- increase cotton production for export to increase foreign exchange earnings

Cotton was Mozambique's main export though is now preceded by cashew and prawns. The Instituto do Algodao de Mozambique (IAM) is responsible for the promotion and management of the cotton industry which can be divided into:

- small farmers subsistence farmers with 0.5-1 ha of cotton, low input
- private farmers larger farmer using more inputs
- joint venture companies multinationals that were made into joint ventures with the government

The government's intention was to reintroduce cotton production in the most viable areas through the joint venture companies and through the IAM in the less appropriate areas. After hearing of the Uganda organic cotton project and attending a meeting there in 1995, the government opted for organic cotton production in the IAM areas. A feasibility study was undertaken in May 1995 which concluded that although the situation in Mozambique remained difficult with very weak infrastructure, support services and poor social cohesion in the target areas, there was a medium term potential for organic cotton production since:

- large areas had been entirely isolated from chemical fertilisers and agrochemicals
- farmers had experience in cotton
- interest shown by several cotton production companies in organic production
- the Mozambican government's commitment
- demand for organic cotton on the world market

The project was approved for funding by SIDA in March 1996 under its Export Promotion of Organic Products in Africa programme (EPOPA). Whilst the project proposal was being prepared and accepted, the government went ahead with promoting cotton production in the less favourable areas of Inhambane and Zambesia in the 1995/96 season without synthetic fertiliser and pesticides. These areas were chosen by the government primarily for social impact reasons but also because the joint venture companies already dominated the good land.

The first steps of the project were to:

- set research priorities and initiate the programme
- IAM to produce a business plan and project control mechanisms for organic cotton
- selection of exporter

- registration of farmers
- training of extension workers
- first planting of organic cotton
- inspection by foreign organic certifier
- market visit and contacts

Problems and obstacles to development

During the first production season, a number of problems arose:

1. Farmers were unwilling to register as they were concerned about giving information to government personnel.
2. Extension of organic cotton production techniques was dependent on the existing conventional extension service which was under-resourced and for a period not paid. Training for the extension supervisors had not been passed onto the field officers.
3. Reluctance from farmers in adopting new production techniques.
4. The organic area in Inhambane area covers 40,000 sq km with only one asphalt road open all year.
5. Certification of farms is made difficult in that farmers may have several plots in separate areas, and within different families as a result of the polygamy system. Organic certification requires the mapping of farms and fields but this has been impossible to date.
6. The majority of farmers are illiterate and speak Xitsua rather than Portuguese so communication is difficult.
7. The IAM had to revoke the law that cotton seed should be treated with a fungicide.
8. The cotton crop suffered water logging after seeding due to unusually heavy rains and many fields had to be reseeded in December and January.
9. After reseeded the crop suffered from serious drought.
10. As a result the cotton harvest was very late taking place from July to December 1996 resulting in poor quality.
11. Farmers tended to mix poor and good quality cotton together in an attempt to raise overall grade.
12. The Jangamo ginnery was barely operable despite planned repairs. IAM, as a government institution was unable to obtain loans for rehabilitating the ginnery. However 36 tonnes of organic cotton were finally produced for export.
13. The sale of the organic cotton was upset by lost samples, poor quality and trash and finally the IAM, in its frustration, opting to sell the cotton to domestic textile industry as conventional.
14. The research output was minimal due to poor supervision.

A project review in February 1998 concluded that,

'no organic lint was exported, due to a bad growing season, a not well equipped ginnery, a resulting low quality cotton, insufficient marketing opportunities explored and a bad financial state of the partner (IAM) in this programme'

In July 1997, Coopers and Lybrand were asked to report on the status of the project and concluded that:

- biological farming requires a higher capacity from the farmer who has to control the biological techniques, especially concerning the timing of its application
- biological farming is considered to be an activity of high risk, dependent on natural conditions with high training and inspection costs

- the biological cotton project can achieve its self-sustainability within a period of approximately 5 years assuming that the first year costs, concerning training, bonus for farmers and inspection certification, are considered as non-recoverable start up costs. The break even point would then be US\$ 250,000 for a production of 350 tonnes of cotton
- the biological cotton project would probably never be assumed by a private company in this first phase of the project as it is very high risk investment, with a low return in the near future, and its evolution being rather difficult to forecast in the long term

At May 1998, EPOPA have withdrawn support for the IAM project mainly because the Mozambique government were unwilling or unable to identify a private exporter, preferring instead to change the law to allow IAM to export. This was incompatible with project design.

