

**PROMOTING ORGANIC FARMING IN BHUTAN:
A REVIEW OF POLICY, IMPLEMENTATION AND CONSTRAINTS**

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Executive Summary

The Ministry of Agriculture recently formulated the policy for organic farming in Bhutan in the form of a National Framework for Organic Farming in Bhutan. The Framework outlines key approaches and strategies to promote organic farming in the country. It hopes to develop and promote organic farming as a way of life among Bhutanese farmers and trade in organic produce to enhance their incomes. Starting with niche crops and products with established markets is seen to ensure success. It advocates establishing organic 'communities' and pilot activities in areas of high potential. Development of organic markets, both internal and external, is seen as crucial to promotion of organic farming.

The organic farming sector has a number of agencies and stakeholders involved at different levels. At the micro-level, there are farmers, farmer groups and consumers. The meso-level has district RNR extension network, research centres and private entrepreneurs. The CoRRB, PPD, BAFRA and the Departments of Agriculture, Livestock and Forestry are involved at the macro-level. The consultation and coordination mechanisms between these agencies are evolving and need to be strengthened. The policy calls for a national coordination unit to develop and coordinate the organic program in the country, supported by a Technical Working Group.

The formulation of the Framework was started in 2002 and it took five years before the policy was officially announced in 2007. A UNDP-assisted project provided initial impetus for the framework which was then taken over by the MoA through stakeholder consultations including some farmers. However, consultations with grassroots stakeholders may not have been adequate. Active implementation of the policy is yet to begin.

Organic farming is new in Bhutan and there are a number of constraints impeding its progress. Coordination of the programs and activities at different levels is an issue in the absence of a strong body at the national level. Lack of awareness and understanding among various actors of organic farming adds to the problem. Organic farming is labour and knowledge intensive but both the inputs are scarce in the country. The RNR research and extension system lack sufficient exposure and knowledge in organic farming. Quality control of organic products is a serious issue without any standards and control systems in place. Private entrepreneurs in trading of organic products are few.

The planning and coordination of organic program must be strengthened on a priority basis with the coordination unit formalized and given necessary resources. Publicity and advocacy on organic farming should be continued and sustained. Organic markets must be explored and developed. Steps towards quality regulation and development of standards must be taken today to harness the benefits tomorrow. The national research system should include research components on organic farming in a holistic way. Key areas of research include soil fertility management, pest management, livestock management practices and the management of food supply chains.

ACRONYMS

AMS	Agriculture Marketing Services
BAFRA	Bhutan Agricultural and Food Regulatory Authority
CBNRM	Community Based Natural Resource Management
CoRRB	Council for RNR Research of Bhutan
DoA	Department of Agriculture
EC	Empowered Committee
FYM	Farm Yard Manure
IFOAM	International Federation for Organic Agriculture Movement
INDOCERT	Indian Organic Certification Agency
ISO FAR	International Society for Organic Farming Research
MoA	Ministry of Agriculture
NBC	National Bio-diversity Centre
NEC	National Environment Commission
NFOFB	National Framework for Organic Farming in Bhutan
NITM	National Institute of Traditional Medicines
NOPCU	National Organic Programme Coordination Unit
NPHC	National Post Harvest Centre
NPPC	National Plant Protection Centre
NSSC	National Soil Services Centre
NWAB	National Women's Association of Bhutan
NWFP	Non-Wood Forest Products
PPD	Planning and Policy Division
REDP	Rural Enterprise Development Project
RGoB	Royal Government of Bhutan
RNR	Renewable Natural Resources
RSPN	Royal Society for Protection of Nature
SWOT	strengths, weaknesses, opportunities and threats
TWG	Technical Working Group
UNDP	United Nations Development Program

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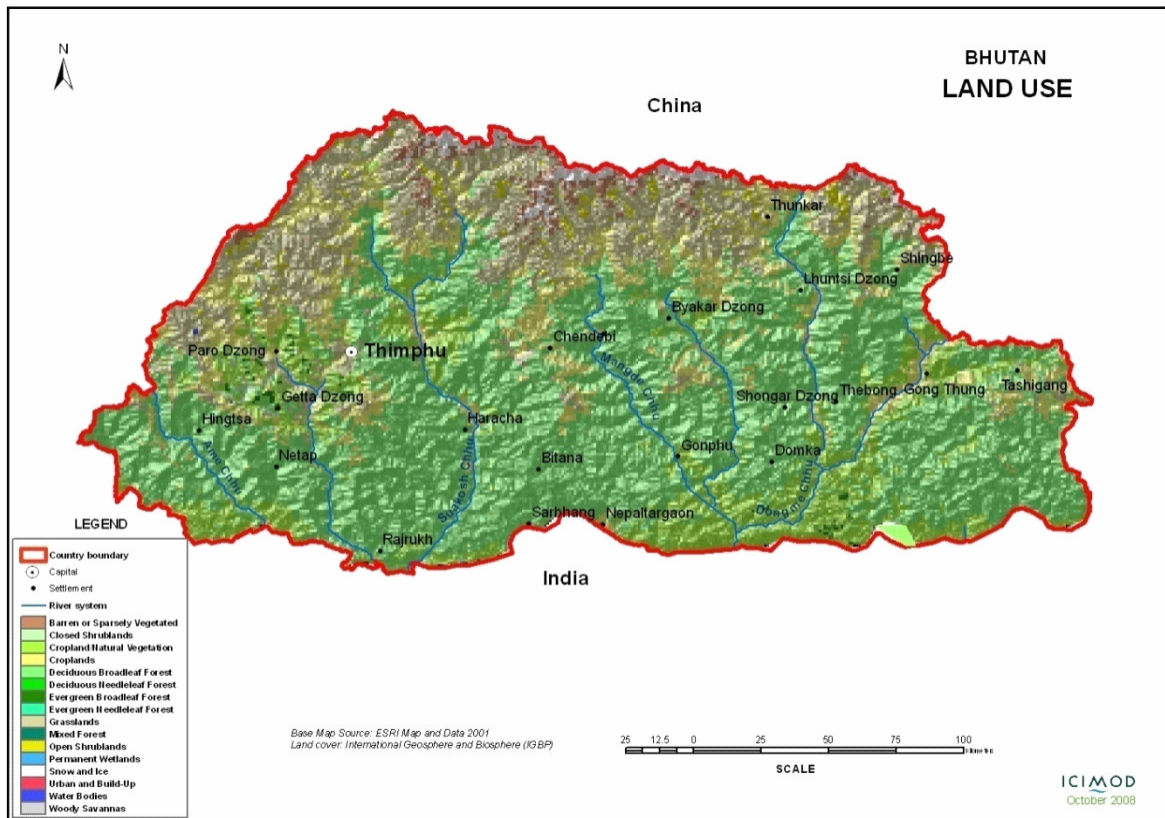
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Promoting Organic Farming in Bhutan: A Review of Policy, Implementation and Constraints

1. Introduction

Bhutan is a small country nestled in the Himalayas (Map 1). Bhutanese agriculture is often referred to as traditional which is experiencing a gradual transition to semi-commercial operations. With 79% of the population engaged in farming, the Royal Government of Bhutan (RGoB) has accorded high priority for the development of agriculture sector. In the past, emphasis has been laid on the provision of modern varieties and requisite inputs for higher production in line with green revolution elsewhere. However, with the current global movement for clean environment and natural products, Bhutan with a very low usage of chemical inputs could easily become a pioneer in organic farming.

In realization of the aspiration of Bhutan as a country with environmentally clean food production systems and products as inscribed in the Bhutan 2020, the Ministry of Agriculture (MoA) officially launched the policy for organic farming in the kingdom in 2007. The policy in the form of the National Framework for Organic Farming in Bhutan (NFOFB) is the first of its kind in the country.



Map 1: Political map of Bhutan.

