



Cultivation of Ecological Consciousness for a Sustainable Agroecosystem

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[Abstract]

During the last few decades, it is observed that the economics and the ecology of the farming landscapes are not moving in the right direction. Farmers are facing many challenges as the cost of food production is escalating but crops are not sold at profitable prices. Even capital intensive chemical farming has a role in environmental degradation and adversely affected human health. These issues are identified as the root cause of various social and ecological problems. In such circumstances, cultivation of ecological consciousness based upon the basic principles of socio-ecological sustainability is emerging as the greatest need of the hour. The middle way path of lord Buddha illustrates the psycho-spiritual perspective of environmental conservation, sustainable development, and peaceful co-existence. It emphasizes community-driven mechanisms for inclusive dialogue, contemplation, meditation, and conflict prevention. With the help of a case study, this work highlights the role of Anupashyana Farming in ensuring the socio-economic well-being of participating farmers. It is an integrated farming approach that combines Buddhist ecological values, principles of Buddhist Economics, the role of social capital in rural transformation, and digital agriculture services.

Keywords: Agroecosystem; Buddhist economics; Community education; Mindfulness; Ecological footprints.

1. INTRODUCTION

An agroecosystem is one of the most extensive and closely linked nature-human systems. It has extraordinary implications for socio-economic welfare and environmental sustainability.¹ It is rightly said that nothing will go right for agriculture if ‘farm ecology and economics’ go in the wrong direction.² Poor connectivity of the farmers with knowledge, networks, and institutions; limited interest in community enterprises; lack of professional exposure and indifference towards environmental ethics make this the problem even bigger. The agriculture sector is exposed to many challenges and farming communities need comprehensive solutions³

This work investigates the ecological and economic impact of Anupashyana Farming practices. It is an integrated approach that combines digital agriculture services with the Buddhist ecological values and principles of Buddhist economics. Better use of digital agriculture services is vital for improving the financial performance of farms. Anupashyana digital agriculture service helps farmers gather and compare a wide range of crop data to make meaningful and timely operating decisions. Evidence collected from the farm fields indicates that digital agriculture innovations enhance yield and profitability. Designed Main focus of this study is on the cultivation of ecological consciousness among farmers. It describes a spiritual framework of ecological oneness and how Buddhist ethics can help in improving the quality of life.

Buddhism is a way of living that accepts and complies with the reality of nature.⁴ It is a mechanism that trains the human mind to fight against every kind of negativity and helps in the cultivation of positive energy for improved social cohesiveness. The most important moral imperative of ecosystem ethics is the *sustainability of a healthy ecosystem*. The spirituality of the ecosystem is only possible once humanity has experienced the transformation of consciousness.

To avoid conflict between ‘environment’ and ‘development’ equal importance shall be given to nature, the society, and the financial capital,⁵ so that, a stable constellation

¹ Swinton, Scott et al, *Economic value of ecosystem services from agriculture*. Edited by Stephen K. Hamilton, Julie E. Doll, and Philip Robertson, (New York: Oxford University Press, 2015).

² Swaminathan, Mankombu Sambasivan, NATIONAL POLICY FOR FARMERS 2007, (New Delhi: Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, 2007).

³ United Nations Environment Programme. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication-A Synthesis for Policy Makers*, (France: United Nations Environment Program, 2011).

⁴ Prayukvong, Wanna, “A Buddhist economic approach to the development of community enterprises: a case study from Southern Thailand,” *Cambridge Journal of Economics* 29, (2005): 1171–1185.

⁵ Costanza, Robert et al., *Building a Sustainable and Desirable Economy-in-Society-in-Nature*, (New York: United Nations Division for Sustainable Development, 2012).

of nature economy, people economy, and market economy can sustain.⁶ As a solution to it, the Buddhist principles of economics, community enterprises, and the Buddhist ecological values suggest some remedies achieve a collective shift in consciousness.⁷ To achieve this collective shift in consciousness a spiritual framework is presented here that cultivates the idea of Ecological Oneness. It includes components of spiritual ecology and nature-centered religious traditions. The objective of this study is to describe Buddhist ecological values⁸ and assess the impact of these values on *Anupashyana (Mindfulness)* farming practices.

