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**EXPORTING ENVIRONMENT FRIENDLY
PRODUCTS:
*Scope for Organic Farming in India***

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I. Introduction

From a situation of serious food shortages in 1947, Indian agriculture has not only achieved self-sufficiency in food and other allied products, but has also enhanced India's position as an exporter of agricultural commodities. While this success story is extremely laudable, the process involved in reaching higher levels of production has left many side effects, which are continuously impairing the sustainability of Indian agriculture. The aggressive promotion of green revolution inputs has led to a set back of the Gandhian movement, which was involved in the propagation of organic farming. Organic agriculture, in the modern sense of the word, is still in the infant stage in India. However, during the recent past, there are indications that Central and State Governments, non-government organisations, private concerns and farmers are showing keen interest for bringing about policies to further ecologically sound agriculture. Two developments in the 1990s that have strongly influenced the current interest in organic farming are social awareness about environmental & health concerns and the development of organic exports.

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It is important to mention in the beginning that while the government is showing keen interest in organic farming, the policies towards organic farming are still in the making. Organic production is still not a listed category under any national system of statistical data gathering on Indian agriculture. Hence, the only source of information on the current nature and extent of organic farming in India comes from organic farmers, NGOs and very limited information from the government agencies. Even aggregate totals for the land area in organic production is not available with any agency. The only possibility of getting some information on this is area under certified organic farming, which is very limited. There is no information on exports of organic produce either. Thus, this paper is based on personal interviews of organic farmers, NGOs and secondary literature and does not give aggregate analysis of the situation.

This paper tries to review the scope and extent of organic farming in India, the financial viability as well as the potential market of the sector. It also reviews the environmental public good benefits of organic farming as well as the institutional factors affecting the development of the sector. Section II of the paper reviews the literature and current thinking on the organic farming, Section III takes a look at the current scenario for organic farming in India. Section VI outlines the prospect for organic products in the international market while section V looks at the prospects and problems of undertaking organic farming in India. Section VI presents a case study of organically produced tea. Finally, section VII presents conclusions and recommendations.

II. International Perspective

Organic production is seen to have a number of private benefits, measured through the market. However, a major argument for public intervention in this sector is that it also has a number of public good benefits. Such public good benefits are perceived to include reduction in pollution, food safety, soil erosion, biodiversity, animal welfare, and the maintenance of rural communities and employment.

Reduction in Environmental Pollution

Environmental pollution resulting from the use of agricultural chemicals has been the subject of a number of studies. It has been argued that a decreased use of pesticides could help reduce run-off of agricultural chemicals in some areas and reduce the spread of chemical residues in the environment¹. Organic farming restricts or avoids the use of commercial fertilisers and instead relies more on recycling of nutrients in farming operations, which will reduce the probability of residual nutrients in soil which might be subject to leaching².

A number of groundwater studies in the United States have found a near linear relationship between applied fertiliser nitrogen and nitrate concentrations in shallow groundwater³. In addition to the above there are concerns about spray drift and public health especially in rural communities, both domestically and internationally. This has become more important with the growth of lifestyle blocks.

Food Safety

Numerous studies show that one of the main motives for the purchase of organic food is either the belief that it is intrinsically "healthier" than conventional food or the fear of pesticide and chemical residues in non-organic food⁴. Some studies have found increased concentrations of vitamin C and minerals with lower nitrate levels in organic food as compared to conventionally produced food⁵. However, other studies have shown the composition of organic food to be very similar to that of conventional food⁶. There is also a debate as to whether the chemical residues present in conventional produce pose a serious health threat. New Zealand's Food and Drug

1. Evans et al., 1992, Watts and MacFarlane 1997
2. USDA, 1980
3. Hallberg (in; Reeve, 1990),
4. Sachs et al., 1987; McGuirk et al., 1990; Tregear et al., 1993; Smailwood, 1989; Kramer, 1990; van Ravenswaay, 1990; Lamb, 1991, 1993; James, 1993
5. Bourn 1994
6. Brookes, 1993; McGregor and Blackholly, 1990

Administration's residue surveillance monitoring programme showed that two-thirds of the food tested had no pesticide residues and that less than one percent showed concentration that were over established tolerances level for pesticides.⁷ Moreover, it was found that none of the recorded levels of pesticide residues in selected fruit, cereal and cereal products available on the domestic market were likely to have any adverse effects on human health based on the toxicological assessment of the intake levels of the pesticides concerned⁸.

The study on New Zealand public perceptions of the relative risks and benefits of a variety of fruit production methods, including genetic engineering, use of chemical fertilisers and pesticides, organic farming and irradiation found that respondents perceived organic farming to have the highest benefits and lowest risk, and henceforth, would be the most acceptable of the techniques tested.⁹

Soil Erosion, Structure and Fertility

Various analysis of environmental impacts of organic agriculture, suggested that organic farmers aim to minimise adverse effects of farming on soil and vegetation resources and on the environment in general through adopting enterprises and management techniques appropriate to the particular topography, soil and climate types.¹⁰

The Associations of Soil Erosion and Agriculture in United States and in Australia argue that soil erosion still remains a serious threat to agricultural sustainability despite substantial public and private investment in conservation measures¹¹. A study by the USDA (1980) argued that practices used extensively by organic farmers, which includes meadow-based rotations, cover crops, green manure crops, non-inversion-type tillage, and organic matter management, all help to control soil erosion. A study of soil quality carried out

7. Wilson-Salt, 1994

8. MAF 1994

9. Richardson et al., 1997

10. Manhire and Soper 1993

11. Reeve, 1990

in New Zealand showed that the biodynamic farms had better soil quality than the neighbouring conventional farms¹².

Animal Welfare

Most organic certification schemes include regulation that animal welfare is paramount. It is argued that one of the key characteristics of organic farming is the extensive management of livestock, paying full regard to their evolutionary adaptations, behavioral needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing.¹³

Though organic farming systems aim to keep livestock healthy, the attainment of this aim has often been questioned. MAF (1994) suggests that to minimise disease outbreaks and provide for animal welfare, programmes for the use of acceptable remedies need to be developed to substitute for the recommended chemical interventions.

Maintenance of Rural Communities and Employment

The technological change in farming practice, especially over the last four decades, and the rise in relative off farm incomes and employment opportunities has resulted in a displacement of farm labour causing serious social costs, in terms of dissolution of rural communities and employment.