1.1 The Policy

The NFOFB has eight chapters on the concept and rationale of organic farming in Bhutan, policy framework for promotion, strategic and action plans and the institutional arrangements for implementation of the policy. It asserts that a large rural population still practices traditional farming using forest litter and farm yard manure (FYM), and there is a great potential of increasing and sustaining production through organic farming which combines scientific knowledge and methods to produce safe food (NFOFB, 2007). The

stated mission is to develop and promote organic farming that will enable Bhutanese farmers and traders to provide safe, quality food, produce and products for local consumers as well as for other markets. Bhutan's vision is to develop organic farming as a way of life and become fully organic by 2020. Its broad strategy covers all the farming communities of Bhutan including subsistence farmers whose main aim is sustainable farming and food security and semi-commercial farmers who aspire for higher incomes and better living standards. A commodity approach is advocated for niche products that already have established markets.

To realize organic farming the NFOFB calls for the following steps:

- Developing a coordination and advocacy institution such as the National Organic Programme Coordination Unit (NOPCU), supported by a Technical Working Group (TWG)
- Establishing organic communities and pilot activities
- Ensuring political recognition and overall education
- Providing/facilitating critical inputs for organic farming
- Establishing advisory services to assist producers and processors
- Developing organic markets
- Developing and adopting organic standards and certification system

The Action Plans are categorized as immediate (for instance, setting up of NOPCU), medium term (conversion of existing farms to organic farms) and longer term (research and development). As part of the institutional arrangements, the NOPCU will be responsible for developing, coordinating and implementing organic programme in the country. It will be assisted by a TWG with relevant representation from the main stakeholders. The NFOFB also enlists the main stakeholders and spells out their main roles and responsibilities. The Framework is seen as a living document which will be revised as and when necessary.

1.2 Policy environment

Bhutan is known globally for its wise policies on environmental conservation which can extend to agriculture and food production systems. The Renewable Natural Resources (RNR) concept of the Ministry of Agriculture (MoA) in Bhutan brings forth the model of integrated and holistic approach to sector development. So far, farming in Bhutan can be classified as largely traditional with minimal use of external inputs like pesticides and fertilizers. In view of this, Bhutanese environment is least polluted and natural products such as spring water, vegetable dyes, aromatic plants, essential oils, medicines, handicrafts etc can be termed as environmentally clean.

Under the broad framework of Bhutan 2020, there are policies which promote "environmentally clean products" or "organic farming" principles as illustrated below:

Policies/Acts	Components related to OF
The Forest and Nature Conservation Rules, 2000	<p>Ch2-Art 22.1.a: disposal of any waste or pollutant in a water source or water course or undertaking any other activities that may pollute a water course is prohibited.</p> <p>Ch2-Art 24.17: prohibits utilization of forest produce in a detrimental to soil and water resource.</p> <p>Chapter 7 Art 67: provisions the traditional use of certain wild plant and other species.</p> <p>Chapter 7 Art 73 have provision to regulate regulations for prevention, minimization or remediation of any pollution or contamination thereof.</p>
Pesticide Act of Bhutan 2000	Chapter 2: regulations the import, sale and use of pesticides
Seed Act 2000	It regulates import and export of Agricultural seeds, to prevent introduction of plant pests and diseases and to promote seed industry in the country aimed at enhancing rural income and livelihood.
Biodiversity Act 2003	<p>To promote technology transfer and capacity building at the national and local levels, including the building of scientific and technological capacity relevant to the conservation and sustainable use of biological diversity.</p> <p>To recognize and protect Traditional Knowledge, innovation and practice of local communities associated with biodiversity.</p>
Water Policy 2003	Chapter 6 emphasizes the Principles of Water Resources Development and Management through water resource protection, pollution prevention and sustainable management strategies.
The Food Act of Bhutan 2005	The Act regulates and facilitates the import, export and trade of quality food in the country.
CBNRM Framework for Bhutan 2002	CBNRM Framework emphasizes on sustainable management of NWFPs and integrated watershed management

Plant Quarantine Act of Bhutan 1993	Chapter 3 has provision to (a) issue Regulations for the purpose of preventing either the introduction of a plant pest, or the spread of plant pests, or of any particular plant pest named. (b) prohibit absolutely the import or plants, goods, plant products and soil which are likely to be a means of introducing or spreading plant pests (c) prescribe for the purpose of internal plant quarantine measures for the control and eradication of pests, movement of plants, plant products and soil.
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In view of the inclusion of principle of environmental management and environmentally clean products in many policies, it is conclusive that the policy environment is congenial for promotion of organic farming. However, the application of organic farming policy based on International Organic Standards across the board may have to be done after thorough analysis of socio-economic feasibility.

1.3 Application and Scope

According to the NFOFB, the scope for organic farming in Bhutan is ample. The current farming system which is supported mostly by organic manures and indigenous practices has potential to increase production by adopting organic farming technologies. The livelihood strategies which include exploitation of Non-Wood Forest Products (NWFPs) can also be enhanced through modern approaches. It is also anticipated that organic farming best suits small farmers of developing countries like Bhutan for following reasons:

- Increasing yields in marginalized areas
- Biodiversity conservation (in-situ and ex-situ)
- Increased income
- Product diversification
- Developing sustainable food supply chain

Being landlocked, agrarian based economy, and largely chemical-free production systems, there is opportunity to create “Clean Bhutan Image”. Globally this will have greater impact in the agriculture production systems. If we can achieve branding Bhutanese agriculture produces as “Organic” in the regional and global market, there cannot be anything rewarding for our small farmers who have for centuries integrated their production system with forest, livestock and environment.

1.4 Rationale

Introducing organic farming in Bhutan should be a convincing policy action, simply because already farms in Bhutan operate within the broad principles of organic farming with a few exceptions. However, for holistic development, it is often relevant that policies are widely deliberated and rationalized from both global and local perspectives.

- Organic farming has potential to contribute to eradication of poverty, promote gender equality, ensure environmental sustainability, and ensure better nutrition and health. As poverty alleviation is one of principal development goals of Bhutan, organic farming policy has greater scope for acceptance. Bhutan is globally renowned for its environmental policies and policies that promote environmental management cannot be refuted.

- In a country where the philosophy of “middle path” prevails, most development policies are inclusive and not exploitive. Thus sustainability is stressed in all actions.
- Preservation of culture and traditions has always kept Bhutan as a unique country. Even in the 21st century where mechanization and automation has taken over, Bhutanese are proud to be associated intricately with nature and environment. Majority of farmers rely on NWFPs for their livelihood.
- Organic farming also provides very specific opportunities such as global organic market, increased household income and country’s economy and improvement of health.

1.5 Benefits

As spelt out in the NFOFB (2006), the benefits of organic farming are multifaceted, for instance:

- Farmers satisfy local food and nutrition requirement
- Long-term maintenance of soil fertility
- Reduced use of external inputs
- Efficient risk management in farming
- Food with high safety standards
- Reduced environmental contamination
- Ecosystem balance

The primary beneficiaries of the organic farming policy are the producers who can aspire for an improvement in incomes through production and marketing of organic produce, apart from better health and nutrition at the household level. The benefits of safe food production through organic agriculture then permeate to higher levels – the community, regions and the nation itself in the long run. The policy supports such a move towards organic farming in the country.

2. Existing stakeholders and the impact of policy

The introduction of organic agriculture in Bhutan will have a multi-faceted impact in several fronts. Notwithstanding the enormous benefit of organic culture, it will invariably have both positive and negative influences on several agencies and stakeholders. There is even a scope to open up newer dimensions in development. Some of prominent agencies that have a stake on organic agriculture movement can be categorized as follows.

Inventory of existing stakeholders

Micro level	Meso level	Macro level
Farmers	District RNR extension	PPD
Cooperative/groups	RNR Research Centres	CoRRB
Consumers	Civil organisations	NSSC
		NPPC
		DoA
		DoF
		DoL
		BAFRA
		AMS
		MTI

2.1 Micro-Level Stakeholders

Farmers

Implementation of organic agriculture framework will have a major impact on farmers who generally operate in small and integrated farming systems under the mercy of distantly located highly volatile market system. While benefits are unlimited, such frameworks at times could choke small farmers between two contrasting objectives of sustenance and commercialization. As an example, some of the stakes that farmers have are:

- Higher price for organically produced crops would increase their income,
- Ensuring production within the organic agriculture framework will involve additional resource and technologies,
- Limits the production if production system is not supported by alternative technologies,
- Decline of FYM/leaf litter due to poor management of sokshing¹ can limit access to organic manure,
- Increasing price and unavailability of organic fertilizers, and
- Need for certification could be a disincentive.
- Unlearning conventional practices and learning use of organic compatible technologies

Cooperatives/Farmer groups

Since the enactment of Cooperatives Act 2000, Ministry of Agriculture has been promoting formation of producer and marketing groups at the grassroots level. This initiative has gradually yielded some successful farmer groups across the country who involve in vegetable production, dairy processing and marketing, fruit marketing, cereal crop processing and marketing and community seed production. While these groups are currently struggling to establish themselves as an institution, mainstreaming organic agriculture could have crucial impact on the success of the group as explained below:

- As a group they can systematize and ensure adherence to organic agriculture prescriptions and produce quality organic products,
- The group can fairly easily federate into a organic group and associate with certifying agency, and
- They can develop into production and supply chain of organic produces to major retailers in main cities of Bhutan.

