



Perspectives of Organic Farming in Sikkim: A Descriptive Approach

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ABSTRACT

Increasing consciousness about human health and conservation of natural ecosystem and overall environment as well as preferences of the consumers for the safe and hazard free foods are the major contributing factors leading to the adoption of alternative forms of agriculture all over the globe. Organic farming practices, being the best alternative farming practices within the broad Agricultural spectrum is the fastest growing sector of all the crop production systems. This system is supportive of the environment, human health and economy of the farmers not only in developed countries but in developing and in transition countries too. The interest of the organic farming practices is increasing globally. The rain-fed arable land of India those are found particularly in the North-Eastern regions of the country including Sikkim are basically the traditional agrarian regions where negligible amounts of synthetic fertilizers and pesticides are being used which could be exploited as potential areas for organic agriculture. In Sikkim, after the passing of the resolution in the state assembly to convert the entire state into fully organic state during 2003 has laid down the foundation stone for becoming a fully organic state. Since then, gradual and considerable progress has been made particularly during the latter part of the last decade (2015-2020) as the Agricultural lands of the state has passed through the transition phase from the Conventional to the Organic farming one. With the adoption of 100% organic approach of agriculture, the state is successful in preserving its rich natural resources in the form of flora, fauna and its natural ecosystem including soil fertility to a large extent. The aim of the study outlined in this paper is to analyze the development prospects of the Sikkim's organic farming sector in light of the Sikkim Organic Mission (SOM), environmental and climate objectives. The results of the study clearly demonstrated that public policies and regulatory actions at the state level will continue to be very influential for the future of the Sikkim Organic Mission.

KEY WORDS: Sikkim Organic Mission (SOM), Alternative farming practices, farmers economy, conventional farming system, transition phase.

INTRODUCTION:

Organic farming is a system of farming in which the use of synthetic inputs such as fertilizers, pesticides, hormones, feed additives etc. are avoided or largely excluded in the agricultural practices. It is an alternative agricultural system which originates early in the 20th century as a reaction to the rapidly changing farming practices. It is the farming system which basically relies upon crop rotation, crop residues, animal manures, off farm organic waste and biological system of nutrient mobilization and plant protection and the entire farming is done with the fertilizers of organic origin, such as compost, manure, green manure etc.

The word 'Organic' means of plants or animal origin. In organic farming practices, a complex pattern of interrelationships is closely linked with each other such as- soil, plants, farm animals, insects and farmers etc. In the words of Wendell Berry (1981) —Organic Farm, is not one that used certain methods and substances and avoid others. It is a farming system which is formed in imitation of the structure of a natural system that has the integrity, the independence of organism.

The term Organic farming was coined by Northbourne in 1940, based on his concept of 'farm as an organic whole', i.e., having a complex but necessary interrelationship between various components or parts which is similar to that in living things in his book titled, *Look to the Land*. Thereafter, Albert Howard (1940) adopted Northbourne's terminology of organic farming in his book entitled — "*An Agricultural Testament*" and later came to be known as the father of organic farming for his dedication in applying scientific knowledge and principles to various traditional and natural methods of farming.

The World Board on Organic Farming in March 2008 defines organic farming as follows—"a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture (farming) combines tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved". (IFOAM, 2008)

Although, the term Organic Farming is being popularized in the recent years, Organic Agriculture has its roots in traditional agriculture being practiced

in remote villages of Sikkim since time immemorial. Here, the rural farmers in the remote corners did not have easy access to chemical fertilizers because of the poor transport facilities, poor economic background, and many other reasons. As most of the farmers still practice the traditional agriculture, the concept of organic farming is not a strange to the people of Sikkim and this is the main reason that the farmers show their inclination towards organic agriculture in the state. Numbers of agricultural practices and methods have been implemented by the government of Sikkim from time to time in order to increase the food productions as there is a declining trend of total area under agriculture, particularly in recent times. In spite of the continued decrease of area under cultivations, some of the corrective measures in terms of shifts in the agricultural practices are producing the positive results in terms of total production of some selected crops in the hilly state of Sikkim. Among all other major shifts in the methods and practices of agriculture in Sikkim, the recent adoption of Organic Farming Practices throughout the state has made considerable progress during the last two decades.