In the United States, for example, a downward regional multiplier effect has resulted in a depopulation of rural areas as businesses and other support industries closed down due to the out migration of farmers and farm workers.¹⁴ It is argued that the investment loss and the human suffering are not included in the lower food prices; neither are the losses of cultural values.

One of organic farming's potential contributions to the sustainability of agriculture would be its ability to maintain or enhance the social and cultural well being of people and communities. Organic farms, when run effectively, generally provide

12. Reganold et al., 1993

13. Lampkin and Padel 1994

14. Oelhaf, 1978

similar or slightly lower financial returns than conventional farms. However, taking into account external costs and benefits, sometimes, organic farming can provide better net returns to society than conventional agriculture.

Another important benefit of organic farming is the creation of jobs in the rural economy. It is concluded that although organic farming involves a reduction in inputs and hence input-output-related employment, this is more than offset by the increases in on-farm employment and in processing activities.¹⁵ The number of full-time workers used per 100 ha was in the long-term about ten per cent higher than on conventional farms. This percentage was even higher during the initial conversion from conventional to organic farming.¹⁶

Studies investigating employment and income on individual farms present conflicting results. It is suggested that the number of farms and the numbers employed in agriculture will continue to decline, but at a slower rate if an ecological approach in the form of low input farming and organic farming is adopted. One study suggests that farm incomes would fall significantly, assuming no premium prices and maintenance of the existing number of farms and distribution by size and type. However, as most organic farms supplying the domestic market have to develop their own marketing channel, and process the product, this may mean more local employment in rural areas, as well as potential for eco-tourism.

Biodiversity

Another public benefit perceived from organic agriculture is that it can lead to greater biological diversity in agricultural systems and in wildlife habitats. This is generally greater in the mixed livestock and arable system used by many organic farms (which take advantage of the beneficial relationships between animals, plants, soil and climate). This enables farmers to maintain many of the cyclical processes characteristic of natural ecosystems¹⁷.

15. Bateman 1993

16. Padel 1994

17. Evans et al., 1992

Various studies show there is a greater abundance and diversity of wildlife in organically managed arable crops than in conventional ones. Undersowing of crops (such as a grass/cover mix undersown in cereals) is an important feature of many agricultural systems. In Europe, this is more common on organic farms. This practice has been shown to support a higher diversity of insect species and to minimise nutrient leaching. The effect of undersowing can spread beyond the edges of the field in question, resulting in significant increases in the variety of insects over the whole farm. These together with the more varied habitats that result from a mixed rotation, are likely to encourage bird populations on organic farms.¹⁸

The above review suggests that organic farming generates substantial benefits. However, these benefits must be critically evaluated, as they may be reflective of imperfect information in the market. For instance, benefits such as food safety are difficult to assess but in any case these should be reflected via the market in the price premium for organic produce and as such, are essentially private goods. Moreover, organic production can have negative impacts due to extra cultivation.

III. Organic Farming in India: Current Scenario

The economic structure of organic farming is characterised by three types of farming. The first category is that of traditional farmers who are using organic methods without even being aware of it. The second category is of traditional organic farmers generally supplying to the domestic market and likely to be involved in mixed farming. In India, as in other countries, many of these producers adopted organic production techniques largely because of a philosophical viewpoint. Their motivation is based on concern for the environment or because of a lifestyle decision, and certainly not because of strong financial incentives. The third type of farming is generally aimed at production for the export sector. The number of these farms has grown since early 1990.¹⁹ These farms are of two kinds; those

18. Vickermann, 1978; Evans et al., 1992

19. A number of processing companies such as Sampad Vikas Ltd., Mikal Fibers Ltd., Bombay Burma Trading Corporation, etc. are complementing this growth by marketing organic produce.

producing permanent crops and those on broad acre production systems where the export crop is rotated with other crops. A main limitation for these farms is finding organic markets for the other crops to complete their rotations.

1. Promotional Agencies

In recent years, the organic agriculture movement is spearheaded by the members and associates of International Federation of Organic Agriculture Movement (IFOAM) in India. IFOAM membership in India includes a spectrum of NGO's, farmer's organisations, promotional bodies, corporate units and Institutions.

The IFOAM, foremost standards organisation for organic farming, was established in 1972 in France. There are 600 organizational members of IFOAM from 120 countries. The main thrust of IFOAM was to define the concept of organic farming through their basic standards. Another important task of IFOAM is to harmonize certification programme through accreditation system. The other activities of IFOAM include participation in the UN and contact with international NGOs and communication through seminars, magazines etc.

Apart from IFOAM members, other institutions and movements are also involved in the task of promoting organic agriculture in the country. They are making concerted efforts to bring about change in the policies favoring ecological agriculture. During January 1994, farmers and institutions committed to organic agriculture came together through the efforts of PRAKRUTI (IFOAM members organisation) at Mahatma Gandhi's Ashram in Sevagram and made a declaration known as Sevagram declaration. This declaration contained several recommendations for promoting organic agriculture in the country. In April 1994, a national level conference was organised at Cochin by UPASI on organic farming and environment. During the conference, over 400 participants clarified their vision about organic agriculture. For the first time, Indian members of IFOAM came together for a networking workshop organised by Institute for Integrated Rural Development (IIRD) in

April 1995 at Aurangabad. The important recommendations of this workshop covered promotion of training and education, development of standards, market development, lobbying and image building for organic agriculture.