Consumers/Market (Local)

Considering that organic agriculture relate to brand of food produced and marketed, consumers are the critical stakeholder who can be affected by such policies. Some of the influences are as follows:

- Commodity price will increase, resulting into lower consumption of organically produced vegetables,
- Import of low cost vegetable could expose consumer to unknown source of vegetable, and
- In case all organically produced commodities are channeled to export market, there may not be any commodities (or very poor quality) for local market.

2.2 Meso-level

¹ Forest from where people are allowed to collect leaf litter for composting

At the immediate higher level, agencies who are involved in the process will have major stake to ensure the policy works. The stakes of some of the agencies are illustrated below.

District RNR Extension Network

Any intervention in agriculture sector at the farm level is channeled through the district extension network that has extension staff at block level. If organic agriculture movement has to achieve its desired goal, there has to be key re-orientations in the extension system and management. The roles of extension in implementation are:

- Advisory service to interested farmers
- Assist in farmer group formation
- Assist in development of management plan for organic farm
- Identify research issues
- Train farmers in organic farming

The challenge for extension system would be to train and equip themselves with knowledge on organic farming. It means the need for retraining themselves to be able to advise farmers and organize farmer groups on organic farming.

RNR Research Centres

The Ministry of Agriculture has four research centres situated in 4 regions² which have regional mandates to work on agriculture, livestock and forestry issues relevant to respective region. The organic farming unit of the Department of Agriculture (DoA) also works through these 4 RNR Research centres. Some of the stake Research Centres (RCs) would have are as follows:

- Generate technologies relevant to organic farming
- Comparative research on conventional and organic farming
- Technical information
- Sustenance or enhancement of productivity under organic farming framework

Some of the policy impacts on research system would be to reprioritise the research programme, reorient and retrain the researchers, and come up with technology packages which are competitive to conventional technologies.

Civil Organizations

Bio Bhutan (private company trading in natural products), the Royal Society for Protection of Nature (RSPN), Tarayana Foundation (local NGO), National Women's Association of Bhutan (NWAB) as civil society bodies can play a crucial role both in educating population and promoting clean environment. The current activities of these organizations focus in the sustainable use of natural resources, improve employment opportunity and income, value addition and most importantly promote the image of Bhutan as a producer of pure and natural products.

All the existing small farmers' groups can federate and affiliate to these national civil organization which can ensure their sustainability and broader network for marketing.

2.3 Macro Level

² RNRRRC Yusipang – Western region; RNRRRC Bajo – West-central region; RNRRRC Jakar – East-central region; RNRRRC Wengkhari – Eastern region

Planning and Policy Division

The Planning and Policy Division (PPD) of the Ministry of Agriculture as the responsible agency to provide policy directives and support for streamlining organic farming framework will have a major role in ensuring that it gets required impetus in operationalization. Organic farming as a new approach will have to be integrated into the current planned programme so that it does not remain as a stand alone activity.

Council for RNR Research of Bhutan

The Council for RNR Research of Bhutan (CoRRB) with the research mandate for agriculture, livestock, and forestry will have to integrate research and development on the organic farming. CoRRB has designated RNRRC Yusipang as the organic station, where use of chemicals is highly regulated, if not permissible. Ensuring sustained productivity from the generated technologies, adequate resources will have to be allocated for organic farming research. Working closely with other agencies involved in organic farming will be a crucial strategy to promote organic farming. It can also initiate a long term ecological monitoring system to generate research information on sustainability.

The major impact of the policy on the council would be that the organic programme would draw on the already limited human resource available with the Council.

National Soil Services Centre

Considering that no inorganic fertilizer and chemicals are acceptable in organic farming, it will directly have effect on soil fertility. Further, organic farming can also have remarkable influences on soil flora and fauna. Therefore, NSSC will have a crucial role in developing soil fertility management approach in the context of organic farming.

Department of Agriculture

As the principal coordinating agency, DoA will have to ensure linkages among several agencies, such that the promotion of organic farming can be done smoothly. Further it will have a fundamental responsibility in operationalizing the framework in all districts through its extension network.

National Plant Protection Centre

It is often mentioned that protecting plants from pest and diseases in organic farming systems is the most difficult management concern. While NPPC has developed integrated pest management (IPM) approaches, its application in the field has commonly been questionable. Despite the regulation on use of plant protection chemicals, given the chance farmers will always opt for quick remedies by using chemicals. Thus NPPC will have to devote in developing pest management approaches that suit within the organic farming framework.

Department of Forest

Several Non-Wood Forest Products like mushroom, canes, orchids, ferns, asparagus, etc are directly harvested from prime forest ecosystem which is free of chemicals. With the stringent forestry rules, the access to NWFPs is highly regulated. DoF as the guardian of state forest will have a role in facilitating sustainable utilization of NWFPs through its community based programmes.

The organic policy may encourage a larger collection of NWFPs, leaf litters, and other forest resources which may be directly exported as organic produce or may be linked to organic way of farming.

Department of Livestock

The farming system in Bhutan is largely a crop-animal system which is intricately integrated. In this system, livestock acts as the principal source of farmyard manure. Thus the breed of animals which are extremely adapted to local condition and tolerant/resistant to diseases will have a greater scope in organic farming framework as it will minimize use of chemicals. The Department of Livestock (DoL) will have to facilitate adoption of technologies that fulfils the criteria of organic farming. Further, DoL can also involve all the livestock staff in dzongkhags (districts) and geogs (blocks) in ensuring production dairy products exclusively within the organic farming prescription.

The policy will impact negatively on the use of antibiotics which are currently in use for animal health treatment and in the way the animals are managed by farmers.

Bhutan Agricultural and Food Regulatory Authority

BAFRA will have to facilitate implementation of different acts and regulations that ensures environmentally clean produces. If it is mandated to oversee organic certification, it has to upscale its capacity in terms of manpower and resources. While it is already involved in implementation of Food Safety Act and Plant Quarantine Act, BAFRA will be the rightful authority which can most efficiently regulate organic standards in the country.

Agriculture Marketing Services (AMS)

AMS is expected to develop infrastructure and mechanisms for making organic produce in the local and international markets. It will in coordination with NOPCU and other stakeholders carry out market research and development for organic produce for regional and international markets; make market information available and link producers to market; and assist in marketing of organic produces from farm to markets.

Ministry of Trade and Industries

In view of Bhutan joining WTO by 2008, Bhutanese environmentally clean produces and organic products have market potential in international trade. However small the volume may be, the produces can find niche markets and generate export earnings. Thus the MTI will have to facilitate export of organically produced commodities to regional and international markets. Even the promotion of industries specializing in processing and packaging organically produced commodities has to be considered.

3. Assessment of Existing Processes and Coordination Mechanisms

3.1 Processes Adopted in Policy Formulation

The processes for formulation of the National Organic Farming Framework for Bhutan began in 2002 as a part of the Rural Enterprise Development Project (REDP) which included a component on Agriculture Enterprises on Organic/Natural Products. This probably was the first time the Ministry of Agriculture or Bhutan to seriously look into prospects in Organic Farming in Bhutan. In 2003, through REDP, a team of people made a study visit to Japan, Australia and India to understand on organic markets, legislations, standards and certifications, potential products and regulatory requirements of international markets, etc. This visit was followed by a national workshop to review the status of agriculture and develop a framework for organic farming.