However, this world is full of suffering⁹ but the Buddhist perspective on environment and development helps people in developing a positive mindset.¹⁰ Concerning the current agrarian and ecological crisis, ecological consciousness and wisdom are essentially required. With the help of a case study based on evidence collected from Farukhabad in North India, this work presents highlights of the Buddhist farming practices for sustainability in agriculture.

The rest of the paper presents outlines the Buddhist approach to economics in agriculture. Section 2 presents an overview of objectives and methodology. Cultivation of Ecological Values is the topic of discussion in section 3. This section includes discussion on the Buddhist approach to economics and development, collective ecological consciousness and Buddhist economics, and Anupashyana farming. Section 4 presents a case study on *Anupashyana Farming*. Finally, section 5 concludes the entire discussion.

2. OBJECTIVES AND METHODOLOGY

The critical linkage between agriculture and environment fragility was ignored during the period of the Green Revolution.^{11,12} Improving farm productivity was a fundamental requirement for increasing farm profitability and addressing the rapidly growing global demand for food.¹³ In this pursuit, the chemical industry and seed-producing companies

⁶ Shiva, Vandana and Leu, Andre. *Biodiversity, Agroecology, Regenerative Organic Agriculture*. (New Delhi: Westville Publishing, 2018).

⁷ Ibid.

⁸ Kaufman, Alexander Harrow, and Jeremiah Mock, "Cultivating greater well-being: The benefits Thai organic farmers experience from adopting Buddhist eco-spirituality," *Journal of Agricultural and Environmental Ethics* 27 (2014): 871-893.

⁹ Loy, David R, *Encyclopedia of Food and Agricultural Ethics*, (Dordrecht: Springer, 2013). https://doi.org/10.1007/978-94-007-6167-4_110-2

¹⁰ Donde, Subhash. "Buddhist Perspectives on Environmental Conservation and Sustainable Development." *Journal of Contemporary Research* (2014): 49-52.

¹¹ Gaud, William, "The Green Revolution: Accomplishments and Apprehensions." *AgBioWorld*. Accessed April 8, 2019, <http://www.agbioworld.org/biotech-info/topics/borlaug/borlaug-green.html>.

¹² Pimentel, David et al., "Environmental, Energetic, and Economic Comparisons of Organic and Conventional Farming Systems," *BioScience* 55, (2005): 573-582.

¹³ Food and Agriculture Organization of the United Nations, "The socio-economic impact of agricultural modernization," *Food and Agriculture Organization of the United Nations*.

made large profits but farmers not only lost their money but also health and soil fertility.¹⁴

The main reason behind this agrarian distress is identified as the culture of comfort. It is responsible for the insensitivity of individuals towards the crisis of others. In this globalized world, people have fallen into the globalized indifference towards nature and society. People have become used to the sufferings of others: it does hardly affect any individual; people are not concerned and they remain indifferent towards most of the contemporary issues.¹⁵

As a solution to all these issues, the Buddhist economics approach and ecological values are regarded as a big hope for sustainable Agroecosystems.¹⁶ The approach can lead to a better understanding of the truths of human existence and our relationship with nature.¹⁷ Buddhist ethics are not some abstract concept of ‘promising to be good’ so that we will receive a reward in the future, nor some mysterious code of behavior people have to follow to belong to a secret club, but a way of living which accepts and complies with the reality of nature.

The eternal teachings of Lord Buddha believe in ‘proving before believing’. Understanding the basic rationale of Buddhism enables one to have the right understanding of not only scientific principles but also helps in the development of the right perception about theories in social sciences. As far as, socio-ecological sustainability is concerned, the Buddhist principles of economics and ecological values are regarded as a trustworthy.¹⁸ This work defends an argument that to address the state of the environment, society must experience a shift in collective consciousness away from consumerism and must adopt a paradigm that enables a common mindset towards sustainable agriculture and rural development.

As a result of these values, environmental degradation and loss of biodiversity are almost imperceptible in most of the Buddhist regions. In the ‘*Apa-Tani*’ agriculture system of Arunachal Pradesh, domestic refuge and animal manure are fed to the farm fields. Similarly, Sikkim is the first Indian State to adopt organic farming as a policy.¹⁹

This study aimed to test the hypothesis that both internal, as well as external factors, affect the process of developing wisdom among community members. Sustainable ecological values and interpersonal skills are the essential requirements for the accumu-

¹⁴ Ibid.