NGOs and individuals are also spearheading the movement for organic agriculture in India. For example, Society for Equitable Voluntary Actions (SEVA), in eastern India with its thrust area in 24 Parganas in West Bengal is promoting organic agriculture through training programmes for farmers and through field action programmes. PRAKRUTI is playing an important role in mobilising public opinion for organic agriculture, by facilitating marketing of organic agricultural products and organising organic cotton growers in western India. IIRD at Aurangabad in central India, is involved in training women's groups in organic agriculture and networks at the national level with NGOs and other groups in organic agriculture. The IIRD has also set up a school for organic agriculture, which is the first of its kind in the country. The Sangvi farm and Mr. Save are promoting natural farming techniques in western India. The LEIA network (Low External Input for Agriculture) is also making headway in different part of the country by strengthening its network through Agriculture Man Ecology (AME), Bangalore. The Gloria farms as well as the Auroville in Pondicherry are also performing an effective role in strengthening organic agriculture movement in the country. Society for Organic Agriculture (SOA) of Secunderabad, Andhra Pradesh is involved in developing marketing strategies for organic products. Society for Employment Welfare and Agricultural Knowledge (SEWAK) in Nainital is involved in training programmes and documentation of indigenous agricultural practices in Uttar Pradesh. The Bombay Burma Trading Corporation Limited (BBTC), is the first corporate leader who demonstrated the feasibility of organic agriculture by producing and marketing organic tea from southern India. Sampad Vikas Limited, in north eastern India has become an unique organisation with almost total tea acreage under organic production thus having the largest area under organic tea in the country. A number of other tea estates are also involved in converting to organic production. The Indian Bio-Organic Tea Association has already been formed to promote

organic and bio-dynamic tea production. The Bio-dynamic practitioners in different parts of India are also consolidating their efforts by forming the Association of the Bio-dynamic movement in India. The Bio-dynamic movement has great scope in India because traditionally several concepts of Bio-dynamic agriculture already exist in the system.

Alongside the efforts of NGOs and private bodies, the government has recently evolved some intensive programmes to encourage organic agriculture. These include institution of prizes for individual farmers practising organic farming and effort through Agricultural and Processed Food Export Development Authority (APEDA), Commodity Boards to promote export of organic agricultural products.

To further the organic agricultural movement, a number of universities and scientists of ICAR have also started playing a key role. Bidhan Chandra Krishi Vidyalaya in West Bengal and the University of Agricultural Sciences, Bangalore have organised national workshops on organic agriculture. The University of Agricultural Sciences (UAS) Bangalore has also initiated a correspondence course on organic agriculture to reach a large number of farmers.

2. Input Requirements

(a) Land and Manure

There are several doubts in the minds of not only farmers but also of scientists as to whether it is possible to supply the minimum required nutrients to crops only through organic sources. And even if it is possible to do so, there remains the issue of mobilisation of organic matter in the required quantities. At this juncture, it needs to be pointed out that it is not advisable to switch overnight from fertilizer-use to organic manure everywhere. Only 30 percent of our total cultivable area is covered with fertilizer where irrigation facilities are available and the remaining 70 percent of the arable land, which is mainly rainfed area, has not been using any fertilizer. Here is where the ingenuity and efforts are required to increase the productivity and the production.

According to some estimates, around 600 to 700 million tonnes of agricultural waste is available in the country every year but most of it is not properly used. According to an organic fertiliser producer, we must convert our 'filth into our wealth' by mobilizing all the biomass in rural and urban areas. Several options are available to increase the biomass to meet the requirement of minimum plant nutrients. A portion of cropping land may be made available for growing the green manure along with regular crops. This green manure can be harvested at the right time and composted, stored and used in the next growing season. The land lost in growing the green manure is compensated by increased yield in the remaining area and year after year the productivity remains the same, if not increased. Our social forestry can be planned to augment biomass requirement, in addition to fodder and fuel now being supplied.

Moreover, the rainfed areas constitute nearly 70 percent of the total geographical area. The rainfed agriculture or dryfarming has not received as much attention as the irrigated area in terms of transfer of technology to increase the yields of crops. The research on dryfarming has been going on in several parts of the country for decades. But the outcome of this research on generating technologies in the area of soil and moisture conservation, maintenance of soil organic matter and supply of soil nutrients adequately under tropical conditions has been elusive.

It is argued that there is great scope to increase the production and productivity in the rainfed areas. The rainfed or dryfarming constitute 70 percent of total cultivable area but contributes only 40 percent of the total food production. Even a 10 to 20 percent increase in yield achieved in these areas will substantially increase the food production of India in addition to supplying the export market for organic products.

(b) Organic Fertiliser & Pesticides

To make millions of acres of land productive, adequate organic inputs have to be provided. This will require not only enormous quantities of biomass but also needs techniques to enrich the biomass to supply required quantity of nutrients to the crops. It is estimated

that even if the present production of around 13 million tonnes of chemical fertilisers, which is insufficient for the current demand, is increased to around 20 million tonnes, it still may not be possible for small farmers to afford the prices of chemical fertiliser. Thus plant nutrients are to be adequately supplemented through compost and biofertilisers to bring in sustainability of production. Therefore, adequate attention is required to enrich soil with as much organic matter as possible. Similarly, biopesticides and biological agents together with biofertilisers play an important role in laying a strong base for sustainable agriculture. Reduction of nitrogenous fertilisers may itself be able to reduce the pest and disease incidence in crops.

Several alternatives for supply of soil nutrients from organic sources like wormi-compost, biofertilisers etc. are suggested. The technologies to produce large quantities of wormi-compost have been developed in India. There are specific biofertilisers for cereals, millets, pulses and oilseeds.

Unfortunately, biofertilisers and biopesticides, though ideal for dryfarming, have not become very popular in India. Basically there are two reasons for its failure. First, there is a lack of developed marketing and distribution network for biofertilisers and pesticides. Hence, their supply remains erratic. The retailers are further uninterested in selling bio-inputs because the farmers are largely ignorant about the latter, thus depressing the level of demand. Second, there is an over-presence of chemical fertilisers and pesticides, which are heavily advertised, probably because they provide a higher margin for retailers. However, this scenario could be undergoing a change, as several big firms have started marketing bio-inputs²⁰.

There are three kinds of technologies available to manufacture organic fertiliser. They are Aerobic Reduction, Microbial reduction and Wormi-composting. The last one is very popular in India because the cost of production and investments are very low and it does not require a big set up for it. Manure is mostly developed locally.

20. There are organisations like Terra Farma in Bangalore and Organic Pesticides in Belgaum producing fertilisers and pesticide on commercial basis.

(c) Standards and Certification

Since there are no domestic standards or certification organic farming in India has to follow international standards and certification.

