

Social Responsibility of Sustainable Agriculture in Kerala

Dr. Santhi Jose

FDP Substitute, Department of History, St. Xavier's College, Thumba, Thiruvananthapuram
santhijose2@gmail.com

Abstract

With rains for eight months a year, abundance of fertile soil, good climate and healthy and resourceful people, which the other parts of the world can only dream, Kerala is suffering from, acute scarcity of food materials of all kinds. Kerala does not produce even one fourth of the total requirement of food grains and other essentials. More and more farmers in Kerala are receding from farming and there is a drastic fall in the area under cultivation, taking place at an alarming rate, which will have serious repercussions not only in food security but also in drinking water, environmental stability and socio-economic balance. At present Kerala agriculture is in a state of chronic crisis that demands the urgency for sustainable agricultural practices. Lack of political will and ability in the postcolonial era hampered drastic reforms in favour of sustainable agriculture. The increasing concerns over agriculture's impact on the social systems are being addressed in this paper. This paper also investigates the potential of sustainable agriculture in balancing social responsibility in the Kerala scenario.

Introduction

Sustainability has been the hallmark of our farming system from time immemorial; growing the time tested, weather suited, traditional crops with or without additional organic inputs, but deeply interwoven with the ecological systems and climatic conditionsⁱ. Up to 1960s and 1970s, agricultural sustainability was not a major issue because food production resources did not appear threatened by overuse. In the 1960s, prevention of the mass starvation predicted by the doomsayers of that era was the primary concern. Conservation was a concern for the future, whereas the burning issue of that era was how to grow enough food for the current year.ⁱⁱ In the process of attaining higher levels of food production for matching the demand of growing population, emphasis was laid on intensive agricultural practices.ⁱⁱⁱ Agricultural sustainability at that time was perceived as merely the growing of crops at any cost.^{iv}

However, the so - called modern agriculture-unmindful of the ecosystem principles so revered and practiced for centuries - led to seemingly irrevocable ecological and environmental catastrophes in the country. The Green Revolution essentially replaced the traditional varieties with high - yielding ones. These high yielding varieties now recognized as 'high input varieties' needed tonnes of fertilizers, to achieve the target growth. The crops and varieties alien to the soil attracted new pests, diseases, and outbreaks of existing pests. To combat them, came in huge quantities of pesticides. Input of these "exotic" elements into the traditional farming led to multitude of environmental issues. The micro - organisms declined; the soil lost its fertility and vitality; water demand increased and, the time tested traditional varieties disappeared. In short, the century old practices came to a halt.^v

Over a period, adverse effects of modern agricultural practices began to appear not only on the farm but also on the health of all living things and thus on the environment all over the world. Many modern farming practices related to the control of pests and productivity of soils have been identified as having harmful effects on the long - term sustainability of agro-ecosystems.^{vi} Application of technology, particularly in terms of the use of chemical fertilizers and pesticides has persuaded people to think for alternatives.^{vii}

When the quality and quantity of natural resources including land, water, and energy are degraded because of unsustainable agricultural practices, it is not only the environment that suffers - the viability of future agricultural operations are also put at risk. Sustainable agriculture is founded on the premise that our resources can be carefully managed and cultivated to make them last indefinitely.

Therefore, a stage has been reached where there is a possibility of readjusting agricultural philosophy to ensure that there is adequate food supply for the future, and yet maintain a healthy way of life. Strategies aimed at dealing with this are increasingly addressed under the term sustainable agriculture.