¹⁵ Mulrooney, Jonathan, “Environmental Indifference,” *Integritas: Advancing the Mission of Catholic Higher Education* 8, (2016): 1-15.

¹⁶ Bhusal, Indra P., “Fiscal Decentralization in Buddhist Economics: An Interactive Analysis from Lumbini,” *Research Nepal Journal of Development Studies* 1, (2018): 32-41.

¹⁷ Ibid.

¹⁸ Zsolnai, Laszlo, “Western economics versus Buddhist economics,” *Society and Economy* 29, (2007): 145-153.

¹⁹ Ibid.

lation of human capital and social capital which allows the communities to undertake economic activities successfully.

With the help of two groups of farmers, the net impact of the Anupashyana Farming System is evaluated and compared. One group represents *Gaurav Gramin Mahila Swayam Sahayata Samuh* (Gaurav Rural-Women Self-Help-Group) that cultivates sugarcane using organic methods and prepares jaggery without chemical inputs. Another group of farmers from the same village was relying on conventional farming methods for sugarcane cultivation and jaggery making.

For this study, data were collected from primary as well as secondary sources. The primary sources of the data were farm practices of participating farmers. It is based on the empirical data generated during two successive crop cycles 2017-18 and 2018-19 from the farm fields. The study was conducted in the *upper doab region of Ganga and Yamuna rivers* in north India. The secondary data was collected from articles, journals, and books, etc. that are associated with sustainable farming practices and methods.

The financial figures described in this work are in terms of Indian Rupee (INR). The linkages between socio-economic profile, cognitive exposure, regard for ecological values, and Buddhist traditions with the state of the environment in the selected area of this study are identified through a series of interactions with participating farmers, volunteers, researchers, trainers, and technology developers.

3. CULTIVATION OF ECOLOGICAL CONSCIOUSNESS

The term 'Ecology' is derived from the Greek word 'Oikos' which has its roots in the Sanskrit word 'Okas' meaning shelter, home, or dwelling place. It is defined as the scientific study of the relationships of a living organism with each other and with the surrounding environment. In ancient India, the spiritual masters described the universe as a 'manifestation of consciousness' and sees the true self of every human, not merely as a human self or psychological self but as a universal self. The current state of environment and biodiversity loss has already started affecting life on Earth including humans therefore a spiritual framework of ecological oneness is required to take steps for our common home.²⁰

In the post-war market, development-economics began to consider the agriculture sector and small farmers as potential capital generators. The objective of agricultural development was the production of cheap food, cheap labor to make capital investment more and more profitable. During the 1960s agricultural production was also considered

²⁰ Vilela, Mirian, *Sustainable Economy: Corporate, Social, and Environmental Responsibility*. Illustrated by Raymond W.Y. Kao, (Singapore: World Scientific Publishing Co. Pte. Ltd, 2010).

a crucial means to achieve prosperity.²¹ Many countries like India wrote a phenomenal economic growth story based on produced surplus food during that period.²² The adopted model continued to focus investment on urban infrastructure development and reduced public investment in agriculture and allied sectors.²³

This non-sustainable development model is not only unfit for overall ecology but it is also susceptible to the economic slow-down. The economic model that is characterized by cravings of rich people and ignorance of poor people, is responsible for the accumulation of several socio-economic problems. Rural communities and farmers were left to handle their immense economic pressure. Thousands of farmers have committed suicide because they were immersed in debt. They drowned into the debt because their crops were not sold at fair prices and their farm-yields were not enough to subsistence.²⁴

3.1. Buddhist Approach to Economics and Development

The discipline of economic sciences is characterized as a study of the optimum allocation of available resources among different competing ends to achieve the highest possible level of satisfaction or quality of life for a larger population. Scarcity in classical economics means that economic resources are never sufficient to satisfy completely our insatiable human needs, desires, and cravings. So resources must be allocated or rationed among competing uses by putting resources to their most optimum utilization. As far as the agriculture sector is concerned, the classical approach of economics concentrates only on yield maximization. The underlying assumption is that more yield results in a higher standard of living, which in turn translates into a higher level of satisfaction and socio-economic wellbeing.