The IFOAM Members in India constituted a National Standards Committee in January 1996 with scientists and experts from 13 organisations located in different parts of India and entrusted them with the task of preparing Basic National Standards for Organic Agriculture in India. The Committee examined in detail the basic standard of Organic Agriculture developed by IFOAM and other organisations in order to prepare the National Standards for India. It also drafted the National Standard and got them ratified before the IFOAM membership in India and a cross section of farmers and policy makers drawn from different parts of India at the Water and Land Management Institute (WALMI), Aurangabad. The Basic Standards have been submitted to the Government, Universities and other organisations. These standards would be subject to review every year on the basis of developments in our national organic agricultural movement. The Standards are also expected to provide a broad framework for systematic promotion of organic agriculture in our country and expected to form the basis for certification agencies in drafting their detailed standards for domestic and international markets.

SKAL of the Netherlands is an independent, non profit organization. It has been designated by the Dutch Ministry of Agriculture as the sole Inspection Authority in the Netherlands, which is used by the operators who are producing, preparing or importing from the third world countries. Article 1 of EEC regulation No. 2092/91 in general ensures that the requirements and objectives are fulfilled to cover unprocessed agricultural crops and products for human consumption, such as sanction rules, sufficient qualified personnel, adequate administration systems and equipment, reliability etc. SKAL standards are based on IFOAM basic standards and attaches more importance to informing licencees on the applicable rules of production.

SKAL has been active in India since 1990, providing inspection and certification services in coffee, tea and other sundry agricultural export products. Since SKAL is a recognised inspection body in the EU, its certification gives a good access to the European market. SKAL also helps in identifying importers of organic food in Europe.

IV. The International Market for Organic Production

The market for organic products in most of the countries is still relatively small and characterised by niche markets. The main distribution is typically through specialised channels. However, there are indications that this is changing with the development of the industry. There is greater targeting of main stream distribution channels which could reach potentially larger markets. A particular problem with assessing the extent and potential of the organic sector is the lack of data. Much of the information available is the result of piecemeal studies which makes it difficult to do cross-section or time series comparisons. The analysis below should be seen in this context.

The organic sector is, on average, under half a percent of the total agricultural sector in most of the countries, the exceptions being Germany and Austria which have between two and three per cent of their agricultural area under organic production.²¹ In 1992 the world market for organic produce was estimated to be US\$3 to 4 billion per year, with the European market estimated to account for half of this.²² However, according to some estimates, the worldwide market potential for organic produce is likely to be in excess of US\$12 billion by the year 2000.²³ It may be pertinent to mention here that total Indian exports of plantation and agricultural products in 1998-99 was almost US\$ 5 billion, of which plantation export was almost US\$ 1 billion, cereals US\$ 1.5 billion and spices, nuts and seeds US\$ 0.9 billion.

21. Lampkin and Padel, 1994

22. Verschur 1993

23. Inder 1995

The European Market for Organic Products

Europe is the world's largest consumer of organic produce, a considerable amount of which is imported. Current estimates of the present and forecasted size of the European organic industry are difficult to obtain. It is estimated that in 1990 the European market was worth approximately \$900m. This figure was predicted to grow to \$2700m by 1995 and \$8200m by the year 2000. Growth is predicted to be especially strong for meat and dairy products. The organic meat market is estimated to be \$400 million in 1996 (including the market for dairy products) and the meat market is estimated to grow by 190 per cent between 1996-2002 to \$1 billion²⁴. The main reasons given for this are the BSE scare and loss of confidence in hygiene standards. Since Indian conventional meat is not exported to Europe because of non-tariff barriers relating mainly to health standards, there may perhaps be a good potential for Indian exports as the market for organic meat and dairy products develops.

The size of the EU organic production sector is estimated at 1.25 million hectares i.e. 1.2 per cent of the agricultural area, with 55,000 producers. The development of organic farming and the agricultural sector in Europe in general, is not necessarily driven by the market but by policy. The 1992 reforms switched the bulk of agricultural support from market based to direct payments with no restrictions on farming practice attached. As these direct payments may have to be abandoned after completion of the next round of trade negotiations, some other justification for supporting agriculture and continuing direct payments will have to be found. These new direct payments are most likely to require compliance with environmental criteria and could lead to the general adoption of low-input farming.

Measures/policies to encourage low input (including organic) farming have been developed in member states since 1987. These measures are specific to member states and generally relate to designated areas. The level of EU expenditure on these schemes however is relatively small as a percentage of its budget; at four per

24. Lampkin and Padel (1994)

cent in 1995, proposed to rise to 4.4 per cent in 1997, and 5.3 per cent in 1998.²⁵

In addition to the above there are general policy measures being implemented, both at the EU level and by member state, encouraging low-input farming such as the nitrate directive which limits the amount of nitrate run-off. Other measures adopted by countries include reductions in pesticide use; for example the Netherlands and Denmark have undertaken to reduce pesticides use by 50 per cent.

Therefore, in the EU the potential for expansion of low-input farming is enormous. Whilst this will not necessarily be organic in the traditional sense, it may meet the requirements of many potential organic purchasers and affect the market. However, Indian organic products like tea, coffee, spices, cotton etc. will always have a big market in Europe.

Going by specific members, in the United Kingdom the organic market is small. It is estimated that the size of the market for organic produce was \$140 million in 1995, rising from \$60 million in 1990, most of which was in fresh produce. In the late 1980's major supermarket chains were beginning to distribute organic produce. This interest subsided, it is argued, due to lack of continuity of supply and quality consideration. However, the potential is there for India to target major retail outlets and meet the requirements of the mass market.

In addition, the UK has been one of the European countries most enthusiastic about the uptake of low-input farming methods and this, with the recent food scares, may mean the restrictions on conventional production methods for access to this market become more important.

The Netherlands has a small organic sector. In 1995 the area covered by organic farming in the Netherlands was around 0.5 per cent of the agricultural area. The domestic market was estimated at one per cent of total agricultural output but the total export volume is estimated at between 60 to 80 per cent of organic production.

25. Agra Europe 1996

Thus, 60 per cent of organically produced carrots are exported as are 52 per cent of organically produced dairy products.

Denmark has experienced the most rapid growth in the organic sector. Whilst growth occurred from 1988 to 1992 in organic agriculture (from 0.2 per cent to 0.6 per cent of the total agricultural area) it was from 1993 that the main change occurred. This growth from 1993 was mainly due to a change in marketing policy with conventional supermarkets offering organic food products. The sales of organic produce and the conversion rate from traditional to organic farming has since markedly increased.²⁶

Denmark has introduced a number of action plans relating to agriculture and farming practices. In 1987 the plan on the aquatic environment set targets of reductions in discharges of nitrogen by 50 per cent and phosphorous by 80 per cent. This was reiterated in the action plan for agriculture in 1991, which aimed to reduce use of nitrogen and pesticides use by 50 per cent by 1997. Moreover, the Danish government has an organic action plan which aimed to have seven per cent of the land farmed organically by 2000.