Realizing the multidimensional potential benefit of organic farming, the government of Sikkim announced its state level policy decision for paradigm shift in farming system from Conventional to Organic system in the year 2003 by passing a Resolution in the State Assembly and has given a formal shape by launching Sikkim Organic Mission (SOM) in the year 2010.

The road map, clearly showing the details of all the measures as a key to achieve the target of becoming a fully organic state was prepared along with the setup of the Sikkim Organic Mission. The Sikkim Organic Mission – with its goal of becoming a fully organic state – is the first such far-sighted and visionary policy commitment by a state in India and indeed the world. By implementing this strategy, Sikkim has set up an example to show that it is very necessary to reverse the prevailing economic systems and contribute for the betterment of nature. This action plan, together with its linked policies, is unique in its boldness.

Organic farming is a production system that sustains the health of soils, ecosystems and people by combining the tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved (IFOAM, 2008). The conversion into Organic farming system is emerging as an attractive source of income generation throughout the globe (Sukla et. al, 2013). The demand for the organically grown food items are increasing globally day by day with an average annual growth rate of 20-25% both in developed and developing countries (P. Ramesh, et.al 2005).

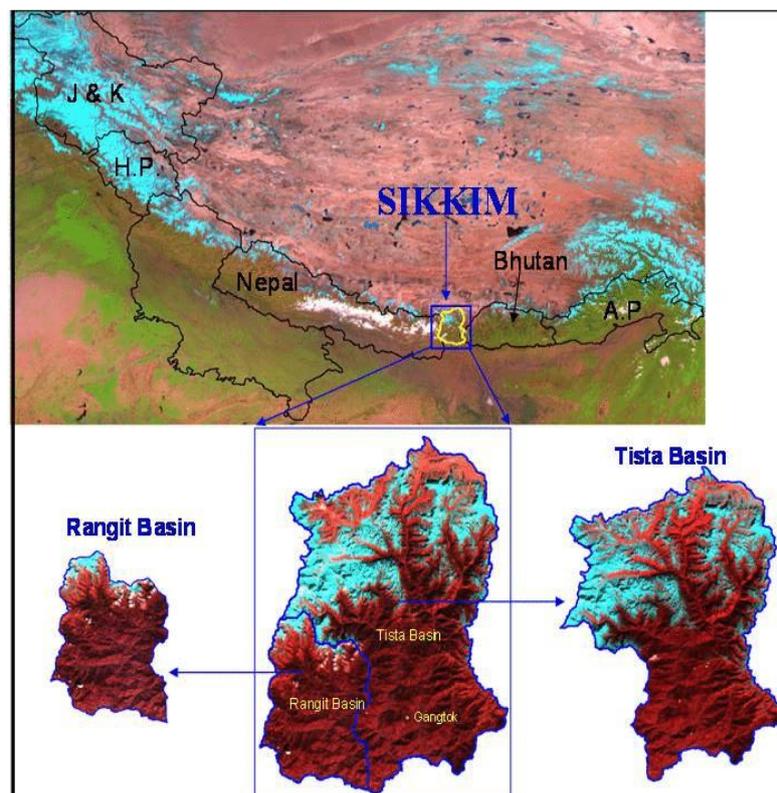
THE STUDY AREA:

The entire state of Sikkim has been selected for the present study. With a total geographical area of 7,096 sq. km, Sikkim is the second smallest state of India in terms of the total area. The total population of the state is 610,577 and the density of population is 86 persons per sq.km (census of India 2011). Sikkim became the 22nd state of India on 16th May 1975 with a referendum that led to the deposition of Monarchy and merger of the Kingdom of Sikkim with Indian Union.