Defining Agricultural Sustainability

The word sustainable is derived from the Latin word, ‘sustinere’, meaning to keep in existence, implying permanence or long-term support.^{viii} The essence of the term sustainable is “that which can be maintained over time.” By implication, this means that any society that is unsustainable cannot be maintained for long and will cease to function at some point.^{ix}

Sustainable agriculture is a broad concept that covers a number of different approaches. All try in one way or other to achieve environmentally sound, economically profitable, ethically acceptable and socially responsible form of land husbandry. They have much in common with each other, and different people organisations define them differently, so overlap is not usual.^x

As early as the first century BCE, Marcus Terentius Varro, a Roman landowner, defined agricultural sustainability by recording in his treatise, *Rerum Rusticarum*. According to him, agriculture is a science, which teaches us what crops are to be planted in each kind of soil, and what operations are to be carried on, in order that the land may produce the highest yields in perpetuity. Mellon M. J, Rissler and F. Mc Camant in *Union of Concerned Briefing Paper* in 1995, defined sustainable agriculture as a system for food and fibre production that can maintain high levels of production with minimal environmental impact and can support viable rural communities. Gary W. Vanloon, S. G. Patil and L. B. Hugar in their book “*Agricultural Sustainability*” explained sustainable agriculture as the activity of growing food and fibre in a productive and economically efficient manner, using practices that maintain or enhance the quality of the local and surrounding environment-soil, water, air, and all living things. It is also sustainable in supporting the health and quality of life of individual farmers their families and the community as a whole.^{xi}

The FAO defines sustainable agricultural development as "the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such development... conserves land, water, plant and animal genetic resources, is environmentally non - degrading, technically appropriate, economically viable and socially acceptable."^{xii}

Attempting to arrive at a more precise, operational definition of sustainable agriculture is extremely problematic, partly because there is such a range and number of parties involved in the debate.^{xiii} Any way, we can generalise that sustainable agriculture is agriculture that is ecologically sound, economically viable and it conserves the resources such as soil, ground and surface water, minerals, petroleum and biodiversity. It also provides the needs of present generation without compromising the ability of future generation to meet their needs.^{xiv} All definitions lay great emphasis on maintaining an agriculture growth rate, which can meet the demand for food of all living things without draining the basic resources.^{xv} Agriculture cannot be considered sustainable if the quantity and quality of its products are inadequate to sustain the healthy survival of all who are dependent.^{xvi}

Where production has been improved through modern technologies, all too often there have been adverse environmental, economic and social impacts. Social, economic, and environmental sustainability are thus closely intertwined and necessary components for a truly sustainable agriculture.^{xvii} The basic tenets of sustainable agriculture can therefore be summed up as follows:

1. Economic Viability
2. Ecological Security and
3. Social Responsibility

All these three aspects must be satisfied for agricultural development to become sustainable. If a system is not ecologically sustainable, it cannot persist in the long run and cannot be productive and profitable. Similarly, if a system is not productive and profitable, it cannot be sustained economically no matter how ecologically sounds it is.^{xviii} The system also has the social responsibility of empowering the weaker sections in the society. The analysis of these three components, act as a useful yardstick for measuring sustainability in agriculture. The main difficulty in measuring agricultural sustainability is that it is a dynamic rather than static concept and keeps on changing with time, crops and place.^{xix} This section is an attempt to measure how far the agriculture sector in Kerala is sustainable by analyzing the three main components of sustainable agriculture.

Social Sustainability

Social responsibility of agriculture involves the well being of the persons who work on farms as well as the food consumers. Unsustainable agricultural practices are creating problems in the matter of food security and safe food. We are forced to consume poisonous food and water that are affecting our health.^{xx} The social sustainability of farming techniques is related to the ideas of social acceptability and justice.

Political Unrest

The gap between the “haves” and the “have-nots” feed a feeling of social injustice among those who feel neglected and excluded from development opportunities, as well as from better-off sympathizers. The result is a climate favourable to political opposition and even violence. Creating atmosphere for Sustainable agricultural practices helps to avoid such situations.^{xxi}

Local Acceptance

Many new technologies fail because they are based on practices or assumptions from outside. Sustainable agricultural practices usually are based on local social customs, traditions, norms and taboos, so local people are more likely to accept them and adapt them to their own needs.