Germany has one of the highest proportions of organic farms in the world, with two per cent of the land managed organically. Germany also has one of the largest markets for organic products. There are 3000 to 4000 natural food stores and "Reformhduer" selling organic food. Many farms market their products directly at the weekly market or farm gates. Organic food can also be found increasingly in German supermarkets.

A good example that organic farming is getting out of its niche is the baby food sector. The leading baby food company in Germany with 1000 employees and a turnover of about 300 million DM is on its way to use exclusively certified organic raw material. They have already reached 60 percent of organic supply. Organic produce was estimated, in 1994, to be 1.5 to 2 percent of the country's total turnover of food trade. Moreover, the industry is estimated to be growing at nine per cent per annum.²⁷

26. Michelsen, 1995

27. Alvensleben et al., 1995

Traditionally, German organic farms preferred direct selling and/or specialised organic outlets (such as wholefood shops) to supermarkets. However, this situation is changing with potential for expansion in more conventional outlets.

Other European countries have significant organic sectors; Sweden, in particular, has a policy of achieving a sustainable agriculture, which includes aiming for ten per cent of the agricultural area to be organic by 2000. However, experience in Sweden does show how price premiums for produce can fall when supply increases. A trebling of the hectareage of organic land resulting from an official conversion scheme led to a swamping of the organic cereal market, and disappearance of the organic premium.

The Japanese Market for Organic Products

The Japanese market for organic foods was estimated to be US\$500 million in 1994. This has grown considerably with the demand for organic produce estimated to have increased at an annual rate of 20 per cent since mid 1980s. This growth shows signs of continuing with many commentators arguing that demand continues to be greater than supply. It is estimated that between three and five million Japanese now regularly buy organic produce for health reasons. Moreover, industry sources estimate that over 300 organic products, including fresh organic fruit and vegetables are distributed in the Japanese market.²⁸

Domestic organic production is still a small proportion of the total; for example, in 1995 the Japanese government estimated domestic production of organic vegetables to be about one per cent of total vegetable production. However, what is significant about the Japanese markets is the consumer interest in the source of supply. Thus producer/consumer co-operatives are responsible for significant proportion of the retail food trade in organic foods with some consumers requiring knowing the source of their food and even visiting the farm. Thus, some Japanese consumers are reported to be very concerned about the safety and quality of foreign food.²⁹

28. Ahmed 1994
29. Foodnet, 1997

Imports were still a small proportion of the total market at about US\$5 million in 1994 or one per cent of the total markets, the major supplier being the USA. Premiums in the Japanese markets are estimated to range from 10 to 30 per cent over conventional products.³⁰

As the market expands, other distributional channels are becoming important. Thus up to 70 per cent of large department stores and supermarkets, 85 per cent of Co-ops, and 37 per cent of agricultural co-operatives currently deal with organic produce.³¹

Therefore the growth in the Japanese market seems set to continue. There is a considerable scope for targeting niches in this market. In doing so it is important to develop important contacts and information regarding distribution and marketing and to develop infrastructural knowledge which acts as a potential barrier to new entrants into the organic market of Japan.

The US Market for Organic Products

As with Japan the US market has great potential for Indian exporters. The size of the organic market over the last few years is estimated to have grown by 20 per cent per year. The US market was \$2.8 billion in 1995 and it was estimated that it would grow to \$4.8 billion by 1998 and \$5.8 billion by 2000.³² The number of certified organic producers grew by 23 per cent between 1993-1994 to over 4,000 farms. Thus in 1994, over a million hectares were estimated to be organic, or 0.1 per cent of total agricultural land.

The growth in the US market has been due to rising consumer awareness of food safety and quality issues as well as improved distribution channels. A 1994 survey found that one in every three respondents reported changing their eating habits over the past year, which included eating organically grown produce. A 1993 survey found that 83 per cent of American families would prefer to buy organic produce (PVFH, 1993). The Food Marketing Group showed

30. Naka 1996
31. Foodnet, 1997
32. Tradenz 1996.

that nearly a quarter of all shoppers buy natural or organic foods weekly. Moreover, consumers are willing to pay a 23 per cent average premium (ranges from 10-30 per cent) for food that is certified organic.³³

Currently, the natural/health food store channel has a wide range of store formats. However, the organic retail sales environment is changing. The market is polarising with smaller stores successfully focusing on organic as a niche market while larger stores are expanding to attain economies of scale and breadth of product lines. This trend indicates that the majority of organic foods are now being sold in large natural/health food stores.

More than 50 per cent of wholesalers charge a premium over and above a comparable non-organic products, depending on various parameters such as the product itself, season, supply and demand. Data from retailers indicate that premium range from 15-100 per cent with an average of approximately 20 per cent.³⁴

The organic sector in most countries is still small and typically a niche market. However, whilst these sectors are small relative to the size of their markets, they are large in relation to India's potential to export organic food. In addition, many of these are growing and thus, so are potential opportunities for Indian exports. In fact India will enjoy a unique position in the world markets due to its geographical location and inherited tradition of organic farming. Efforts are required however, to establish marketing channels for organic produce in these countries and to provide a stable, predictable source of supply.

Price premiums for organic products range from 10 to 100 per cent although 20 per cent seems more typical. However, these can disappear when supply increases especially in those countries with policies to encourage organic farming. At the same time, liberalisation of international trade in agriculture, in particular the elimination of export subsidies and reduction of domestic support could shift the comparative advantage to countries like India.

33. Colorado State University, 1994

34. Tradenz, 1996

As stated in the beginning, the lack of data is a serious problem in the analysis of market size and trends especially when compared to the data available for the conventional sector in most countries. This is a limiting factor in the development of the industry and targeting of potential markets. However, an identification of potential for products where stable can be ensured and an export promotion efforts to inform the consumer of this potential as well as to establish reliable marketing channels could help in achieving a quantum jump in organic exports.