Nestling in the Eastern Himalayas, roughly between 27°-28° North Latitudes and 87°-88° East Longitude, Sikkim is a state in North-Eastern India characterized mostly by mountainous terrain. It borders the Tibet Autonomous Region of China in the North and Northeast, Bhutan in the East, Nepal in the West, and West Bengal in the South. Almost the entire state is hilly, with an elevation ranging from 280 metres (920 ft) in the South to 8,586 metres (28,169 ft) in Northern peaks near Nepal and Tibet. The summit of Kangchenjunga, the world's third-highest peak, is situated on the border between Sikkim and Nepal. As a part of the eastern Himalaya, Sikkim is known for its Biodiversity, characterized by Sub-tropical to Alpine type of climates.

For the administrative conveniences, the state has been divided into four districts, namely - East, North, West and South, each district being headed by the district collectors. The districts are further sub divided into number of Sub- divisions headed by Sub- divisional Magistrate. There are 4 Sub-Divisions in each district totaling to 16 in the entire State. These sub divisions are further divided into number of Gram Panchayat Units (GPU) with 5-8 villages under each GPU. At present there are 176 GPU and 1001 Panchayat Wards in the state. (Handbook on Agriculture, Sikkim-2017-18)

Although, the most part of the land in the state is unfit for agriculture because of the rocky, precipitous slopes, still some hill slopes have been converted into terrace farms. The state's economy is largely Agrarian based on the terraced farming of rice and the cultivation of crops such as Maize, Millet, Wheat, Barley, Oranges, Tea, good quantity of seasonal vegetables and some spices crops, like-Cardamom, Cherry Peppers, etc. Sikkim is the leading producer of cardamom and is home to the largest cultivated area of cardamom in the country.

Caption 1: Map of India showing Sikkim.**Caption 2: Location Map of Sikkim.****OBJECTIVES:**

In this paper, an attempt has been made to study the implications of Organic Framing in the tiny mountainous state of Sikkim. The study also tries to investigate the Socio- Economic impacts of Sikkim Organic Mission (SOM) to the rural farming community of the state.

DATA BASE AND METHODOLOGY:

The present research paper is based on the descriptive approach of study. Informations are mostly collected from the secondary sources. In addition to the secondary sources, field visits, interactions with farmers and other stakeholders have been conducted on personal capacity. Secondary sources of data are consulted in order to get the overall information about the state and its economy. Secondary data provided the base for the study. General ideas regarding the demographic, socio-economic and environment related information were collected from the secondary sources, such as- published

bulletins and official records of the state government, namely- Sikkim Organic Mission (2015), Sikkim: A Statistical Profile: 2002,2011: Handbook of Organic Crop production in Sikkim 2014, Village profile of Sikkim, Annual Progress Report 2017-2018, and many other such sources published by the government and private agencies.

FINDINGS AND RESULTS:

Sikkim is basically an Agrarian state as the economy of the state is largely associated with agriculture and allied sectors. These sectors serve as the source of livelihood and economic security for the sizeable sections of the native population. However, the growth of these sectors has been restricted because of number of factors including-biotic and abiotic factors. It is estimated that over 80 per cent of the rural population still depends on agriculture and associated sectors for economic, food, and nutritional security. The agricultural systems practiced in Sikkim are integrated in nature that have evolved through years of experimentation by the rural farmers. A marginal improvement in the lifestyle of the farmers has been witnessed with the adoption of modern technologies. Sikkim State has some inherent strength that largely supports organic farming. The policies and Programmes on organic farming, in tune with our natural endowments envisage making Sikkim a Model Organic State. The march towards organic farming has led to substantial departmental interventions under the aegis of the Agriculture and Horticulture Development department, Government of Sikkim.