A National Workshop on What it takes to become “Certified Organic” saw a review of existing agriculture practices through paper presentations by various agencies like the Departments of Agriculture, Livestock, Forestry, NPPC, NSSC, National Post Harvest Centre (NPHC), RNR Research Centers, BAFRA, Agriculture Marketing Services (AMS), mainly from the Ministry of Agriculture barring few from private sector like Bio-Bhutan and

the National Institute of Traditional Medicines (NITM) from the Ministry of Health. A total of 36 professionals participated in the workshop. In addition, there were also representatives from the donors like UNDP, Helvetas/SDC, and SNV.

The review highlighted the status of agriculture practices in various disciplines and commodities and identified opportunities and problems in relation to organic farming. The workshop also saw a presentation of definition of organic farming and what it takes to become a certified organic producer.

A strengths, weaknesses, opportunities and threats (SWOT) analysis was conducted during the above workshop to look at organic industry in Bhutan. The analysis looked at soils, plant protection practices, seeds, crop management practices, post harvest practices, marketing, certification, water management practices, and wild harvest. Based on the SWOT results, a brainstorming session was conducted among the workshop participants to prioritise and develop work plan for organic development. The workplan recognized the following broad areas for intervention: research, extension and development; legislation; manpower; infrastructure; and marketing/certification.

The final output of the workshop was a plan of activities to guide as framework of organic program for Bhutan. The activities were classified as Urgent, Intermediate and Time independent. However, the workshop also recognized that a simplified time-based categorization does not address the issue if the goal of Bhutan becoming commercial organic industry is to be realized.

Between this national workshop in 2003 and the launching of the National Framework for Organic Farming in Bhutan in 2007, there were informal consultations amongst different agencies within the Ministry of Agriculture. The basic information that went into policy document were the outputs of the workshop.

Analysis of the policy formulation process

The strength of the organic policy formulation process is that there were intensive deliberations amongst the agencies within the Ministry of Agriculture. The process has also taken the lessons and learnings from other country's organic policies and experiences including the expert inputs.

On the other hand, the need for such a policy had taken root within the circles of professionals and therefore the processes for policy formulation have remained within the agencies themselves. The farmers who would be directly affected by the policy were not adequately involved in the process. The policy does not cover the compensatory mechanisms to be put in place during the conversion phase. If the process had involved wider discussion with the producers, this aspect would have been covered. Besides, other relevant ministries such as Public Health, National Environment Commission (NEC), National Bio-diversity Centre (NBC), Ministry of Education, Ministry of Trade and Industries, etc who have important roles to play for the success of the policy were not part of the process. It can safely be concluded that the processes adopted was fundamentally a topdown approach when it comes to consulting the grassroots stakeholders.

3.2 Policy Implementation Strategy

The Policy envisions that Bhutan become "Organic" by 2020. To support this vision a number of broad strategies are outlined in the Policy Framework. It recognizes a three pronged strategic approach to cover potential development areas:

- Sustainable poverty alleviation strategy for subsistence farmers in rural areas which are untouched by agrochemicals. Market and prices are not seen as priority and the focus of this group shall be: food security, nutrition, food diversity, income, and productivity improvement.
- Development of land use and existing farming practices which have the need for environmental protection and farming systems supporting conservation. Market and prices will be important. The focus will be to harness the natural potential, improve environmental conditions and resource management, demand based production, etc.
- Commodity approach for niche products mainly targeted for local and international market. Market and prices shall lead this section. The focus under this will be on production of high value low volume crops, contract growing with requirement of certification in selected areas, etc.

Some of the key approaches outlined are:

- Bhutan to develop “certified organic products” through an approach of selective products in specific regions of the country.
- In the short and medium terms, conventional production techniques are anticipated to encompass the majority of production systems but in longer run the country will embrace the principles of organic production.
- Organic agriculture development will be a gradual process and initially to start with produces which have established markets or have comparative advantage.
- Organic programmes should be mostly based on local initiatives and interest and should not be forced on any group.
- Any area selected for organic farming will be offered a package farming practices, management alternatives, and training prior to adoption.
- Certification will be mainly for export market while local certification system will be developed.

3.3 Policy implementation status

The policy implementation has taken place here and there in small ways. The research and extension staff are being trained on the concept and good practices of organic farming. From among the available technologies, technologies relevant in the context of organic farming are being reviewed, synthesized and consolidated. In the field, Gasa has been declared as the first organic district. In this district organic vegetable production and marketing within the district urban centres, to trekkers, and visitor to hot springs is under study. Similarly, a decision has been taken to pilot organic research at RNR Research Centre at Yusipang. In addition, consumer awareness on the availability of organic produce is being made through sale of organic vegetables in the local markets. Besides the vegetables, some small quantities of red rice is being sold to USA as organic produce.

Overall, the policy implementation has not happened at appreciable levels. The National Coordination Unit has not been strengthened. Farmer support is weak and the agencies have not yet mainstreamed the organic programme and on the whole the programme is not very active. This is also because the organic programme is new and just about starting and it will be unfair to pass any judgments at this stage.

3.4 Institutions and their Strengths and Weaknesses

National Organic Programme Coordination Unit (NOPCU)

The NOPCU with a full time National Coordinator and assisted by staff is foreseen in implementing the policy. The main functions of the NOPCU will be to coordinate implementation of the national framework in accordance with the decisions taken by the EC

and the TWG and through the identified focal persons in different agencies. It will develop project proposals to be submitted to TWG. It will also coordinate the use of available programme funding and develop training material and programme. It will maintain documentation in respect of organic farming.

The NOPCU is to be housed within the Ministry of Agriculture.

The existence of the NOPCU is very vital to provide concerted efforts to organic programme. Its main function should be to coordinate implementation of NFOFB by different agencies, provide funding support, and monitor the progress. The NOPCU is currently manned by one person and this is not at all adequate if proper support is to be given to the programme. Its capacity is very weak today and needs improvement. It is however not seen to have a large unit but should have at least a staff each from DoA, DoL, and DoF in addition to the Coordinator and support staff.

The placement of NOPCU from its present placement under DoA to MoA might create two parallel system of agriculture – the organic vs the conventional. Therefore, it is felt that it would make sense to be maintained as status quo under the DoA. The fear of lack of cooperation by being under DoA is unfounded since the TWG exists as a policy body.

Department of Agriculture (DoA)

The DoA will provide leadership, coordination among various stakeholders, and monitor the implementation of the organic programme. It will also provide the required support and guidance to extension and farmers at micro-level.

The strength of the DoA of agriculture is its large network of extension agents working directly with the farmers. The extension agents could assist in identifying interested farmers and during the conversion phase. However, the weakness of the department is that at the moment it does not have the capacity to train the extension agents nor support them technically and financially. The extension agents themselves need reorientation training from conventional agriculture to organic agriculture. Unless, agriculture extension agents are equipped with know-how on organic farming it will be difficult for them to promote organic agriculture.

Planning and Policy Division (PPD)

The role and responsibilities of the PPD is to lead in development of policies concerning organic industry and undertake policy reviews and propose amendments to policies.

In addition to above functions, PPD's responsibility should be to seek donor funding and frame appropriate legislation supporting organic farming. This capacity is limited at the present.

Council for RNR Research of Bhutan (CoRRB)

The CoRRB is mandated to institutionalize production research on organic farming; generate knowledge and provide technology packages for organic farming. It will closely work with extension in the process of technology generation.

The CoRRB has a strength in that it has four well established RNR Research Centres which are located in four regions. It has also well qualified researchers with lots of experience in adaptive research. However, the weakness of CoRRB is that there is no inhouse experience in organic farming and there is no single staff trained in organic farming. It will have to retrain its staff; reorient in terms of research approaches and programme priorities. Therefore, it is felt that CoRRB is immediately not in a position to support farmers with

technology packages. But in the longer run CoRRB is better positioned to deliver its responsibilities.

National Soil Service Centre (NSSC)

The function of NSSC is to lead in developing soil fertility management approaches and support with appropriate packages of technologies for soil fertility management for organic farming.

The capacity of NSSC has been in the area of soil fertility improvement mainly through use of inorganic fertilizers. Therefore, it does not have the in-house capacity to immediately provide soil fertility management experience under organic agriculture context.