WHY INDIA IS NOT ON THE THIRD COUNTRY LIST - IS IT AN NTB?

Organic farmers in some non-EU countries export organic food into the EU market and they do not require the services of EU certifying organization. For example, Argentinean experts inspect on behalf of Argentinean inspection bodies and can certify as organic in the European Union and no European certifier is involved. On the other hand, foreign inspectors on behalf of European certifying organization inspect organic products from India. Now why is it that Argentinean produce have an easier access to the European market than Indian produce?

In 1992, an EU regulation was established and published in the official bulletin of the European Union. It was not supposed to work as a trade barrier. First, it is a Consumer Protection Law. It is supposed to guarantee to the consumer that when there is organic labeling, it is a product of organic origin. And it does not matter whether it comes from an EU country or a third country. Therefore in Article 11 there is a rule that if equivalency of production, documentation and inspection is proven, there is free access to the European market.

The primary path of access is the third country list. Under this procedure, the Government of the third country or the non-EU country files a documentation with the EU Commission in Brussels showing that in the third country there is a certification body in place that works in accordance with what is internationally

recognised as state-of-the-art of product certification. The difference between Argentina and India is that in Argentina the farmers and growers got together at the beginning of the 90s and established certifying bodies on their own and pushed them. They established themselves as the state-of-the-art which was recognised in Brussels after reviewing an official request by the Argentinean Government to be included in the third country list. Originally it was necessary to have the third country government apply. In this case the Indian Government was to apply directly in Brussels. Today, however a second path is open, you can also ask an EU government - Germany, Great Britain and the like - to sponsor a certifying body operating in a third country to be put on this list.

Indian growers presently have to use another path of access, not the third country list but a case to case review. This review is also based on the concept of equivalence. The idea is that an expert, not necessarily foreign but may be even Indian, review the performance of organic farmers in third country and check whether agricultural production conditions documentation is of equivalent effectiveness as inspection in Europe. Now, when you look at the aspects of equivalence that must be proved either to be put on the third country list as to be allowed to import certain lots on a case to case basis. You have to show that the production conditions are equivalent to requirements in the EU. The international standards, the IFOAM standards are clearly acknowledged and accepted.

V. Problems and Prospects

This section of the paper is based on the field survey undertaken. The information on the economic structure of organic farming is very limited and must be seen as an important impediment. Whilst more information may be available, it is not in the public domain. Care should be taken when interpreting the results of field survey. The conclusions are drawn from a very limited number of respondents who sometimes may not have really understood the issues.

Organic Inputs

Due to use of excessive chemical fertilizers the fertility of land has substantially reduced. To increase the fertility there is need to recondition the ailing land. It is possible only by adding natural nutrients to the land through organic fertilizers.

One of the major concerns in organic farming is the availability of organic fertilizers. At present the Indian market for organic fertilizer is only around 6 million tonnes, compared to 28 million tonnes for chemical fertilizers. Although there are no available estimates for the demand of organic farming, however on supply side one can broadly estimate the availability. Apart from the 600-700 million tonnes of agriculture waste, it is estimated that 50 million tonnes of non-agriculture waste (urban garbage) is created per year (150 grams of non-agriculture waste is created per person per day). For example in Delhi alone around 3400 tonnes of garbage is created every day, Bangalore creates 2200 tonnes of garbage per day. Out of the 50 million tonnes of urban garbage available 20 MT is degradable which can be converted into 5 MT of organic fertilizer.

Basically it is a question of solid waste management. Now the question arises that who should be involve in it, Government, NGOs or the private sector? It is suggested that all three should work in conjunction. Government should provide institutional support, NGOs should work towards training and dissemination of information while the private sector should produce and market the organic fertilisers and pesticides.

The government should provide infrastructural support through local/ municipal corporations. The cities should be classified in four categories:

A class 5 cities with allocation of expenditure Rs.10 cr. each	50 cr.
B class 10 cities with allocation of expenditure Rs.5 cr. each	50 cr.
C class 50 cities with allocation of expenditure Rs.2 cr. each	100 cr.
D class 500 cities with allocation of expenditure Rs.1 cr. each	500 cr.
Total	700cr

Municipal corporations should provide dump-sites and water and power to the producer at concessional rates. Government can also provide some subsidy to the organic input producer as they are already subsidising chemical fertiliser producer upto Rs. 4000 per ton. It has been suggested a subsidy of Rs.500 per ton will be a good incentive to promote this sector.

The above plan can handle 15 million tonnes of garbage which is 1/4th of the garbage created in India. According to some rough estimates 5 MT of organic fertilizer can save India foreign exchange of upto Rs.12000 crores, generate Rs.400 crores of revenue out of waste and save money on subsidies provided to chemical fertiliser producers. It will also create employment and provide an environmental friendly, healthy and clean atmosphere. It can open windows for exports of eco-friendly products and help overcome non-tariff barriers for India's agricultural exports which it currently faces on account of quality issues.

Financial Performance

In assessing the financial performance of organic farming there are a number of overseas studies evaluating the profitability of organic compared to conventional farming. In general, however, these studies tend to indicate that on an average, organic systems perform the same as conventional farming. The range of returns on organic farms tends to be greater than that for conventional farms and where organic farms show higher than average returns, these are often due to additional marketing or processing of the produce. However, it must be emphasised that these studies are generally of mixed organic farms servicing domestic niche markets.

In India, data is not available for specific products, even for products primarily for exports. This is due to the fact that of much of the information is maintained as confidential business practices by the entrepreneurs tapping niche markets, who would not like to divulge, much less publicise, these practices.

In our field survey it was indicated that the products from organic farms were sold at a premium price up to 10-40 per cent

higher than the market price of a similar conventional product in domestic market and up to 15-100 percent higher in export market.

Organic producers were found to have a greater variation in both costs and return, than conventional production systems. Moreover, organic production also exhibited higher potential returns. The running average costs for the organic system, however, were 10 per cent higher than the conventional system in the areas where agriculture depends on rains. However the cost is less for irrigated land.