Government of Sikkim in the year 2003 decided to make Sikkim an Organic farming state through a declaration in the Legislative Assembly. Since then, gradual development in these directions have been made by preparing a proper road map to be implemented subsequently. The entry of chemical inputs for farmland was restricted and their sale was totally banned within the state. Farmers in the rural villages of Sikkim were already familiar with Organic approach of farming before the adoption of the 100 percent organic farming module in the state. Here, the farmers, especially in the remote corners did not have easy access to the chemical/synthetic fertilizers because of the poor transport facilities and poor economic background of the entire state. Before the merger into the Indian Union (1975), Sikkim was an independent Kingdom and consequently, the Economic development could not take pace with rest of the neighboring areas. As a result of such poor economic development, traditional farming practices were the only options to be followed by the poor rural farmers. Traditional farming (Organic farming) was adopted by the farming community of the state of Sikkim for a long time at least in part of the state if not by the entire farming community. Consumption of synthetic fertilizers and pesticides were very low and far below the national average. Many of the crops have never encountered chemicals and have been growing on the strength of organic inputs. This has certainly made it easier for the organic movement to take root in the tiny mountain state of Sikkim.

The Sikkim Organic Mission – with its goal of becoming a fully organic state – is the first such far-sighted and visionary policy commitment by a state in India and indeed the world. By implementing this strategy, Sikkim has set up an example to show that it is very necessary to reverse the prevailing economic systems and contribute for the betterment of nature. This action plan, together with its linked policies, is unique in its boldness. Remarkably, it allowed Sikkim to achieve its target of converting the entire state to organic agriculture by December 2015. This is the first time in history that a state set such an ambitious vision and also achieved it. Between 2003 and 2010, several pilot Programmes supporting organic farming were launched, including the implementation of bio-villages where farmers were trained in organic farming practices and the production of organic inputs such as composting, organic fertilizers and organic pesticide using with local plants and cow urine. During this period, the government also invested substantially in the construction of vermicomposting pits. By 2009, more than 100 villages had benefited from these Programmes, reaching 10,000 farmers in all four districts of the state. (Ingrid Heindorf, 2019)

Under the Sikkim Organic Mission, launched in 2010, a number of additional actions to support organic agriculture were implemented, including capacity building, organic seed and planting material production, setting up a seed and soil testing laboratory, operation of Sikkim Organic retail outlet at New Delhi, the inclusion of organic farming in school curricula, the conversion of the two state government farms at Nazitam and Mellidara, which became Organic Centers of Excellence for conducting organic farming demonstrations and trials, and the launch of three livelihood schools as training centers. Activities aimed at supplying farmers with quality organic seeds included strengthening the seeds laboratory testing and processing facilities, and the development of a range of local organic seed development projects, such as contracting seed producers, government purchase and distribution, and establishing automated greenhouses for quality organic seedling production. Many personnel from Sikkim were trained in different agricultural research institutes of India. During the second plan a 200 acres (about 80 hectares) seed multiplication farm for paddy, maize and vegetables was developed at Gyalshing. Another 150 acres (about 60 hectares) potato seed farm was set up at Ribdi in west Sikkim. Farmer orientation schemes were accelerated in the third plan. To save the valuable crops of paddy, maize, cardamom and oranges from insects and pests, an extensive Plant Protection Scheme was successfully introduced to safeguard the interest of the tillers. As a result of these initiatives, farmers started receiving more than half of farm produce as share or rent and also restraining the land lords from selling or otherwise interfering with land. This gives the tiller of the land a real sense of security against the menace of the feudal land lords. The Sikkim Government has also initiated a plan of land survey and have also succeeded in procuring S.F.D.A (Small Farmers Development Authority) project for the entire state. (S. Narayanan, 2005)

In 2016, a National Organic Farming Research Institute (NOFRI) was established at Gangtok. The Institute promotes research and education on organic farming, and provides research and technological support to organic farming systems, not only for Sikkim state but also the entire North East Hills Region of India is being benefitted by this institute. Special priority has been given to train the unemployed youths of the entire region.