The dynamics of socio-economic advancement are a complex phenomenon and cannot be explained by economic factors only. But, in classical economics, financial resources are identified as a major driving force to various capital intensive and human resource development activities; availability and management of finance are one of the initial steps for achieving sustainable development goals. Neoclassical economics has failed to move out of the dominant classical models and integrate new advances in psychology, evolutionary biology, neuroscience, and ecology. It has also failed to restore the global financial crisis and it is concerned with only one aspect of human life: the material, meaning it has nothing to say about social or spiritual realms of reality.

The neoclassical approach of economic development is linked with the satis-

²¹ Knoche, Hendrik, Rao, Sheshagiri P. R. and Huang, Jeffrey, "Human-Centered Design for Development," *International Journal of Mobile Human-Computer Interaction* 3, (2011): 1-13.

²² Ibid.

²³ Deb, Debal, *Industrial vs Ecological Agriculture*, (New Delhi: Research Foundation for Science, Technology and Ecology, 2004).

²⁴ Ibid.

faction of maximizing consumption but the Buddhist approach satisfaction of quality of life and contentments are truly valued. In the Buddhist context, human development is targetted through training towards gaining ‘right understanding’, as a result of which people will be satisfied in choosing economic options which give them a high quality of life that complements nature and society. Development of collective social consciousness and ecological consciousness through community enterprises is the basic objective of socio-economic dynamics.

The core values of modern economics are competition and self-interest in the pursuit of maximum utilization of materialistic resources; while in the Buddhist approach to Economics and Development, ‘Self’ includes oneself, society, and nature. It also incorporates human and cultural aspects and relies on a stable constellation of environment, society, and self. Buddhist economics also recognizes many non-financial factors that contribute to development. The core values of Buddhism are compassion and collaboration through which overall well-being is achieved leading to higher wisdom.

3.2 Collective Ecological Consciousness

As per modern scientific outlook, Buddhism and Science have increasingly been discussed as compatible. The middle-way approach to economics promotes development initiatives without compromising environmental sustainability. It supports the idea of interconnectedness and interdependent origination (Idappaccayata) which considers human existence as a part of society and nature. The concept of ‘Self’ includes oneself, society, and nature. Thus, self-interest in Buddhist economics has a broader meaning, which includes not only oneself but also others in society and nature. When people start understanding the interconnected relationship, cooperation becomes natural and smoother.

Collective ecological consciousness and interspecies integrity form the basic framework of professional ethics and moral autonomy for the farmers.²⁵ The ecological stability and resilience of the entire agroecosystem depend on the diversity of species and their interactions. It maintains soil fertility, reduces the input cost, and develops the capability of withstanding environmental fluctuations.²⁶ The basic philosophy of ecological farming is deeply rooted in the coexistence of species. As, humans and other animals rely on other forms of life for food, air, water, and as a means of combating climate change.²⁷

The outcome of Buddhist economic enterprises is assessed in terms of social and financial wellbeing. A conceptual framework of Buddhist ecological values²⁸ and

²⁵ Meijboom, Franck L. B. and Stafle, Frans R., “Farming ethics in practice: from freedom to professional moral autonomy for farmers,” *Agriculture and Human Values* 33, (2015): 403-414.

²⁶ Altieri, Miguel A., *Agroecology: The science of sustainable agriculture*, (Boulder: Westview Press, 1998).

²⁷ Ibid.

²⁸ Ibid.

socio-economic wellbeing is illustrated in Figure 1. Training and regulation is an essential component of these community enterprises where social capital and moral values are given the highest priority. Lust, Hatred, and Delusion are considered as a bane for a human character as the weeds are the bane for the farm fields. The ethical injunction of Dhammapada is described as not to do evil but to do good as a moral principle advocating the nonviolent alleviation of suffering and to attain Nibbana.²⁹