Input costs on organic farming are slightly higher than on conventional farming during the conversion period. Moreover, while organic farmer save on herbicide costs, the use of 'soft' (but expensive) sprays and mineral oil sprays cancel out any savings that might be made on this kind of input. Even if organic producers buy fertiliser from certified organic suppliers rather than composting on their own, it would still be cheaper than conventional fertilisers, but it would have to be applied at 1.5 to 2 times the rate at which conventional fertilisers are applied. And certainly the labour cost increases. On top of this, the cost of IFOAM inspection and certification must also be considered.

Yields per hectare suggested a reduction of 20 per cent while in conversion period but come to the same yield as conventional farming or even more with in three year.

Organic Certification

The current certification system involves annual inspection of a property by IFOAM inspector. The Inspectors audit properties to the IFOAM standards. The process of conversion from conventional to organic production usually takes a 3-4 years. Applicants register their property with IFOAM after one year of non-use of prohibited inputs will be able to apply for transition status. At this stage the applicant has to have established a management plan for the property, which is approved by the local inspector, and be working towards the requirement for full IFOAM certification. Frequently, it takes three years to reach full IFOAM status, although this time can vary

depending on the documented history of the property and the development of accepted management procedures. The Ministry of Commerce has been involved in discussions with the certifying agencies about the local certification system. The draft of the standards for organic products is ready for the approval.

Research

There is hardly any research programme which undertake research on organic production systems. However, there are two institutions that undertake training for organic production as has been mentioned earlier.

Government Agencies

There is no government agency exclusively looking after organic farming. However lately some semi governmental agencies like TRIFED have got themselves involved in organic marketing with the help of NGOs. The organic farming has received none of the financial support and subsidies available in other countries particularly in Europe.

Input Suppliers

The move to organic production results in a change in the type and amount of inputs used in a farming system and often a change in the supplier of inputs. In the development stage of organic production major difficulties in obtaining inputs permitted under the certification standards are faced, with spatial distance and relatively small markets being impediments to companies developing suitable distribution networks. A result of this is the difficulty in purchase of these inputs. It was suggested that selling organic input should be made mandatory with chemical inputs.

Dissemination of Knowledge

Producing according to organic methods requires organic growers to develop a new set of production skills. The organic growers use a variety of sources of information to learn about organic production in other countries. Primarily, growers use books, newsletters and informal networks to learn about organic techniques and skills.

However in India this does not happen. Most of the small farmers are illiterate and the knowledge is imparted by NGOs but in a very limited manner. It was suggested that literature related to organic farming should be distributed in local languages through local government agencies.

VI. Organic Tea: A Case Study

Organic farming is best suited under perennial plantation crops which provide proper shade and cover to the soil, which thus keeps the microbial activity going. Unless there is enough organic matter, neither the applied fertilizer uptake would be maximal, nor would there be continuity of the microbial activity, which gets suppressed by chemical fertilizer. Therefore, there is a need to maintain a minimum amount of organic matter by periodical supply. There are instances where high levels of production of plantation crops like tea, coffee, cardamom and pepper could be obtained through the nutrient supply from organic source only. Incidentally, there is great scope to export organically grown tea, coffee, cardamom, pepper etc in India. In addition to improving our soil productivity by organic farming we can look forward to greater demands for our organically grown products.

In fact, ever since the British planted tea in the Darjeeling Hills around 1852 till the middle of this century, Darjeeling Tea has been by and large grown without use of synthetic chemicals and fertilisers for almost 100 years. Flora and fauna were in abundance and nature was at its prime.

During those early days efforts required for pest control were minimal. Lime sulphur solution was perhaps the most generally used spray, which proved effective against many pests and blights. A mixture of washing soda and common resin popularly known as Burgundy mixture was used against Black Rot, while Copper was sprayed for treating Blister Blight. As weather patterns were quite predictable, natural checks of climate along with balanced population of predators also played an important role towards pest control. The British Planters were firm in their belief that good drainage, clean cultivation, moderate shade and in fact all operations which

encourage health and vigour in the tea bush have the effect of reducing pest attacks. Thereafter Bone meal, oil cakes, pruning litter, leguminous plants, composts and cow dung took care of fertilization requirements.

With the advent of synthetic chemical fertilizers, pesticides and insecticides in the late fifties and sixties, changes in agricultural practices also started in the tea plantations too. Darjeeling planters, who are quite conservative, were hesitant and slow initially, to adapt to this change over, but ultimately due to economic compulsion and aggressive marketing by the manufacturers of these chemicals and fertilizers, succumbed to these pressures.

For the next 3 decades, Darjeeling saw a rapid decline on all fronts. The Govt. introduced legislation vesting the surplus land of tea gardens with the State. Most of these resumed areas consisted of the small jungles neighboring the tea plantations, which were all along guarded and maintained by the planters. Without any proper infrastructure to protect these areas, they soon become no mans land and the forests were slowly destroyed and the land encroached upon.

Next it was the turn of the beautiful shade canopies, which covered most gardens to be systematically cut down and the wood given to the workers for fuel purposes. By the early seventies, the tea garden areas were virtually denuded resulting in the destruction of both flora and fauna. Weather patterns started changing and together with heavy soil erosion caused numerous landslides. The health of the century old Darjeeling tea plantations started declining rapidly.

With the pressure on the tea planters to produce more, they resorted to increased dosages of synthetic fertilizer and chemicals. The terraces on which tea was originally planted so as to preserve the topsoil were also dismantled so that more plants could be accommodated per hectare. No efforts were made to check the decline in the soil health and it was during this period that we witnessed the economic downslide of the Darjeeling Tea Industry.

In spite of continuous use of chemical fertilizers and pesticides for past three and half decades, it is surprising that the crop and yield has remained static in Darjeeling. In 1960 the area under tea was 18605 ha with a crop of 10.123 million Kg while in 1994 through the areas under tea has increased to 20100 ha, the crop was only 10.752 m Kg. Thus, the logical conclusion would be that use of chemical fertilizers and pesticides in Darjeeling has had no effect towards increasing the crop productivity.

In the late eighties resistance come up in Germany towards the high pesticide residue levels in tea and there was a demand for setting out standards for maximum residue levels acceptable. This was a direct fall out of the Chernobyl nuclear disaster, after which extensive analysis of food products was regularly carried out. In fact, in 1993 and 1994 some consignments of the prestigious Darjeeling First Flush, were rejected on arrival in Germany, due to high pesticides residue.