IAM however have continued to pursue organic cotton production though project advisors believe that IAM have no intention of selling the product as organic.

Sources

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Boudewijn van Elzakker - pers. comm.

Case study 9 - Uganda - Cotton

Origin of the project

Cotton is Uganda's second most important crop after coffee, nearly all the crop being grown by smallholders. In 1993 Swedecorp, later the Swedish International Development Agency (SIDA) considered there was potential for Uganda to produce and export organic cotton. In the Otwal area of Uganda farmers indicated the presence of predatory ants which fed on cotton pests. This was perceived as an advantage and the area was selected as a pilot project. The Lango Cooperatives Union (LCU), a cotton buyer won a competitive tender to be involved in the project and SIDA agreed to assist LCU, initially for a period of one year which was extended to a further two years on the basis of promising results. The project forms part of SIDA's Export Promotion of Organic Products from Africa programme.

Inputs of the project involved:

- an interest free loan to LCU for operating capital
- funds to cover project coordination, country manager and a local consultant
- foreign certification costs for first two years and 75% of costs in year 3
- market contacts
- training to farmers and extension officers in organic agriculture and documentation for certification
- setting up of an internal certification system
- set up of a revolving Farmer Development Fund in year 3 for farmer training
- funds for a project truck in year 3
- assistance with securing a commercial loan

Agricultural impact

Farmer registration with the organic cotton project increased from 200 farmers in 1994/95 to 5100 in 1996/97, a phenomenal increase. The project evaluation in 1998 suggested that this enthusiasm, at least initially, may have been as much to do with the foreign donor interest and expected guarantee of payment as much as farmers interest in organic cotton *per se*.

The organic production systems have required farmers to start using formal rotations, green manures and integrating livestock into their farming system with consequent benefits in widening their range of products, thus reducing the impact of failure or market collapse of any one individual crop. As part of the organic management system, the farmers produce food crops for home consumption, cash crops for the domestic market such as sunflower and soy beans and sesame and cotton for export. The project has therefore impacted on farm income as well as food supply. Products from the certified organic farms sold domestically did not achieve a premium.

Environmental impact

The main motivation of the project was to improve income for Ugandan farmers. Consequently no assessment of environmental baseline or project impact was undertaken.

Immediate benefits are expected in terms of reduced chemical use on the farm and in the longer term improved soil condition will reduce soil loss and water retention, but no data has been collected on this to date.

In 1997/98 the project is embarking on training in agro forestry and the use of fuel efficient stoves which is expected to enhance environmental impact.

Economic impact

In the first year, 20 tonnes of cotton lint were exported making a profit of US\$8500 followed by 70 tonnes exported in year 2 with profits of US\$25,000. Although around 450 tonnes of organic cotton lint were expected to be exported in 1996/97, which would have represented about 2% of Uganda's cotton crop, problems with trade financing discussed below prevented this. In the event just less than 300 tonnes of cotton were exported in year 3. Unfortunately profitability could not be assessed for reasons discussed below. Although conventional cotton prices fluctuated over the three years, organic cotton remained steady, on average 20% above conventional price at the farm gate. In both years two and three, buyers were willing to purchase more cotton than actually became available.

At the farmer level organic cotton sales were 319 kg per farmer in 1994/95, dropping to 54 kg in 1995/96 and up again to 206 kg per farmer in 1996/97. The fluctuation was due to problems experienced by LCU with cash flow resulting in some organic cotton being sold to conventional buyers. The average income per farmer based on a survey in May 97 was Ush 563,000, approximately US\$500 per annum, estimated to be around 12% of farmer income.