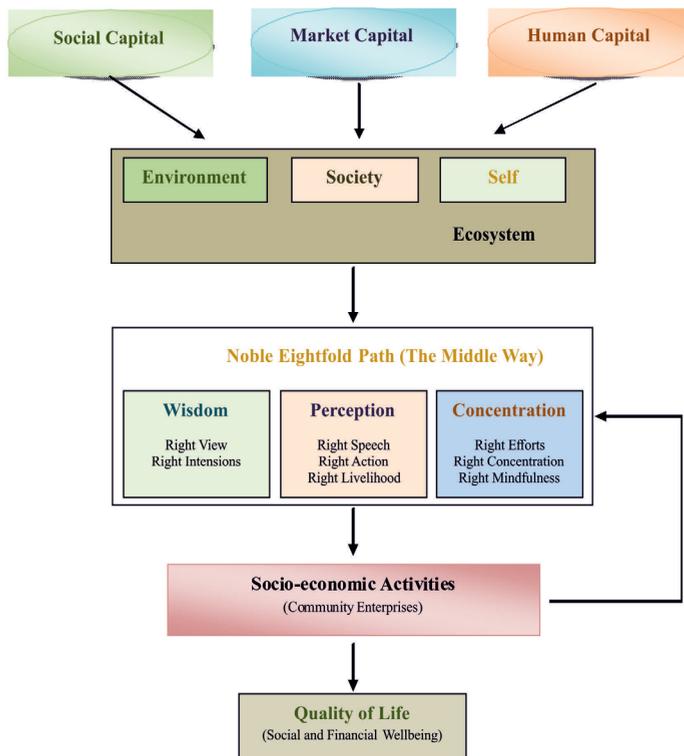


Fig. 1: A conceptual framework of Buddhist ecological values and socio-economic wellbeing

In Buddhism the cause of suffering is described as; cravings generated out of ‘*avidya*’ or ignorance. It is the most scientific religious ideology that believes in the creation of a systematic knowledgebase blended with human values to solve most of these human problems. Enlightenment (Buddha), Mindfulness (Dhamma) and Community (Sangha) interests are the most significant instruments of Buddhism. In the process of cultivation of ecological consciousness, digital connectivity and social capital were identified as significant drivers. Understanding the interconnected relationship of economy

²⁹ Radhakrishnan, Sarvepalli, *Dhammapada*, (London: Oxford University Press, 1997).

society and nature certainly helps in addressing the global environment as well as an economic crisis.³⁰

As an alternative, the farmers are expressing their willingness to adopt sustainable farming practices and methods. The Buddhist economic approach is environmentally benign and highly sustainable. The central idea of Buddhist economics is to ensure the social and financial wellbeing of community members while focusing on environmental justice.

3.3 Buddhist Economics and Anupashyana Farming

Buddhists consider that human beings are different from other beings because they can practice and transform themselves through training for improving the quality of life. The elements of the threefold training are not fragmented but are complementary to each other, leading to a greater depth of understanding. *As Irrigators regulate the water, the wise controls themselves.*³¹ This journey of understanding the reality starts with the realization of Self Consciousness and latter on it advances towards an understanding of Universal Consciousness. A clear perception of Collective Social Consciousness and Ecological Consciousness is helpful in the process of threshold training towards the state of Perfection of Consciousness or ‘Paryaparamita’.

The meaning of self in Buddhism is wider than just the individual, including both society and nature. The existence of each human being or self has three components: human, society, and nature, which are coordinated and complemented within the entire ecosystem. Therefore, self-interest in the Buddhist context is not limited to the individual, and since it also applies to nature and society, it equates to the overall quality of life. In the neoclassical model of economics, the quality of life is considered as some extra restrictions in optimization procedures, that depends on a set of utility functions or preferences. These optimization procedures and utility functions cover the parameters associated with socio-economic dynamics.

Anupashyana Farming is primarily a community-supported agriculture system that shifts the energy of participating farmers from competitive to cooperative efforts. In this farming system, the basis of the Right Action includes every element in the Noble Eightfold Path that rests in the Right Mindfulness (Anupashyana). Farmers are trained to practice contemplation on the interbeing of subject and object of mind before every farm activity to develop insight regarding the interconnectedness of the external and internal world.

These practices are designed with the Noble Eightfold Path or the Middle Way to

³⁰ Lim, Hui Ling, “Environmental Revolution in Contemporary Buddhism: The Interbeing of Individual and Collective Consciousness in Ecology,” *Religions* 10, (2019): 120.