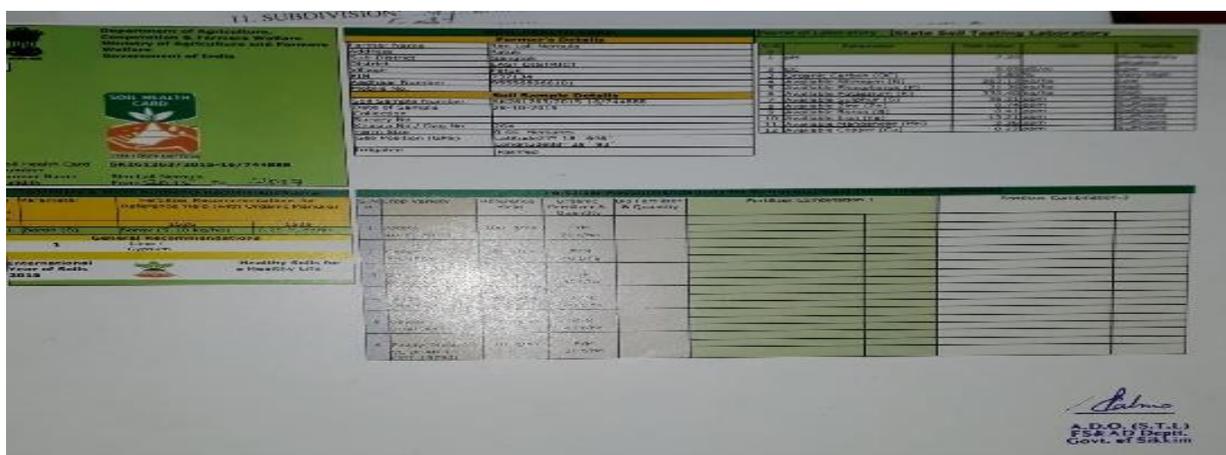
FAO and IFOAM – Certification has also been a crucial part of the Programme. Eighty per cent of the budget between 2010 and 2014 was used to build the capacity of farmers, rural service providers and certification bodies in organic farming practices, requirements and inspections, and to support farmers in acquiring certification, mainly through the Internal Control System. (S. Narayanan, 2005)

Another milestone in making Sikkim an Organic state is the Organic Certification of the farm land across the state. Agriculture/ Horticulture Department, government of Sikkim has taken initiative for the overall assessment of the fertility of the soil its general health condition and organic certification of the farms throughout the state by hiring a National Organic Certification Agency under the *Department of Agriculture, Cooperation & Farmers Welfare: Ministry of Agriculture and Farmers Welfare, Government of India*. The soil samples were collected during 2014 -2016 from individual farms and the samples thus collected were taken to the State Soil Testing Laboratory, Tadong, Gangtok. On the basis of the test, a Soil Health Card was prepared and a copy in the form of a certificate was provided to the farmers mentioning the general health of the soil. This practice is repeated on regular intervals to monitor the general health of the soil with the help of various NGOs and even some active Self-Help Groups (SHG) are involved in this venture. Now few more private soil testing laboratories are established which eases the process of the frequent testing of soil.

Studies have also indicated that organic farming has comparative advantages particularly in areas with poor economic development, low rainfall, and poor and low soil fertility levels. The practice does not demand the costly investments in irrigation, energy and external inputs. Organic agricultural policies have the potential to improve local food security and also the farmers and agricultural labours realizing good returns.

In India, the vast stretches of the rain-fed arable land, for example, those found in the North-Eastern regions of the country are basically the traditional agrarian regions where negligible number of synthetic fertilizers and pesticides were used which has resulted into the low productivity of various crops. Such areas could easily be exploited as potential areas for organic agriculture. Considering the potential social, economic and environmental benefits of organic production and its compatibility with integrated agricultural approaches to rural development, organic agriculture may be considered as a development vehicle for developing countries like India in general and the North-Eastern regions in particular.

Caption 3: Soil Health Card.