In both 1995/96 and 1996/97 100 tonnes of sesame were exported by the project. Conventional buying prices in the project area ranged from USh 400-500 per kg. A cif Tokyo price for conventional sesame at this time was US\$580 per tonne. The organic sesame was sold at US\$900 per tonne cif, a 55% premium.

Despite the problems discussed below, the financial performance of the project in 1996/97 appeared promising based on the information available and was expected to be viable as an independent business in 1997/98.

Social impact

Over 5000 farmers and their families have become involved in the programme, representing one of the largest organic projects in the world. An EPOPA project review is due in 1998 which will assess social impact. No independent information is available at this time

Institutional impact

Up to 5000 farmers were exposed to training, not only in organic farming techniques but in the requirements of organic certifiers to verify organic integrity. Whatever the future of the project (see below), the farming community, project and field staff have gained knowledge of the organic sector and its requirements. A new organic project or continuation of this one has that advantage as a starting point.

Uganda has become known in Africa as a source of organic products. The EPOPA country manager has been contacted in 1998 by the world's fourth largest coffee trading house to start an organic project with them and a large tea buyer has done the same. One of the current buyers of fair trade coffee from Uganda has also contacted the project to look into certifying the coffee as organic. This is a marked difference to when the project commenced three years before when it was difficult to market any organic produce.

One of the problems facing Ugandan exporters is the refusal of local banks to provide crop finance. Through EPOPA, LCU were able to obtain a commercial rate loan through a joint venture of the Dutch government and the African Fair Trade Association which was covered by the HIVOS/Triodos fund in the Netherlands, which provides funding for environmental and social projects in developing countries. Through this mechanism LCU were able to finance crop purchase (but see below under Problems and obstacles to development).

Problems and obstacles to development

From the start the organic cotton initiative suffered from working with a financially weak exporter who did not have the capacity to undertake this project and manage the business. As well as simply not having the operating capital, the LCU was required to take on a large number of staff to supervise the programme and develop its own internal certification procedures. This was a new area for LCU and the expectation that it could cope with this quantum leap in operational mode was perhaps over optimistic.

Whilst project funds remained separated from LCU's main operation, the financial status of the project could be assessed. As soon as it was absorbed into the LCU fully, all transparency was lost. At about the same time the commercial loan was secured. Although US\$500,000 was released by the Dutch bank, a sizable portion of it was never accounted for by AFTA. Both sides are still arguing over where the money has gone but essentially the project has been undermined as a result. Unavailability of trade finance meant that cotton purchases fell below that expected and by the end of the buying season 42% of farmers were still awaiting payment despite an agreement from the start that farmers would be paid cash in hand on delivery.

Lack of funds on the ground also reduced the purchase of organic sesame. On arrival in Europe in 1996/97 the sesame was reported to have not been cleaned which has made the buyer reluctant to take further supplies from Uganda.

Problems also arose on two occasions with actual or potential chemical contamination, once through the presence of DDT in a cotton store and secondly when 15 farmers sprayed chemicals which resulted in 100 farmers being decertified. The chemicals were part of another project operating in the area.

The project also suffered from poor quality ginning either as a result of old machinery or poor operation. Buyers made complaints about this and the trade was at least temporarily damaged. One buyer refused to take more cotton from Uganda.

At May 1998, the project continues with training and field activities but there is considerable doubt over its future unless there is increased transparency between LCU, AFTA and the EPOPA project. AFTA/LCU currently have outstanding loans with the Dutch bank. The 1997/98 cotton was certified by another certification programme but the cotton and sesame are as yet unsold.

If as expected AFTA/LCU withdraw from the programme, another exporter will be able to pick up the project and capitalise on the expertise and experience gained by both farmers and field staff. The EPOPA programme is required to operate through private exporters but identifying an able organisation has not been easy. Currently the Lira District Development Programme are considering supporting the primary farmer organisations within the area and providing finance for certification, organic extension and training. The problem of who will act as exporter remains however. The strength of the programme as of now lies in the commitment of the farmers who continue to produce cotton on an organic basis.