So it seems that the tea industry in Darjeeling has now reached a stage where there appears to be no other alternative then to switch over to the organic system of cultivation and improved soil structure, re-establish the shade, the forest and restore the balance in the eco-system. Organic farming asks for eco-management i.e. the maximum consideration of the ecological aspects and its primary aim is to ensure sustainability of soil fertility in combination with development of an agro system to achieve ecological equilibrium.

Today, the Darjeeling Tea Industry is ideally poised for switching over to organic agriculture. All planters there should give this matter due consideration. The first steps have already been taken and today there are 11 tea garden growing tea organically which accounts for 10 percent of the Darjeeling crop. There is no denying the fact that organic agriculture has come to stay in Darjeeling.

Expansion of Organic Tea-Opportunities and Threats

At this moment, the market for organic tea is still very small. There is only the hard core 1 percent of the buyers of tea who buy organic tea. Organic tea is sold in health food shops, fair trade shops,

super markets and specialty shops. Between half to one per cent of organic tea is in the health food channel.

Generally, super market chains are not prepared to invest time and money to develop a market for organic products. Organic products are included only when there is a proven demand from consumers and a product is rejected when turnover over a three-month period is insufficient. Although in Scandinavian countries there are super markets who are willing to commit themselves to actively promote organic tea but in the super markets in the Netherlands, one can hardly ever find any organic tea. The reality is that the competition in the super market is very strong and the volumes bring big profits. Thus organic products and baby foods do not fit in the super markets. To push these products you need motivated and well-trained staff on the shop floor. Such people are not available or are very expensive in the super markets.

So, what is the alternative? Special tea shops. In various countries in Europe, tea is increasingly being sold through specialized retail outlets. They offer enormous varieties of high quality teas. Compared to the super markets, the specialty shops are a completely different place to sell unique qualities of organic teas. Consumers, who buy tea in the specialty shops do so because they are looking in the first place for high quality products. Here the consumers are not those who would bargain, but they are the ones who go out of their way to buy the best quality teas. Here you will find dedicated and well trained sales personnel motivated to communicate to the consumers the added value of organic tea.

The specialty tea outlet requires really outstanding products. It requires diversity – broad and deep product ranges. It requires content innovation. It asks for your support to convey your knowledge, your philosophy, your history, your motivation to information hungry customers. The specialty teashops can therefore do a lot of good to organic teas provided you motivate them to do so. They can create motivated, quality conscious, consistent customer for organic tea. Thus, the organic tea producers and the specialty tea sellers can together develop an environment that can eventually no longer be ignored by the big super markets.

It must be pointed out that for successful marketing of any product there must be equilibrium between supply and demand. It is absolutely necessary and important that the product shows the name "organic tea". The consumers in Europe, specially Germany, Switzerland, Scandinavia and also in England, expect that the product has been grown naturally without any pesticides, without the application of huge amount of artificial fertilizers. The consumer also expects, and this is even more important, that this type of organic production has a huge advantage for the people who are living in the area where the tea is being grown. The European buyers want to be sure and certain that the product being sold as organic had preserved environment in the process of its manufacture. And finally, he expects that the organic method of production make better quality teas automatically. These are the positive advantages of organic tea.

The price of the organic tea sometimes is five time the price of teas without a certificate. Thus the certifying organizations are very critical with the examination and certification from new producers. It is visualized that majority of the gardens would return to organic cultivation in due course.

VIII. Concluding Remarks

Organic farming has a tremendous scope in India. Organic farming makes more sense here than probably anywhere else in the world because majority of agriculture is rainfed and there has been a tradition of organic farming. Although there is a growing trend towards organic farming, it has not been taken seriously by the government or the farmers. There exist a number of bottle-necks for farmers who are interested in the organic farming and for the industry who want to process and export these products. These impediments are in the area of production, marketing and infrastructure.

Due to the practice of land ceiling in India, the size of land holdings tends to be small. Therefore, there are no economies of scale to go for export market. It works as an impediment to adopt organic farming. Further, the gestation period for conversion from traditional to organic gives somewhat reduced yield in initial period

and financial returns may be lower especially during the transition phase when premiums may not be available and a small farmer may find it difficult to survive.

There is serious lack of information on organic management strategies and market opportunities. There is also lack of availability of distribution networks of organic fertilisers and suitable pest and disease resistant plants and animals. There is also a very high publicity and propaganda for pesticides, fertilizers and other agro-chemicals, which erode the faith of common man in organic agriculture.

The international standards for organic farming are too stringent; for example, the fields near an organic farm should also not use chemicals. It is not possible for a farmer to control the farming practices of neighbours and to have in-house controls becomes very expensive, especially for a small farmer. This implies that either big industrial houses or cooperatives, by adopting small farmers, would be able to succeed in organic farming.

Marketing of organic products is a major problem for Indian farmers. There is no critical mass of producers in many sectors to enable economies of scale for processing, servicing, and research and market development.

Although in India some NGOs are trying to popularise organic food, their distribution is uncoordinated, market is small and consumers are relatively uninformed. It is more so for export market, where there is no dissemination of market opportunities. The existing exporters have a tie up with some foreign importers or NGOs, which is a closely guarded secret. There is hardly any effort from government in this regard. Furthermore, there is a concern that current premiums for organic products will decline as production increases. Fumigation and phytosanitary issues is also a major hurdle for fresh fruit and vegetable for exports.

Certification is seen as a barrier to small growers due to the costs. Standards, e.g. animal standards, are too high and creating an unfair barrier to production and trade. Some of the standards lack logic, some others may not be appropriate to Indian conditions.

There are no local certification systems for organic products. Ministry of Commerce is in the process of formulating local standards and a certification system. The foreign certification like IFOAM, SKAL is very expensive and only feasible for big holdings.

There is resistance from some who would like to maintain the status quo, e.g. chemical companies, and other input supply companies antagonistic to organic farming because of the potential threat to chemical sales.

There is hardly any recognised training institution to impart training in organic agriculture. There is weak political will on the part of the local and national government to evolve and promote organic agriculture on the basis of a long-term policy and finally there is severe lack of support networks and information.

There is lack of government support in India; whereas governments in developed countries have taken an active role in stimulating demand for organic production and providing subsidies for conversion to organic farming. India government should also actively support organic farming by different means. For example, government can give preference or higher price for organic products in their procurement.

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