National Plant Protection Centre (NPPC)

NPPC is mandated to lead in developing plant protection management approaches for organic farming. The Centre is expected to make appropriate plant protection technologies available to extension agents and farmers.

The NPPC has few but very experienced staff. At the moment NPPC is not ready to provide the needed support for organic programme. They also do not have the reach to different regions and hence they will have to work closely with the CoRRB and in the research centres.

National Post Harvest Centre (NPHC)

NPHC is mandated to lead research and technology development on the post harvest handling and management of organic produce including value addition aspects. It will also provide guidelines on post harvest management of organically grown crops; develop training materials and provide training to extension agents and farmers. NPHC is a new institution but it is more oriented towards organic farming than others.

Agriculture Marketing Services (AMS)

AMS is expected to develop infrastructure and mechanisms for making organic produce in the local and international markets. It will in coordination with NOPCU and other stakeholders carry out market research and development for organic produce for regional and international markets; make market information available and link producers to market; and assist in marketing of organic produces from farm to markets. AMS is still small and its capacity is limited. There is a talk to upgrade it to departmental status.

Bhutan Agriculture and Food Regulatory Authority (BAFRA)

BAFRA is mandated to develop organic standards and certification systems in collaboration with the NOPCU and other stakeholders. It will regulate the standards in vogue and the use of the national organic logo that will represent the Bhutan National Organic Standards.

The BAFRA is a regulatory body and it may not be the right body to lead and develop organic standards and certifications. Moreover, it lacks expertise and experience. It should support but standards and certifications should be coordinated by NOPCU.

Department of Forest (DoF)

DoF is mandated to facilitate in utilization and management of forest resources mainly wild collection and harvesting. It will carry out resource studies and mapping and ensure development of sustainable management plans for those potential wild harvests in close consultation with the communities.

The wild harvest as organic can be very attractive. The DoF regulates and manages through issuance of permit and by developing management guidelines. But it lacks monitoring

systems to ensure sustainable management practices. The capacity to work with communities needs further development.

Department of Livestock (DoL)

DoL has the mandate to integrate animal husbandry in the context of organic farming practices. They are also expected to develop farm management plans that are appropriate within the organic farming concept. They will have to train, guide, and support groups of organic farmers.

The concept of managing livestock in the context of organic agriculture is new to the department. Therefore the present capacity is weak and it needs strengthening.

Extension System

The extensionists are responsible for promoting the principles of organic farming to farmers. They will provide advisory services; assist in developing farm management plans in preparation for conversion; assist in formation of groups of organic farmers; and assist in providing training and other support services.

The strength of extension is that there is a wide network covering all the geogs in the country. However, the present generation of extension agents has been trained for providing support to conventional agriculture and therefore they lack knowledge and skills in organic farming. As it is they cannot fulfil any of the roles and responsibilities so it is imperative that they be trained on organic agriculture.

Producers/collectors

Any farmer interested to adopt organic farming need to be supported, trained, and must follow the good agricultural practices.

The strength of the producers is that still a sizeable number of farmers have not adopted the use of chemicals in farming. Their farms grow diversified crops for subsistence. On the other hand, farmers lack awareness on organic farming. They are even confused: why organic now when they have just learnt to practice conventional farming. Organic seed availability is a problem over and above farm labour shortage. Lack of price premium for organic products in the internal markets is a problem and therefore it discourages farmers to adopt organic farming.

Overall, there is lack of coordination and consistent support in implementation of the programme policies. The pilot sites declared as organic farms are not receiving the needed support in terms of techniques and budget. Even the stakeholder institutes have not taken the programmes seriously due to lack of capacity within the agencies.

3.5 Resource allocation procedures

The policy clearly states availability of subsidy for inputs and other supports that may be necessary to move from conventional to organic farming. In terms of budgetary allocations, it is expected that the organic programme itself would be institutionalized within various agencies and that the government funds would be provided based on the plans and priorities established through the annual planning cycle. In addition to this, the NOPCU is entrusted to ensure with adequate resources that will be needed to forward the organic policy implementation. Specifically the government will make resources available for group certification of organic products, for enforcement of organic standards, assistance packages including grants or loans for organic-based Micro, Small and Medium Enterprises (MSMEs).

3.6 Consultation and coordination mechanisms

The MoA is relatively a big organization consisting of the Departments of Agriculture, Livestock and Forestry, besides CoRRB and a number of non-departmental agencies. Inter-agency coordination thus becomes a necessity in order to avoid duplication and wastage of resources. A number of consultation and coordination mechanisms already exist within MoA, which hold true for an upcoming programme like organic farming. Some of the important mechanisms are described below.

Annual RNR Conference

This is the highest level coordination forum within the MoA which takes place annually. The PPD takes the lead role in organizing the conference and managing the agenda. It is chaired by the Minister of Agriculture and attended by the Secretary, Heads of all Departments and non-departmental agencies besides technical personnel of the MoA. Issues of national importance in the sphere of planning, policy and implementation are debated and resolutions proposed. The conference is an excellent forum for publicizing and garnering support for a new programme like organic farming.

Annual RNR Expo

Every year the RNR Exposition takes place in different parts of the kingdom. It is participated by all the agencies of the MoA, besides the participation of farmers, farmer groups and non-governmental organizations (NGOs). The basic purpose of the Expo is to showcase the latest developments and technologies in the RNR sector for a wider publicity, adoption and usage. Besides the physical exhibits a lot of RNR information is also disseminated. In the past Expos, organic farming has already been featured and a considerable interest and enthusiasm has been shown by the general public and technical agencies. The NOPCU will take advantage of this forum to promote organic farming.

Annual Review and Planning Workshops

Four thematic workshops on agriculture, horticulture, livestock and forestry are held annually. Depending on their given mandate, RNRRCs organize the review and planning workshops with the central support of CoRRB. The workshops are attended by the staff of relevant departments, central agencies, non-departmental agencies and the district extension. The primary aim of the workshop is to review progress of the plans and activities agreed in the preceding year, based on which new collaborative activities could be drawn up. The forum focuses mainly on technical aspects but also deliberates on issues of resources and implementation capacity. This forum is useful and appropriate to introduce field activities in the plans and programmes of different stakeholders so that there is greater ownership of the programmes.

RNRRC level planning meetings

The researchers of RNRRCs meet annually to discuss and agree on the technical plans and activities of the different sectors like agriculture, horticulture, livestock, forestry and farming systems. The meeting approves new research initiatives after scrutinizing research protocols. Depending on their mandate, the RNRRCs also invite relevant research staff of other RCs to deliberate on issues of coordination, implementation, resources and human resource planning. The organic programme will participate in such meetings and get endorsement of the research agenda on organic agriculture.

The organic farming framework aims at significantly replacing the conventional food and agriculture sector. Attainment of such an optimistic vision can be very challenging. It is envisaged to adopt three pronged strategy to operationalize the organic farming framework.

- Poverty alleviation
- Sustainable land use and management
- Commodity approach

The above strategies are also the strategy of Ministry of Agriculture in general for the 10th Five Year Plan (FYP), and more importantly its correlation with policies of other Ministries. For instance the issue of poverty is very much contextual and influenced by several factors. The means to alleviate poverty can range from simple to highly complex actions, nonetheless applicable at different hierarchies.

Whilst the MoA aims to enhance food self sufficiency and food security through increased production level of different commodities, it has remained a difficult challenge. In the current plan, commodity approach has been taken up as the primary means to achieve the increased production. It is considered as the consolidated effort ensuring requisite participation of relevant stakeholders in the program thus leading to realization of goal.

In view of the correlation the above three principal strategies have amongst them and others, it will be of extreme importance to guarantee widest consultation and coordination, so that implementation of such diverse policy framework will be flawless.

In mainstreaming organic farming framework, consultation across the board will be essential for following reasons:

- enhance awareness among producers, traders, and consumers
- establish common platform for interaction
- identify collective constraints and potentials
- to promote collective efforts to achieve the goal

In addition to the existing consultation and coordination mechanisms within the MoA, the NOPCU can call for more specific meetings and workshops to achieve its objectives. The following are suggested as most appropriate in our condition.