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Summary of lessons

Lesson 1: Most organic projects to date have not been subjected to sufficiently comprehensive monitoring and evaluations to enable their sustainability and impact to be verified. There is a need to collect this information on existing projects and ensure appropriate reviews are performed on new ones.

There appears to be considerable evidence from the case studies that organic agriculture is economically viable and that participating farmers can see either a rise in income as a result of premiums or a maintenance of similar returns with reduced inputs. Some of the projects longevity support their viability. The wider social and environmental benefits are less easy to substantiate other than from anecdotal evidence and implication. For example, organic systems do not use soluble fertilisers and pesticides; the implication is that they must be less polluting. Organic systems are based on optimum use of local resources and technologies; the implication is that this gives farmers more control over their means of production and greater independence.

Lesson 2: The motivation for implementing organic agricultural systems may be diverse but persuading farmers to make changes and maintain organic systems requires some financial incentive.

The main stimuli for developing organic agriculture appear to have been:

- economic necessity and/or unavailability of chemical inputs
- environmental concerns
- social concerns
- personal philosophy
- market demand

The original motivation is often a mix of these and it would be difficult to decide what the 'correct' motivation, if any, should be to ensure the initiative is successful. Though individual or even groups of farmers may develop concerns about their farming system, their social situation or the environment around them, the measure of success and therefore the incentive to commence and to continue with a new direction must be based on the immediate benefit of more food to consume at the subsistence level, more surplus to sell domestically or more product to sell at better prices for export. Social and environmental goals will be assumed to follow from better financial standing. That this happens may depend on the organic and fair trade standards that are implemented if any. The economic benefit based on increased market return is then likely to be the main driving force for many farmers, small or large.

Lesson 3: Successful initiatives may have diverse origins, but significant impact requires the harnessing of the resources and commitment of numerous stakeholders, both private and public sector on a complementary mission.

The main initiators in the development of organic agriculture have been:

- large private farmers
- local and foreign NGOs
- local and foreign private sector
- government
- partnerships of the above

Most of the case studies have developed from focal points and spread outward linking with a widening range of organisations with multiplied benefits. In all the Egypt, Dominican Republic and the India cases studies, pioneering work by individuals has led to the development of local organisations representing the sector, recognition by government of the contribution organic agriculture can make and new enterprises starting up nearby.

On the other hand, in the Belize study, the initiative has remained, so far, restricted to a producer-buyer relationship with regulatory involvement from the organic and fair trade certification programmes with consequent localised benefits to the farmers. Government and other local organisation interest has remained non-existent. A more positive interest locally could potentially spread the benefits much wider.

Similarly initiatives in Mozambique, Lithuania and Hungary are considered weak in that they have largely been based on government intervention without the integration of the small farmer, private business and NGOs.

Lesson 4: The verifying role of organic certification services is both a burden and also a means of delivering truly sustainable agriculture.

Organic certification is of course essential to enable export of organic products. The cost of certification, particularly when performed by foreign programmes can be significant and therefore a discouragement. One day's fee for a foreign inspector may represent a whole year's income for the farmer he/she inspects. In addition certification is partially based on site inspection but also on records. This is also viewed as a burden. The exporter in the Uganda cotton case study had to employ staff to ensure that these records were kept and presentable. On occasions the TCGA council had to defend the need for certification as a result of doubts from their members.

However the guidelines set down by both organic and fair trade standards can also be considered aids to good management through farm and business records and an excellent basis for technological and business development. Essentially as well as providing access to premium prices, the certification programmes insist on good practice, without which the market access is taken away. This is a very effective extension method. Its delivery by generally independent, private sector bodies and the wide experience in this field means that verification need not be done by government and is therefore a private cost, at least in the long term. Certification can be the stimulus and the delivery mechanism for sustainable systems.