In the mountain states like Sikkim and other North Eastern states, agriculture is predominantly rain fed, where the chemical use did not have much significant impact on production and productivity. Small farmers in rain fed areas where farming is traditional, farmers are now facing problems of food insecurity because of unsuitability of green revolution technologies to their farmlands. Success stories of testing suitability and efficacy of organic farming, as low cost and low external input option to maintain their family food security are now increasingly being highlighted.

R.L. Agarwal (2018) has observed that the transformation of the farming practices from conventional to organic farming requires number of changes. The change in the mindset of farmer plays a vital role in this respect. Conventional approaches often involve the use of quick-fix remedies, but unfortunately such remedies rarely address the cause of the problem. In such a situation, farmers generally spend much time worrying about how to replace synthetic inputs with organics and fail to adopt the appropriate farm management practices based on preventative strategies. During this period of transition, cultivators solely rely on cultural mechanisms to improve soil fertility, to build a population of natural enemies to suppress pest populations through the adoption of the mechanism of crop rotation, cover crops, mulches, crop diversification, resistant varieties and insect traps. These practices in returns results into the enrichment of the soil biota and increase crop yields before they are certified as organically grown crops. As such, the main focus here is to make the soil healthy and vital so that the plants/crops may be healthy and sustainable for future generations. Therefore, the right time has arrived where we look towards our land again.

ORGANIC FARMING and LIVELIHOOD DEPENDENCE OF SMALL FARMERS:

Organic farming was practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it. In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides, etc., which were obtained from plant and animal products. Organic farming in the Indian rural economy can be expected to mitigate the ever-increasing problem of food security in India. In most of the developing countries, Economic necessity and Unavailability of inputs has resulted into the adoption of organic farming system, particularly by the small farmers. Almost in all cases, organic farming, or at least its component

technologies, has been promoted as a reaction to the high external input techniques ushered in during the Green Revolution. Though the Green Revolution did undoubtedly bring a large increase in yields to farmers in many countries, it is now accepted that the rural poor did not participate in, nor benefit sustainably from this period. The new seed and fertilizers required high initial outlay beyond the reach of many small farmers. Numerous projects such as the vegetable project in Indonesia initiated by the Bina Sarna Bhakti Foundation in 1984 and the Finca Esperanzita in Nicaragua, for example, were designed to redress this using only local resources and simple technologies (UNDP, 1992). The Association of Better Land Husbandry project in Kenya currently supported by DFID is another example of what has been termed a '*nil-investment*' approach to providing both food and income to poor rural people who only have land, their labour but little or no capital (Pretty, 1997).

Changing circumstances of farming for the small farmers, because of increasing cost of inputs, lesser margin of profit, climate changes, declining soil health of crop lands and new market opportunities guided by consumer preferences for safe farm products at global, national as well as at the state level, over the past decade, has led to think of organic farming in the state.

Sumner 2005, have mentioned that Organic farmers are directly involved with their rural communities thus promoting the rural development by making a wide range of economic, social and environmental contributions. Economically, they contribute to their local communities by directly selling to local businesses as well as family friends, other farmers and a range of customers through farm gate, farm-store or produce-stand sales and community-supported agriculture projects.

Number of studies at international levels as well as the present study have established the fact that most of the farmers considers organic farming as the most convenient and cheap means of growing crops. They believe that the organic crops do not spread diseases. Though the benefit is not uniform and some of the farmers are not performing so well because the progress and success was hampered by the absence of farm visits by the experts and inadequate problem-solving aspects, farmers who were successful said that they realised good crops quality, increase in yields and improvement in the farming operations. While interacting with the farmers, they have suggested that organic farming would be successful through the increased visits by the technical experts, holding more and more workshops and training for farmers on regular intervals, arrangement of marketing opportunity for the organic produce.