³¹ *Ibid.*

establish a balance between environmental conservation and higher crop yields. Buddhist economics approach minimizes aggressive competition in the market and hence, it neutralizes the excessive competition.³² A summary of the middle way approach for farming is presented in Table 1. It believes that community-supported farming fosters trust among community members; enhances the value of social capital; higher productivity of community enterprises and brings people closer to agroecology and food production systems.

Table 1: The middle way of Anupashyana farming

Eightfold Path	Associated value	Mindfulness farming practices
Right View	Know the truth	Smart farm management practices
Right Intensions	The free mind of evils	Removal of weeds
Right Speech	Say nothing that hurts	On-farm schooling
Right Action	Work for common good	Sharing knowledge
Right Livelihood	Respect life	Community farming
Right Efforts	Resist evil	Crop monitoring
Right Concentration	Practice meditation	Market opportunities
Right Mindfulness	Control your thoughts	Sustainable farming

The *Noble Eightfold Path* or the *Middle Way* of Thathagat Buddha advocates a sequence of personal development known as the threefold training. This middle way of Anupashyana farming is given in Table1. It helps in the cultivation of ecological consciousness. The behavior of an individual will depend upon their mindset, which will change as wisdom is acquired. The Buddhist approach to economics considers that rational behavior only develops after ‘right views’, or understanding has been attained. The threefold training of Mindfulness or ‘Anupashyana’ has ben classified under three basic groups:

1. *Perception*: Training to develop a higher mentality, or concentration, necessary for mindfulness.
2. *Concentration*: Training to develop the higher morality necessary to conduct one’s actions, speech, and livelihood morally and properly.
3. *Wisdom*: Training to develop the higher wisdom required to understand the nature of reality.

‘Mind precedes all mental states as the wheels of a cart follow the footmarks of the

³² Shrestha, Kiran, “Cooperatives and Agriculture in Buddhism,” *Research Nepal Journal of Development Studies* 1, (2018): 169–177.

ox'.³³ The noble eightfold path is the middle way to train the mind and to discard any type of extreme view. It is the way of moderate living that emphasizes on sustainable use of natural resources. The perception group (Sila Skandha) is also named as *five precepts* (Panchasila). It is made up of the right speech, right action, and right livelihood. It is further elaborated in five different precepts. Table 2 illustrates the associated ecological values with the Buddhist Panchasila. It explains the role of contemporary Buddhism in agroecology and biodiversity. For ecological farming practices, these five precepts are extremely useful. The concentration group (Samadhi Skandha) is a combination of the right speech, right action, and right livelihood. The wisdom group (Pragya Skandha) combines the right view and right intention.

Table 2: Panchasila - five precepts for sustainable agriculture

Sila (Percept)	Virtue	Ecological farming values
Satya (Truthfulness)	Abstaining from lying	Use of organic fertilizers
Ahimsa (Non-harming)	Abstaining from harming the breathing beings	Respect for biodiversity
Asteya (<i>Non-Stealing</i>)	Abstaining from Stealing	Water-efficient irrigation
Aparigraha (Non-coveting)	Abstaining from intoxication.	Reduced chemical pesticides
Brahmcharya (Spiritual restraints)	Abstaining from sensuous misconduct	Environmental justice

It is not human greed but a common good that drives our civilization. Recent studies indicate that though our want system (cravings) dominates the like system, cultivation of mindfulness, compassion, empathy and ecological consciousness may bring internal attunement with other subsystems of the entire ecosystem. Greed and envy destroy a sound mind and the resonance in circuits of the brain make us attuned to others. But conventional economics and neoclassical economics have lost their way and no longer maximizes human happiness and the common good.³⁴

4. A CASE STUDY ON ANUPASHYANA FARMING

Despite the advancements in the fields of science and technology for improving agricultural productivity, adequate attention was not paid to the social and environmental consequences of the current food production system. The current globalized and capital intensive agri-food system has mechanized the agriculture sector. It is having limited scope for human values and environmental ethics. The mission of a sustainable agroecosystem

³³ Ibid.

³⁴ Puntasen, Apichai, "Buddhist economics as a new paradigm towards happiness," *Society and Economy* 29, (2007): 81- 200.

considers farming much more than a business. The transformation of agribusiness to agroecology requires cultivation of the ecological consciousness.