Empowered Committee meetings

An Empowered Committee (EC) comprising of member representatives of all relevant ministries has been instituted. The roles of the EC are to provide policy direction and inter-sectoral convergence, coordination and support in terms of implementation of organic policy. It is the highest body that would ensure that Bhutan is completely into organic agriculture by 2020. It is expected that the Technical Working Group will report to EC on a monthly basis to review the progress on plans and budgets.

While the committee exists but it is yet to function as conceived. Among the 14 member committee the private sector is not included and it is felt that their involvement will be crucial for organic sector development in future. Overall, it is felt that members on the EC needs reviewing.

Technical Working Group (TWG) meetings

A TWG is envisaged composed of 14 members from following agencies. The Director General, Department of Agriculture is the Chairperson of the TWG.

- Director General, DoA (Chairperson)
- Department of Forest, (member)
- Department of Livestock (member)
- Council for RNR Research of Bhutan (member)
- Bhutan Agriculture and Food Regulatory Authority (member)
- National Soil Service Centre (member)
- National Plant Protection Centre (member)
- Agriculture Marketing Services (member)
- Private Sector Rep. (member)
- Coordinator, National Organic Programme Coordination Unit, (member)

Secretary)

The main tasks of the TWG are defined as:

- To appraise, review and decide on policies that involve multi-sector or cross-ministerial issues with national implications
- To plan, review, prioritise, and ensure implementation of sector/agency specific organic programmes and projects
- Approve the national standards and certification system and the rules for using the national organic logo
- Coordinate stakeholders involved in agriculture policy formulation, research, extension, and marketing

The TWG along with NOPCU will ensure coherence and coordination of the organic programme in the country. Having members from different agencies and stakeholders, they are also expected to ensure inter-agency synchronization and smooth functioning.

Stakeholder workshops

The agency responsible for organic farming programme has to bring together all relevant stakeholders in a workshop where common agenda can be discussed. In view of the regional differences and remoteness, workshops at different levels can be organized so concerns of appropriate hierarchy can be used as building block to national stakeholder workshop. For instance workshops can be organized at district levels, regional level and at national level. The output of these respective workshops will provide concrete platform for developing strategies and workable action plan.

Consultative Meetings

Consultative meetings can be organized whenever a major breakdown in the process is foreseen or a change has to be introduced. Such meetings need to be participated by decision makers, and those who will be directly influenced by the change. Such meeting should be a quick one with small specialized group and preferably coming out with a concrete direction or recommendations.

Monitoring and Evaluation (M&E)

Constant monitoring and evaluation of the program with feedback can be a productive consultation mechanism. If M&E is used as scope for assessing the progress and reorienting the direction through communication, it can act as an efficient means to enhance the relevance and sustainability of the programme.

4. Constraints, Potentials and Recommendations

As described earlier in the paper, there exist a number of mechanisms for coordination amongst agencies of MoA. However, ensuring smooth inter-agency coordination is always a challenge. Sometimes there are conflicting interests and mandates of agencies that hinder coordination. A classic example in Bhutan is seen in conservation versus development dilemma where the DoF is engaged in forest and wild animal conservation which directly affects agricultural production as rampaging wild animals stray into farmers' fields. Often times, the programmes and activities of different agencies are too many and diverse, with poor priority setting mechanisms in place. Such situations discourage coordination amongst agencies.

The following constraints are more of technical nature pertaining to organic farming. However, these constraints directly or indirectly influence the nature and degree of

interagency coordination and hence it becomes important to understand them first and take appropriate actions.

4.1 General constraints

4.1.1 Lack of awareness and understanding

Being a new concept, there is a lack of awareness and understanding among policy makers, agriculturists, producers and consumers. The use of the term 'organic agriculture' is in vogue in the country only for the last 3-4 years. There is no common understanding on the concept, principles and practices of organic farming among or within the research community, extension workers or policy makers. Organic farming is often mistaken as traditional agriculture (MoA, 2007) and considered regressive in relation to modern farming using green revolution technologies.

4.1.2 Lack of sufficient legal framework

The NFOFB was launched by the MoA in 2007, which provides a broad structure for the promotion and institutionalization of organic farming in the country. It is more of a policy statement and lacks legal basis for undertaking organic farming, particularly where foreign investments may need to be channelized. There are a few acts and legal instruments that indirectly refer to or support organic farming in food production, such as the Food Act of Bhutan, 2005, the Pesticides Act, 2000 and the Plant Quarantine Act, 1993. More explicit instruments with adequate legal basis will be needed to bolster organic farming. Bhutan needs clear legislation and its own standards for organic production based on internationally recognized systems such as the Codex Alimentarius.

4.1.3 Policies and institutional support

The NFOFB in Bhutan is only the first step towards the introduction of an organic production policy that will provide a basis for restructuring agriculture to make it safe and sustainable for the farmers and producers (NFOFB, 2007). So far, there is a lack of coherent government policy that provides directions, structures, programmes and resources for organic farming. Various institutions of the MoA, such as the Departments of Livestock and Agriculture, Research, Soils and Plant Protection Services etc lack convergence of programmes and activities for a holistic growth and development of organic farming.

4.1.4 Inadequacy of farm labour

Bhutan is a small country with an even smaller population of about 634,982 (Population and Housing Census, 2005) people. Although agriculture employs 79% of the total population, a nation-wide survey in 2005 reported that only about 49% are actively engaged in farming. Thus scarcity of farm labour is a critical and national issue impinging on food production and security as a whole. Adopting organic principles and practices undoubtedly requires additional labour inputs, especially in managing soil fertility and pests than conventional farming. Where would the additional labour come from? It is a question that requires serious contemplation and consideration.

4.2 Specific constraints at different levels

4.2.1 Policy and planning

The planning and policy division (PPD) of MoA is responsible for policy initiatives at the Ministry level, but it lacks specialists in organic farming. The NFOFB was guided and prepared by a core group of specialists outside of PPD. The ownership of the programme by PPD can thus be in question. Frequent turnovers in administrative regimes and bureaucracies are known to affect policies and programmes of any institution. In the past, staunch support for organic farming came from the Minister for Agriculture, who recently resigned to join the political and democratic process underway in the country. The impetus for organic farming may thus slow down. More changes in the secretariat and departments are expected, the effects of which would be known only in the times to come.

4.2.2 RNR research coordination

The renewable natural resources research in Bhutan comprises of agriculture, livestock and forestry which are interlinked. The CoRRB is mandated to promote resource integration and oversee that research is linked and duplication is avoided. For CoRRB, research in organic farming is new and experience is fairly limited. This holds true also for its main stakeholders in agriculture, forest and livestock. It becomes challenging then to conceptualize research and refine methodologies of organic farming that are crosscutting, relevant and can hold the interest of its stakeholders. Being new, the recognition of CoRRB as a credible institution for RNR integration is in doubt, thus making it more difficult for research coordination in organic farming.

4.2.3 Agricultural extension

The DoA is the central agency for agricultural extension, whereas its foot soldiers, the actual extension staff at the grassroots level, are administratively controlled by the districts. This has been the result of the decentralization policy which empowers districts to manage resources and thus development at the local levels. Such an arrangement often leads to conflicting situations where the central policies and programmes do not get translated as intended at the field level. Conversely, the field realities and needs get transformed and diluted as programmes are consolidated at higher levels. Coordination becomes difficult and accusations of failure get hurled both ways. The linkages between research and extension could also be strengthened.

4.2.4 Livestock extension

Similar to the DoA, the Department of Livestock (DoL) functions through its extension staff at the district and sub-district levels. It also has production and inputs supply farms in different parts of the country. It faces similar challenges of effective linkage mechanisms with the districts. The DoL often sees organic farming as the sole prerogative of the DoA, ignoring the fact that crop nutrients are derived from animal manures. The DoL runs a considerable program on preventive vaccination of domestic animals using conventional drugs which runs against the basic principles of organic farming where livestock are an integral component. The department actively pursues the policy of increasing improved animal breeds for better productivity, unmindful of the need for diversity and local adaptation. The present policies of DoL do not converge with organic farming and favour its development.