Increased consciousness about conservation of environment and health hazards resulting from the excessive use of agrochemicals is the major factor for growing interest on organic agriculture. This sustainable agricultural practice which follows the basic principle of protecting natural components of soil and protection of crops from pest and diseases rather than direct application of plant nutrients and pest and disease control chemicals. This is not a new idea and is being followed from ancient time. Thus, the knowledge for ancient agriculture and natural resource become the main tools for organic agriculture. The farmers are brought together for sharing of knowledge, inputs and development of farming methods suited for their environment. A good relationship between farmers and consumers is essential for reliance of farmers to the consumers and proper marketing of organic products with better price. Farmers group needs to work together to support such market without invasion of middleman. Organic agriculture offers the rural people a new possibility for helping themselves. (Maiti S. 2015)

It is a well-known fact that most of the consumers in present times are aware of organic products and this awareness has influenced their consumption of organic products in the past. Further, a majority of the consumers considered price as an important factor for the consumption of organic product and having a higher importance for certification from a reputed organization. It was also revealed that organic products should be sold in easily accessible shops for the convenience of purchasing. The socio-demographic factors, income, environmental education and years of education significantly influence the willingness to pay for organic vegetables. (Piyasiri A. and Ariyawardana A. 2002)

Caption 4: The Pristine Kanchenzonga.



CONCLUSION:

Agriculture and allied activities play a very important role as far as the livelihood dependence of farmers are concerned, particularly in rural areas. In a state like Sikkim where nearly 70-80% of the Rural populace are still dependent on Agriculture/farming for both food supply and livelihood, it is very important to introduce the necessary management strategies for the land and agriculture resources. Agriculture in Sikkim have developed a complex cropping system branded by its intensiveness and vulnerability in terms of declining land holdings, climatic uncertainty, fragile mountain ecology as well as unreliable marketing facilities. Ultimately, this has resulted into the evolution of more fragmented and highly diversified mixed cropping system. In such situations, however, it is very difficult to revolutionize the cropping system in order to optimize the production from the existing complex system. It has therefore become prerequisite condition to urge and encourage the farmers to opt for a more optimum utilization of available agricultural resources including the arable land by Cultivation of the crops with high economic value. Organic farming module, therefore, has emerged as an important alternative method of farming which aims at improving the overall ecology including the economic life of farmers by helping them to gain maximum returns from the small, medium to large scale land holdings.

The paradigm shift in the farming practice launched under the banner of Sikkim Organic Mission (SOM) has resulted into the remarkable increase in the organic farms and farm-based socio- economic activities throughout the state. The geographical, social and economic factors of the Himalayan state of Sikkim are favorable for the adoption of organic farming system to a large extent and have been associated with the livelihood of the rural farmers since its inception. Organic production in the state is experiencing impressive growth particularly during the present times as the entire farmlands has passed through the transition phase. Normally, a farm land requires 3-5 years of time period to fully transform itself from the conventional to the Organic farming which is known as the transitional phase. (Frank Eyhorn 2006). After the completion of the transition phase, any holding be it a smallholding or a big one could produce similar yields as in conventional farming. The same situations have been revealed during the field visits and the formal interactions with the stakeholders across the state.

Thus, it can be concluded that Organic farming is a system of farming that has been practiced by farmers since time immemorial. In Sikkim, this system of farming was in practice since long time back. However, in the course of time chemical fertilizers and pesticides replaced the organic nutrients. Organic farming has the multidimensional potential benefits in terms of increasing rural livelihood options, environmental protection, conservation of non-renewable resources and improved food quality. This is also a fact that the rapid economic development in the state of Sikkim in recent times has contributed tremendously to the decrease in the arable land and consequent decrease in the average production of agricultural output. Moreover, the landforms and soil fertility of the hilly state of Sikkim is fragile due to its geographical location. The soil types of the state are such that it cannot retain its natural fertility with synthetic fertilizers. The unavailability of the flat lands in the state makes it unfavorable for extensive agriculture. With the above background, it can be concluded that alternative agricultural practices in the form of organic farming in the state of Sikkim can be a boon which will be able to achieve the goal of sustainable agriculture and rural development, maintaining soil fertility, improve crop production and overall socio-economic conditions of the farmers.

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