The term agroecology refers to a way of farming that attempts to balance associated environmental and economic risks while maintaining productivity over the long term. The case study on the Anupashyana Farming system describes the agroecosystem as a natural ecosystem and not like an industrialized business model. It recognizes the seamless connection between healthy soil, healthy ecological neighborhood, and agrarian communities. Farmers understand their responsibility to manage local agroecosystems in an ecologically sensitive manner. Buddhist economics approach to agriculture gives equal importance to farm economics. A vibrant local economy is essential for the healthy local ecosystem. It emphasizes on caring relationships among people and local ecosystems.³⁵

The middle way path of Buddhist economics illustrates the psycho-spiritual perspective of environmental conservation, sustainable development, and peaceful co-existence. It emphasizes community-driven mechanisms for inclusive dialogue, contemplation, meditation, and conflict prevention. It has its foundations in the development of cooperative and harmonious living. The farming practices are much closer to community farming systems where people cooperate in different activities. People are trained to get benefitted from social capital for mutual benefits. The concept of ecological oneness helps social capital to enhance the performance of community enterprises. Adequate attention is paid to the trust, cooperation, sense of community, and culture.³⁶

Anupashyana farming targets growth in agriculture and allied sectors while promoting environmental conservation, sustainable use of scarce natural resources, and digital agriculture services. It is an integrated approach to farming that combines digital agriculture innovations, ecological farming, and environmental ethics. The need for sustainable agriculture owes its origin to the philosophy of ‘holism’, which articulates that all systems are interconnected. Sustainability had been an essential component of adopted farming practices during the Buddhist era in India. Farming practices and methods were aligned with the principle of a healthier ecological neighborhood.

The integrated approach of Anupashyana farming takes this idea of interconnectedness towards sustainability in agriculture. Sustaining productivity in agriculture depends on the availability and quality of local resources; like, soil, water, nutrients, and

³⁵ Kirschenmann, Fred, *Cultivating an Ecological Conscience: Essays from a Farmer Philosopher*, Edited by Falk L. Constance, (Lexington, Kentucky: University Press of Kentucky, 2010).

³⁶ Rivera, Maria et al., “The Role of Social Capital in Agricultural and Rural Development: Lessons Learnt from Case Studies in Seven Countries,” *Sociologia Ruralis* 59, (2019): 66-91.

other farm inputs. These systems effective management of energy flow, soil nutrients, and water cycles without using synthetic inputs. Performance of adopted mechanism is evaluated in terms of following eightfold ways:

- Net increase in the incomes of farmers on a sustainable basis.
- On-farm training for environmental conservation.
- Skill development and performance improvement.
- Increased access in agriculture to farm inputs, credit, technology, and information.
- Better access to market and market information for better economic returns.
- Increased soil health and soil fertility management to sustain agriculture-based livelihoods.
- The integrated crop-livestock management approach for nutrient cycling.
- Increased participation of women in agriculture and allied sectors as an interest group.

The upper doab region of Ganga and Yamuna rivers is rich with natural resources and has plenty of vegetative cover in the form of farm fields, orchards, and forests. The landholding of farmers in each group was 10-15 Hectares. This region has a dense network of canals for irrigation and sugarcane is a major source of income for farmers. It is one of the most fertile regions of the country and farmers are expressing their willingness to reduce environmental as well as economic pressure of intensive chemical farming.

Sugarcane is a major cash crop of the upper doab region and its disposal is a big issue for the farmers. It is mainly consumed by local sugar factories and small jaggery making units. The basic aim of this study is to record the activities of Gaurav Grameen Mahila Swayam Sahayata Samooh (GGMSSS) and other farmers. This group was trained to align their farming practices as per Buddhist traditions. The GGMSSS and another group of farmers from a village in Farrukhabad were selected in this comparative analysis of input cost and total revenue generated for sugarcane cultivation. The GGMSSS was cultivating their crop and preparation of jaggery without using chemicals while following Anupashyana farming methods; while, another group was selling their crop to local sugar factory and jaggery making units.