Lesson 5: Projects based on organic agriculture are more subtle than chemical agriculture and therefore, situation specific. There is then a need for technique adaptation within the project zone. Projects should have a developmental component to them.

Given the reliance of organic agriculture on natural predators and an understanding of local soils and environment, it is unrealistic to expect the wholesale transfer of a successful organic system from temperate Europe to the humid tropics or to a semi-arid environment. Most of the case studies have had no formal developmental component, though on farm work has occurred in the private initiatives. A research plan was formulated and commenced in the Mozambique project but was under-resourced.

Lesson 6: Successful organic agriculture is 'knowledge intensive' requiring more design and management from the outset, as opposed to the 'just in time' approach of chemical agriculture. Training, extension and demonstration are perhaps even more critical here than with conventional projects.

In the Uganda cotton project, extension and demonstration was implemented from the start. The Dominican Republic banana project entailed much field training. Where farmers have known only chemical solutions, the concept of implementing control measures over several years - rotations, compost, time of planting - against a specific weed, pest or disease that used to be eradicated with one spray is quite foreign. One of the failures of the Mozambique cotton project, in as far as it has progressed, has been the lack of time given to, and the poor effectiveness of the training for extension workers.

Lesson 7: Benefits from organic agriculture may not be immediate. Small farmers will require considerable support or incentive over the initial years if the system is to be initiated and maintained.

Though in the past organic premia have been available immediately to some farmers who have essentially neglected their crops, this should not be the case in future as organic certification guidelines become stricter. Active organic management is required for at least a year before organic status should be conferred. This conversion period will be a difficult time for previously high input farmers and will require financial support. Absence of premium prices during conversion can lead to financial problems. Experience from Western Europe suggests that without appropriate government support (e.g. capital grants or annual area payments) this can be a major barrier to the uptake of organic methods. The extent of farmers' enthusiasm for organic agriculture in Western Europe has been shown to correlate closely with size of the conversion grants available.

Lesson 8: Some agro-ecological situations, such as agro-forestry, will convert more easily to organic systems than others.

The predominance of coffee, cacao and tea as organic products from developing countries is probably no accident. Often planted with shade trees even in conventional systems, these cropping systems already have some of the diversity encouraged in organic systems and conversion is often a much more passive process. An annual cropping system on bare semi-arid land with little or no existing diversity and where few farmers can afford livestock will always present a more significant challenge and necessitate a longer lead in time to a viable organic system.

Lesson 9: Farmers appear to resist conversion to organic agriculture when:

- they have been heavily exposed to the chemical message
- they currently operate high input, high output systems
- previous extension services have been effective
- production is relatively mechanised
- labour costs are high or labour is not available
- the system is thrust upon them

Lesson 10: Farmers appear more receptive to conversion to organic agriculture when:

- they have not been exposed to the chemical message
- their farming system is traditional or nil input
- previous extension services have not been effective
- production is relatively labour intensive
- labour costs are low or labour is readily available
- the concept is developed by them or with them

Opportunities and challenges to promoting organic agriculture as a development tool

Opportunities

Organic farming has a number of characteristics which are of significance to small-scale farmers in developing countries and many of these are also directly relevant to private farmers in CEE countries. These characteristics include:

- mixed farming and the use of crop rotations
- more resilient production systems based on a more diverse cultural system
- minimal use of external agrochemical inputs
- emphasis on use of local resources
- recycling of organic wastes
- reduced environmental impact
- low degree of mechanisation
- suitability for the cultivation of small areas
- use of existing traditional skills

For the farmer this can mean more equitable development because of:

- an increase in farmers' self-reliance for food and inputs,
- greater autonomy and self-confidence.
- increased biological and labour diversity, thus spreading risks in the agronomic as well as the financial sense.

In the wider country context, this can mean:

- less dependence on external inputs and technology
- improved foreign exchange balance through import substitution and exports
- potential environmental benefits with reduced cost of rectifying pollution
- an improved image in the eyes of tourists and investors

The additional benefit that these characteristics can be, at least in the long term, funded by and pursued in, the context of certified organic produce commanding premium prices, suggests that organic agriculture should be considered a serious policy option by governments and donors alike.