4.2.5 Agriculture and food regulation

The BAFRA was officially formed in 2000 to regulate the quality of agriculture and food products, implement acts and by-laws related to the RNR sector and coordinate the quality control and regulatory activities of MoA. It has offices at the entry points, regions and districts. Basically, it implements standards, rules and regulations set by relevant organizations in the arena of food and agriculture. There are no standards set so far for organic food production in Bhutan, thus BAFRA cannot monitor organic farming. This is a gap between policy formulation and its actual implementation. Even as the standards are put in place, BAFRA personnel need to be trained in order to perform their functions efficiently.

4.2.6 Certification system and marketing

Organic farming systems range from non-certified production destined for local consumption to market-oriented certified system designed to seek price premiums (Scialabba, 2007). Bhutan would aspire to reach regional and international markets to boost the incomes of its producers. However, it has to develop its own standards first in line with internationally recognized systems and protocols. The foremost stumbling block is the lack of experience and expertise to evolve standards; getting accreditation and reaching those critical standards in the production process would be the subsequent difficulties. The whole certification process is costly and time consuming and can act as a disincentive to going organic. In terms of marketing, the small volumes from isolated pockets of production add up cost and cast doubt on business viability.

4.2.7 RNR research system

Systematic agricultural research started in Bhutan only in 1982, with the RNR concept taking root a decade later. So the history of research in the country is very young, and resources and infrastructures are still being put in place. The whole research system is geared towards testing and adopting green revolution technologies. All the research scientists are trained in the conventional agricultural systems. The main focus of research is to increase production and productivity per unit area using modern inputs and technologies. There is hardly any research taking place on organic agriculture, although one of the research centres at Yusipang has been declared as the focal centre for research on organic farming. There is no separate resource/budget allocation for research on organic agriculture. The mainstream national research agenda and strategies essentially excluded organic agriculture in the past and continue to do so. Organic agriculture requires cross-disciplinary research, based on connectedness at all levels from farm to global markets. The entire research culture in the country has to undergo major transformation to embrace organic research. The scientists need to be retrained and reoriented to develop appropriate technologies for organic farming to succeed.

4.2.8 District extension and development

Like the research system, the district extension network is run by personnel trained on conventional agriculture. The extension staff lack exposure to organic system of farming and the level of awareness and understanding is low. Their main mandate is still the supply of inputs such as improved seeds and planting materials and the demonstration of modern farming using fertilizers, machines etc for labour efficiency and overall productivity. If the proposed framework on organic farming has to be implemented, there is no other way but to utilize the services of the existing extension personnel who need to change their mindset, upgrade their skills and knowledge and totally reorient to a new farming culture. Such a change has to be carefully engineered without drastically upsetting the present system. The livestock staff will need a similar reorientation.

4.2.9 Local trading and entrepreneurships

Agriculture in Bhutan is basically for home consumption and self sustenance. This subsistence nature of farming disallows local trading and entrepreneurship, especially in food crops. A recent study of the commodity chain analysis of rice found that more than 85% of the rice produced in the country is consumed at home (Ghimiray and Wangdi, 2006). Active trading takes place only in a few known cash crops such as apple, mandarin, potato and ginger.

A recent entrepreneurship initiative worth mentioning here is Bio Bhutan, which is a pioneering private enterprise set up in 2005 with the technical and financial assistance of Helvetas/SDC in Bhutan. It produces and markets natural and organic products from Bhutan, both for the local and international markets. It deals mostly with Cordyceps, lemon grass, cheese, pipla and a few other products. Its proclaimed aim is to contribute to the sustainable use of the natural resources of Bhutan and improve the income and employment opportunities of the rural communities and private entrepreneurs (Annual Report, 2006). Bio Bhutan has initiated certification of its products through INDOCERT, an EU accredited certification agency based in Kerala, India. Some of the challenges (Anrep, 2006) it faces are:

- Lack of processing expertise and facilities within the country
- High transport and labour costs due to rugged terrain and isolated settlements
- Limited quantitative and qualitative information on availability and value of natural resources
- Small domestic market due to a small population.

4.2.10 Small and subsistence producers

Bhutanese farms are small, isolated, far-flung and widely dispersed. Production pockets in remote areas, where farming is still organic by default, are inaccessible and the time and costs of getting any agricultural produce to the road head are high. Economies of scale are difficult to achieve under such circumstances. Moreover, the non-use of external inputs does not itself qualify as 'organic' (Scialabba, 2007). Organic agriculture uses scientific knowledge to improve traditional farming practices. It is knowledge-based approach requiring understanding of agro-ecological processes. Lack of access to knowledge is a major constraint for the Bhutanese farmers. Appropriate collective learning mechanisms need to be put in place, with progressive farmers and community innovators providing examples and leadership. To achieve economy of scale to the extent possible, small scale farmers will need to form themselves into homogenous groups to enlarge their scale of production and marketing.

4.2.11 Indifferent consumers

The consumers within the country are by and large indifferent to organic products because of several reasons, the most important being ignorance and a general lack of awareness on organics. This is not surprising, as most agricultural and food products produced within Bhutan are free of harmful contamination due to none or insignificant use of pesticides or synthetic fertilizers. Most consumers do not make a distinction between products from a conventional farm or an organic farm. Price is another deciding factor. If the price of organic produce is significantly higher, which should be the case initially to recover associated losses from conversion, then consumers may prefer conventional produce given the blur differentiation between the two. Access to regional or international consumers directly by the micro-level producers is impractical; intermediate entrepreneurs either from the producers themselves or from outside are a necessity.

4.3 Potentials of organic farming

Despite several teething problems, there are ample opportunities as well in the development of organic sector. Major ones are:

- Bhutanese farming attuned to organic agriculture: As many remote areas in Bhutan are 'organic' by default and the low use of external inputs even in areas exposed to modern farming, it is relatively easy for conversion to organic agriculture. Traditional production systems are more attuned to organic production than the input-intensive systems of the developed countries (Haen, 2005). Traditional farming like in Bhutan is less dependent on external inputs and rely more on on-farm bio-resources for fertility maintenance. This requires less investment and effort to convert to organic agriculture.
- Commercialization of small holder agriculture: Organic agriculture provides an opportunity to commercialize small holder farming. This can be illustrated by the case of red rice in Bhutan. Many rice farmers in the high altitude areas produce red rice for the export market, the USA and Europe, where about 100 tons of milled rice is exported annually. The exporter collects rough rice from the farmers at a pre-determined price, processes and exports via India. It is a profitable business both for the producers as well as the exporter. Producers know that there is a ready market for their rice and are encouraged to grow at a larger scale.

- **Multi-functional farms:** Bhutan is known for its pristine environment and the natural beauty of its landscape. Tourism is already a huge revenue earner for the country. This can be further promoted through eco-tourism and rural hospitality activities in organic farms located within or near the protected areas. Agri-tourism and local catering of specialty food are other possibilities. Organic farms preserve cultural landscapes with high economic potential (Scialabba and Williamson, 2004). Locally, organic farms can attract urban dwellers who prefer countryside for leisure and re-discovery of regional and local cultures.
- **Contribute to poverty alleviation:** Organic agriculture reduces the need to purchase external inputs while at the same time diversifying and optimizing farm productivity, thereby contributing to poverty reduction. Because of higher price and market orientation of organic products, organic farming leads to improved incomes of households and communities. Poverty alleviation is the main theme and thrust of the 10 Five Year Plan of the Royal Government of Bhutan and organic farming is relevant in this context.