Table 3: Comparison of cost of production and income for sugarcane cultivation

Description	Conventional Farming	Anupashyana Farming
Plantation	25000	25000
Fertilizers	10000	2000
Irrigation	6000	4000
Pesticides	7000	0
Weeding	6000	7500
Harvesting and Transportation	16000	18000
Input Cost	70000	56500
Yield (quintals)	550	600
Crop Rate in INR	315	315
Output Price in INR	173250/-	18900/-

Agricultural and social practices of agrarian communities in this region are deeply aligned with Buddhist ethics and ecological values. But, during the period of the green revolution, a shift in farming practices was observed. Farmers reduced organic methods and adopted modern technologies as well as chemical farming. It significantly increased the cost of production and resulted in the form of indebtedness and an increasing number of cancer patients in the region. A shift in their farming methods from ‘biology to chemistry’ affected their lives in many ways and it forced them to review the agricultural practices. In this pursuit, the field trainers interacted with them to understand their point of view and helped them in reducing their chemical inputs.

This case study includes two community groups engaged in sugarcane cultivation. It observes the process of managing their capital to increase self-sufficiency and self-reliance.³⁷ Equal emphasis was given on physical capital and non-physical capital such as human capital and social capital. The Buddhist economic model described here is used to address questions about the process of development. Social capital and analytical thinking were observed to be important elements in success and the development of the right understanding for all groups. Agriculture is not only important for achieving self-sufficiency in food but farms must produce enough for the subsistence of farmers. It is not just food security but the financial security of rural communities also relies on agriculture.

A comparison of the cost of production and net income for sugarcane cultivation per hectare is given in Table 3. It compares the economic performance of two farming

³⁷ Wagner, Luke E., “Happiness, sufficiency, and Buddhist economics.” Ph.D. thesis., University of Virginia, 2008.

systems. The net output price is described as the payment received for sugarcane when it is sold directly to the sugar factory or local jaggery making units. A net saving of INR 13500 at the input side and increased income of INR 15750 is giving farmers a net profit of INR 29250. A comparison of the Anupashyana farming method with conventional farming is presented in Table 4. It indicates the benefits of Anupashyana farming methods.

Table 4: Comparison of Anupashyana and conventional farming methods

Description	Anupashyana Farming	Conventional Farming
Input Cost	250000/-	280000/-
Total Revenue	800000/-	450000/-
Net Profit	650000/-	170000/-

Farmers were also encouraged to opt for multi-culture instead of mono-culture farming to reduce associated production risk. Mixed crop pattern has become a source of supplementary income and provide an important additional livelihood dimension for the participants. Vegetables and pulses not only reduced production risk but managed soil fertility. Farms with mixed crops used lower chemical inputs and generated higher returns when compared with the monoculture farming of sugarcane.

These farming practices reduced the reliance on loans and drastically cut input production costs, ending the debt cycle. Increased cash-flow into the hands of farmers improved their living standards.³⁸ Recently, the COVID-19 crisis has severely affected lives and livelihoods in farming landscapes. In their against the global pandemic, the '*cultivation of mindfulness and compassion*' helped people in developing sensitivity towards the realities of impermanence, suffering, and interdependence of life.

5. CONCLUSION

For sustainable and inclusive development a stable constellation of nature, society, and self is required For this purpose, cultivation of the ecological values and the Buddhist approach to economics proved its worth. Buddhism is considered a significant driver for '*right livelihood*'. The mindfulness training reduces the levels of negative emotions like greed; cravings and envy. It also enhances the understanding of cooperation. These shared beliefs become the guiding force in making effective community decisions. The concepts like wisdom, mindfulness, and community enterprises help Individuals become aware when their personal goals and motives might not be in alignment with the collective goals of the community.

Understanding the economic value of complex changes in the agroecosystem is a challenging task. Discussion on these changes and their socio-economic impact is of

³⁸ Ibid.

great importance while eliciting information from the people who would incur the costs and benefits of those changes. Anupashyana farming facilitates this empowerment process by supporting social communication mechanisms and by developing the capacities of the rural population. Dissemination of information; exchange of gained experiences and participatory communication activities are the main features of this project. In general, it served as a bridge for ensuring the connectivity of rural people with knowledge, networks, and institutions. By doing so, enhanced rural people's voice, self-confidence, and participation in community life and governance.

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