Organic farming appears to represent a valuable market opportunity for many farms/farmers, especially those who:

- are already operating 'low input' systems due to the high cost/unavailability of agrochemicals and so can relatively easily make the technical transition to organic production;
- have already adopted a more flexible management style and have accordingly better motivated staff;
- are willing to work with other farmers in co-operative processing and marketing ventures
- are not resistant to the demands of organic certification and the various procedures and obligations (e.g. record keeping) that it entails.

Organic farming also has a potentially important role to play in supporting the social 're-structuring' of agriculture by encouraging the self-reliance and self-sufficiency of small-scale private farmers - whether these are families:

- who have always occupied the land as the principal landowners (e.g. in Poland)
- returning to the land for the first time after 40 years as a 'lost generation' of private farmers (e.g. in Bulgaria and Romania)
- returning to land after civil war - (e.g. Mozambique and El Salvador)
- receiving land as part of a government resettlement strategy (e.g. Caribbean)

The combination of organic and fair trade certification and the value increasingly placed on environmentally and socially beneficial production and consumption arguably favours the entry of small farmers in developing countries into trade. The concept of small family farms producing crops without polluting chemicals and stripping land of trees, adding value in country, shipping direct to a buyer who values and promotes its origins and knowing that the money that is returned to the original producer is in some way fairly calculated and in part, put towards social development in the community of origin, is a highly desirable selling point for an increasing proportion of consumers.

For those that are concerned about the niche nature of the organic market they should consider that:

- governments worldwide are looking at policy instruments to internalise the costs of environmental damage. If these begin to take effect the price of chemically produced items will increase.
- much of the premium required for organic produce at the consumer level at present (especially for processed products) can be apportioned to high overheads and transport costs because of the small volumes being produced rather than a high farm gate cost. As volumes increase, the consumer premium will reduce but this need not reduce the price to the producer.

Obstacles

Obstacles to organic system implementation must be anticipated.

These include at the technical level:

- local adaptation of the principle features of organic systems
- determining nutrient sources for maintaining soil fertility
- particular pest and disease problems
- need or potential for livestock integration
- livestock feeding regimes

On the social level:

- problems with acceptance of the change in technology
- gender implications of organic systems e.g. in Africa collecting manure and materials for composting tends to be women's work

At the human resource and institutional level:

- farmer capacity for enhanced management

- extension system capacity
- research capacity
- private sector management capacity
- capacity to develop local certification scheme

At government level:

- overall government policy towards the environment, society, farmers and trade
- in country legislation that is at odds with organic standards e.g. mandatory seed treatments
- export or import legislation at odds with organic standards e.g. fumigation
- internal transport and shipping infrastructure

In Western Europe, much of the development of organic farming was undertaken by farmers themselves, often in conjunction with sympathetic NGOs, as an appropriate 'grass roots' response to the problems of conventional agriculture. In the countries of CEE and many developing such a 'culture' is only just beginning to emerge, although there is evidence of a rapidly developing network of supportive NGOs.

These obstacles are inter-related and could begin to be tackled by the implementation of more integrated projects such as those under development in the EU-PHARE 'Danube Programme' (see Project profile 1).

Such projects should be characterised by:

- use of demonstration/model farms to combine the training of farmers and processors, with the education of consumers and research into appropriate production systems;
- the harnessing of local expertise and knowledge;
- encouragement of linkages between NGOs, governments and educational/research institutes in order to foster greater mutual co-operation and support;
- facilitation of the transfer of appropriate information and know-how from experts in the West to individuals and organisations in the recipient country.

Annexes

Annex A *TERMS OF REFERENCE FOR THE STUDY*

Objectives

The main objective of the review is to evaluate the impact organic agriculture in developing countries has had in practice on aspects of sustainable rural livelihoods and to establish common lessons.