4.4 Recommendations

4.4.1 Macro Level

- **Planning and coordination:** The organic agriculture program must be planned and coordinated at the national level. The Framework advocates a NOPCU in Thimphu with representation from major stakeholders. It should be formalized immediately. The NOPCU should provide advice on research and development, policy and strategies. At a lower level, a TWG should be formed for guiding the development of programmes and activities and also monitor progress. A policy guideline for Bhutan is suggested as in Annexure 1.
- **Policy environment and advocacy:** Within the Ministry of Agriculture, there is adequate policy support for promoting organic farming. Such support and goodwill has to transcend to other relevant ministries such as the Ministry of Health and the Ministry of Trade and Industry. More publicity and advocacy will be required to create awareness and general education on organic agriculture. Organic farming should also be a part of school agriculture programmes and university curricula wherever relevant.
- **Organic markets:** Organic agriculture is not just about production but it is about the entire food supply chain, from production, processing, quality control, certification to marketing and trade. Well developed markets, both internal and external, are necessary to induce production. Media campaigns and consumer awareness programmes about the benefits of organic foods and farming are needed. Price information system for organic products and facilitation of linkages between producers and buyers are essential part of market development.
- **Quality regulation and standards:** To foster confidence of consumers and to enhance trade in organic products, quality control and reaching certain minimum standards become essential. A beginning should be made starting with a simple internal control system and gradually building up to standards that are compatible with recognized systems. Organic standards include minimum requirements for

production, processing, transport, storage etc. internationally recognized certification systems are costly; they should be applied to high value niche products to start with.

4.4.2 Meso Level

- **Research and development:** The research centres have to include research components on organic farming in a holistic and comprehensive manner. Key areas for research include:
 - o Organic soil fertility management, including biomass use strategies, nutrient availability etc
 - o Organic animal husbandry practices, including grazing management, homeopathic veterinary etc
 - o Farm economics and market dynamics
 - o Integrated farmlands, landscape and watershed management, biodiversity, natural vegetation etc
 - o Breeding and selection of traditional crops and species for local adaptability and nutrition value
 - o Management of food supply chains, including post harvest, processing, value addition, quality assurance etc.

For exchange of information and knowledge, the research system must establish linkages with relevant institutions and networks such as the International Society for Organic Farming Research (ISO FAR), the International Federation for Organic Agriculture Movement (IFOAM) etc.

- **Training and extension:** There is little knowledge about organic agriculture and farming practices among the agricultural extension personnel. This needs redressal through appropriate training and skill development programmes. Since organic farming is new to the country, formal training programmes should be developed, tested and refined over time. Organic agriculture should feature as a prominent component in the extension programme of the districts.
- **Promotion and private entrepreneurship:** The government must involve private sector to develop partnerships and promote organic farming on the lines of Bio Bhutan which has been a successful venture. Given the incipient stage of development, it would be naïve to expect farmers and micro-producers to set up viable ventures without major technical and capital support from outside. Investments in public-private partnerships do give rewards, if carefully thought of. Entrepreneurial skills in production, processing and marketing should be nurtured.

4.4.3 Micro Level

- **Start small but well:** A good beginning is half the journey traversed. The development of organic agriculture should be carefully assessed and gradual to ensure success, starting with produces that already have established markets or comparative advantage. Once successfully demonstrated, it would be easy for replication and scaling up.
- **Field practicality:** A practical approach to implementation of organic farming would be to identify and delineate agricultural areas based on the present state of development. In areas where modern agro-chemicals have not reached, organic farming should be encouraged for food security and improvement in productivity, income and nutrition. A commodity approach for high value products in selected potential areas should be taken up for markets on a commercial scale. Attempts

should be made to seek compatibility between the conventional and organic farming, rather than trying to eliminate one or the other.

- **Inputs supply:** Inputs, which are primarily derived from the farm itself, are critical in organic farming. Due to lack of knowledge and inadequacy of farm labour, initial glitches are expected. In such cases, producers must be supported in the supply of critical inputs that cannot be produced on-farm in sufficient quantity. Inputs may include organic seeds and planting materials, bio-fertilizers for nutrient management, bio-pesticides for insect and disease management etc.

5. Conclusions

Organic farming aims to create sustainable organic production systems by relying on farm-derived renewable resources as inputs and managing ecological and biological processes to provide acceptable levels of crop protection and human nutrition. The whole farm can be conceptualized as an 'organism' where its components - the soil minerals, organic matter, microbes, insects, plants, animals and humans -interact and sustain itself. Key characteristics include fertility maintenance through organic matter and biological means, pest management through crop rotations, natural predators and resistant varieties, and integration of livestock in the system.

Organic agriculture is relevant to Bhutan with small holder subsistence farmers who so far use insignificant levels of external inputs. In line with this, the MoA recently laid out the policy for organic farming with the formal launching of a NFOFB. The NFOFB outlines key approaches and strategies to promote organic farming in the country. It envisions Bhutan to develop and promote organic farming as a way of life among Bhutanese farmers and trade in organic produce and products to enhance their incomes and standard of living. The country dreams of becoming fully organic by 2020.

The NFOFB recognizes the need to continue non-organic agricultural production in the shorter term for food security and income generation, while gradually developing towards organic farming with careful assessment of production technologies, processing and marketing. Starting with niche crops and products with established markets will ensure success. It advocates establishing organic 'communities' and pilot activities in areas of high potential. There is also a need to create a coordination and advocacy institution at the MoA level to advance organic farming. Although externally recognized certification system could be complex and costly, Bhutan aims to make a start by developing its own national standards. Development of organic markets, both internal and external, is seen as crucial to promotion of organic farming. Support for marketing includes a price information system for organic products as well as facilitating links between producers and buyers.

Organic farming sector has a number of agencies and stakeholders involved at different levels. At the micro-level, there are farmers, farmer groups and consumers. The meso level has district RNR extension network, research centres and private entrepreneurs. The CoRRB, PPD, BAFRA and the Departments of Agriculture, Livestock and Forestry are involved at the macro-level. The consultation and coordination mechanisms between these agencies are evolving and need to be strengthened. The NFOFB calls for a NOPCU to develop and coordinate the organic programme in the country. The Unit will be assisted by a TWG comprising of the main stakeholders. These bodies are yet to be formed as of now.

The formulation of the NFOFB was started in 2002 by the MoA and it took five years before the policy was officially announced in 2007. The initiative came through a UNDP-assisted project which worked on organic farming for the first time in the country. The concept and structure of the NFOFB were developed during a national workshop which was attended by all the stakeholders within MoA and outside it. This was further developed through

consultations including farmers. However, consultations with grassroots stakeholders and with some of the stakeholders outside the MoA such as the Ministries of Health and Trade and Industries may not have been adequate. Active implementation of the policy is yet to begin. It is envisaged that the NOPCU takes the lead role of coordination amongst the different agencies who will be involved in implementing the policy. The function of NOPCU is currently done from the Horticulture Division of the Department of Agriculture, but there is a dire need to strengthen it.

Organic farming is a new concept in the country and there are a number of constraints impeding its progress. Coordination of the programmes and activities at different levels is an issue in the absence of a strong body at the national level. Lack of awareness and understanding among various actors of organic farming further adds to the problem. It is also felt that the NFOFB lacks sufficient legal foundation for promoting organic farming in the country. Institutional support among agencies of MoA is weak. Organic farming is labour and knowledge intensive but both the inputs are scarce in the country. The RNR research and extension system have thus far been operating as the pioneers of conventional agriculture attempting to raise production through the use of external inputs. Its personnel lack sufficient exposure and knowledge in organic farming to make a credible turnaround. Quality control of organic products is a serious issue without any standards and control systems in place. Organic producers are dispersed and away from the market. Private entrepreneurs in trading of organic products are few.

A number of recommendations are made to improve the present situation and status of organic farming in Bhutan. Planning and coordination must be strengthened on a priority basis with the NOPCU formalized and given necessary resources. Publicity and advocacy on organic farming should be continued and sustained. Organic markets must be explored and developed. Steps towards quality regulation and development of standards must be taken today to harness the benefits tomorrow. The national research system should include research components on organic farming in a holistic way. Key areas of research include soil fertility management, pest management, livestock management practices and the management of food supply chains. The extension personnel must be retrained on organic farming. The private sector must be involved in developing partnerships and promoting organic farming in the areas of post harvest, processing, transport, value addition and marketing.

In conclusion, organic farming holds promise for Bhutan to initiate commercialization of small holder agriculture, diversify and add value to the tourism sector and to contribute to poverty alleviation. There is enough enthusiasm and excitement in the MoA and a number of initiatives are underway. However, one of the main weaknesses is the coherence and coordination of efforts especially in implementation which must be remedied urgently. The proposed NOPCU must be formalized immediately to provide advice on research and development, strategies and implementation guidelines as well as coordination mechanisms. A TWG must also be formed to guide development of programs and activities and monitor progress.

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