The review will:

1. Describe the types of organic project in developing countries: their origin and motivating forces; the types of participant; the benefits and beneficiaries; and the types of approach to measuring social, economic and environmental impact.
2. Review in detail at least five documented developing country examples of organic agriculture, including an assessment of their impact on:
 - a) agriculture;
 - b) the natural resource base (environment)
 - c) the social situation
 - d) the economic condition; and
 - e) institutions and organizations
3. Summarize common lessons and draw conclusions with specific reference to the opportunities and challenges to promoting organic agriculture as a form of ethical trade for poor people.
4. Present a written report of approximately 20 pages plus a full bibliography based on the above.

Annex B Project profiles

Project profile 1

EU Phare-funded Environmental Programme for the Danube River Basin.

This project was approved for funding under the Applied Research Programme (ARP) of the EU Phare-funded Environmental Programme for the Danube River Basin. This is a major programme which aims to address the environmental problems of the Danube Basin through a series of cost-effective policy recommendations and management practices. The problems of the region are complex and related to a number of different causes, however with intensively-managed farmland occupying more than 70% of the Basin agriculture is a major contributor to the 400-500% increase in nitrogen and phosphorus loads (and associated eutrophication) observed in the Danube River, its tributaries, the Danube Delta and Black Sea.

The Demonstration Centres/Farms project is an ambitious venture and the contract was awarded to a consortium of ETC, Merlin Consultancy and Agro Eco in the Netherlands, the Scottish Agricultural College and the Ludwig Boltzmann Institute in Austria. The project involves three commercially viable organic farms (managed to appropriate standards) in three countries of the Danube basin - Bulgaria, Romania and Hungary - which are managed by local NGOs. The Bulgarian farm is managed by the Agroecological Centre at the Agricultural University of Plovdiv; the Romanian farm is managed by TER (The Ecologist Youth of Romania); and the Hungarian farm is managed by the Galgafarm Association.

The farms have been established to:

- monitor the quality (i.e. nitrates and phosphates) of drainage water from the organic systems, and;
- provide facilities for the teaching and demonstration of the benefits of organic farming techniques to as wide an audience as possible.

The work of the Demonstration Centres/Farms is complemented by a regional study on organic agriculture in the Danube Basin investigating the following issues:

- the socio-economic viability of organic agriculture;
- the environmental benefits of a widespread uptake of organic agriculture, especially on the aquatic and marine environment;
- the formulation of recommendations to implement and strengthen organic agriculture in the region.

Project profile 2

Export Promotion of Organic Products from Africa

With an increasing interest amongst Swedish importers to promote and source organic products and the potential of Africa to produce and export such products the Swedish government embarked upon a project in 1994 to assist this development.

The objectives of the programme are:

- to develop the export of organic products from Africa, thereby,
- giving African countries an opportunity to increase and diversify their exports, whilst,
- exposing the agricultural sector to environmentally sound farming techniques

Potential target countries are:

- Angola
- Botswana
- Ethiopia
- Guinea-Bissau
- Kenya
- Mozambique
- Namibia
- South Africa
- Tanzania
- Uganda
- Zambia
- Zimbabwe

Products may be food or non-food, raw materials or processed and preference is given to products to that can be traded in large volumes or have a high value.

The project works with partner companies in Sweden and Africa and expects the exporter to internalise project structure into its organisation. This means the appointment of a coordinator and arranges for agricultural extension.

The project provides marketing assistance, organic production assistance, advises on the requirements for extension, research and facilitates the involvement of banks and other development organisations. When a product is identified and an exporter and buyer are in place, a feasibility study will be conducted. Organic certification in the initial start up phase may be covered by the project.

In each country a country manager is employed who is responsible for the identification of exporters and production areas, evaluating quality requirements and providing management assistance.

Both the Mozambique and Uganda case studies described in this document operate under the EPOPA programme.

Project profile 3

Avalon

Avalon is an international non-profit making NGO based in the Netherlands. Since its establishment in 1991, Avalon has worked for the encouragement of organic agriculture and sustainable rural development throughout the CEE region. Avalon collaborates with an extensive network of regional, national and international organisations to pursue its aims via a range of focused activities tailored to local rural needs and circumstances. These include:

- serving as a link between the organic food and farming sector in CEE countries and banks/donor organisations (e.g. Triodos Bank) willing to finance its development;
- assisting groups of farmers, processors and traders in the development, implementation, monitoring and evaluation of marketing, business and investment plans;
- supporting demonstration farms and research and education centres to demonstrate, evaluate, refine and promote wide-spread application of appropriate best practice; promoting information exchange, networking and coalitions between companies, governmental institutes, NGOs and banks working towards sustainable rural development;
- developing the ability of national agricultural extension services in CEE countries to offer advice on organic methods by providing needs-based 'training for the trainers' using local knowledge and resources to the maximum possible extent; promoting the development and implementation of appropriate agri-environment policy by fostering national working groups, facilitating information exchange and supporting policy design.

Completed projects with different partners include:

- review of the marketing of organic produce in the Czech Republic, Hungary and Poland;
- involvement in the establishment of three demonstration centres for sustainable agriculture in Hungary, Bulgaria and Romania combined with a regional study on the market aspects of conversion to organic production (see project profile 1); undertaking training programmes in organic agriculture for farmers and advisors in Latvia and Slovenia;
- organisation of a workshop in Croatia on The Introduction of Organic Agriculture in Selected Danube Countries and the Three Baltic States (60 participants from 17 countries);
- organisation of a seminar in the Czech Republic for policy makers on The Contribution of Organic Agriculture to Sustainable Rural Development (60 participants from 15 countries); organisation of a workshop in the Netherlands on the Introduction of Demonstration Centres for Sustainable Practice in CEE Countries (50 participants from 12 countries).

Much of Avalon's current work focuses upon harnessing the two instruments of market development and agri-environmental policy in order to create a favourable economic and political climate for organic agriculture to become established. In collaboration with the Institute of European Environmental Policy (IEEP) and Veen Ecology, Avalon is currently investigating the feasibility of implementing agri-environmental schemes (based upon EC Regulation No. 2078/92) in the ten CEE countries who are candidates for EU accession. This programme is funded by the Dutch Ministry of Agriculture, Nature Conservation and Fisheries and operates by establishing national working groups who are responsible for:

- identifying pilot areas in which agri-environmental schemes could be established, and;
- formulating appropriate national policy guidelines.

The overall aim is to prepare 'candidate' countries for EU accession by putting the frameworks for agri-environmental schemes in place in anticipation of subsequent funding. This process is already well underway in north east Poland. This region was chosen for the rich biodiversity of its farmland which is currently under threat of intensification or abandonment. Sixty Polish farmers are co-operating in a 3 year study by introducing beneficial management practices and recording the resultant changes in biodiversity and the costs incurred. Based on this information appropriate agri-environmental schemes will be designed for conserving biodiversity on farmland in the area.

Annex B Contact list

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He conducts weekly seminars at the graduate school that address pertinent issues in agricultural economics, rural development, sustainable development, cultural dynamics, climate change, and rural livelihood strategies in developing countries. He is also intensively engaged in research related to poverty, food insecurity, rural livelihoods and climate change in developing countries, with a particular focus on the poverty-ridden region of the far-western rural hills of Nepal, as well as the impoverished and marginalized community Chepang in Nepal's central remote hills. Potential contribution of organic agriculture to sustainable Water management is a limiting factor to better agriculture and livelihoods and the range of water technologies must also consider improved soil management and agro-forestry options for sustainable water supply. Sustainable intensification of crops through organic agriculture can provide higher yields with a minimum dependence on external inputs but this requires linkage to markets and building marketing groups and farmers' skills. Diversification of income sources comes with improved management skills and access to new assets.

22. Food import: Most certified organic food production in developing countries is exported, potentially encroaching on local food needs.