Indigenous Knowledge

Sustainable agricultural practices often rely on traditional knowhow and local innovation. Local people have a wealth of knowledge about their environment, crops and livestock. They keep locally adapted breeds and crop varieties. For example, studies are there to substantiate the fact that the introduction of foreign breeds of animals and plants necessitated agricultural practices affecting the environment and health of people as a whole. According to a study by National Bureau of Animal Genetic Resources (NBAGR), Indian cow and buffalo breeds possess a rich A2 allele gene that provides a better and healthier quality of milk than foreign breeds. Although the foreign breeds of cows produce more milk than Indian varieties, but due to more concentration of A1 gene in those breeds, the milk is of low quality. The counter allele to A2 is A1, which is considered to be associated with diabetic, obesity, cardiovascular diseases etc. The citizens of the Western countries have realized this and they buy only A2 milk from their super markets. Brazil and European countries are minting money by selling Indian bull semen. Paradoxically state government is spending crores of rupees to bring a single foreign breed bull to our state. Kerala the Government is promoting foreign breeds and the people are being forced to buy and consume toxic A1 milk.^{xxii} Sustainable agriculture maintains the social fabric. Rather than ignoring or replacing the traditional knowledge, sustainable agricultural development seeks to build on it and enrich it with appropriate information from outside.

Gender

In traditional agriculture, women traditionally bear the heaviest burdens in terms of labour. In modern conventional farming too, men, benefit the most: they control what is grown and how the resulting income is spent. Sustainable agriculture attempts to ensure that the burdens and benefits are shared more equitably between men and women. Sustainable agriculture attempts to bring back the women folk to fields and to make them self sufficient through self help groups. Kudumbashree is such an innovative community based women – oriented initiative formed in Kerala.^{xxiii}

Food Security

Traditional farming techniques often fail to produce enough food, or enough variety of food for a balanced diet. Conventional modern farming focuses on a few commodities, so people still do not have a balanced diet. Sustainable agriculture improves food security by improving the quality and nutritional value of the food, and by producing a bigger range of produce throughout the year.

Participation

Traditional society in India is riven by wealth and caste distinctions. Introducing conventional farming innovations tends to exacerbate these: the rich and higher-caste tend to benefit while the poor and low-caste are left out. Sustainable agriculture inventions consciously target the less well off, and empower them so they can organize and speak with their own voice, so promoting dialogue and democracy.^{xxiv}

Future Challenges of Agricultural Sustainability

Industrial agriculture relies heavily on external inputs like synthetic chemical fertilizers and pesticides, machinery, fossil fuels etc; thus, the quest for greater yields has landed farmers on a technologic treadmill of increasing inputs and decreasing profit margins. Increasing dependence on off-farm resources and distant markets has caused much of the profitability of agriculture to shift from the farmer to the industries that supply the inputs and market the

outputs. As farmers' profit margins shrink, many of them choose to quit farming leaving the land barren or converting it for other uses. Farmers receive no government incentives for sustainable practices. Governments also help perpetuate chemical - intensive agriculture by funding research on chemical fixes for agricultural problems, to the exclusion of research on more sustainable options.^{xxv}

Tangible ecological, economic and social indicators show that serious challenges lie ahead in terms of addressing future agricultural productivity in a sustainable manner. The following are some of the challenges to future sustainable agricultural developments.

Population Growth

The most important challenge to sustainable agriculture in the future comprises unrestrained population growth, which is not expected to stabilize for another century. This will trigger accelerated demand for more land, better quality and diversified forms of food.

Quality of Natural Resources

The expansion of agriculture and unsustainable practices of capital intensive high external input cultivation in the past have greatly depleted the quantity and quality of natural resources such as land, water and air available for cultivation.

Biodiversity Constraints

We have gone too far in sacrificing biodiversity in the pursuit of more efficient production. Loss of species and genetic diversity is irreversible and poses a serious threat to the sustainability of agriculture.^{xxvi}

Climate Change

The management of the deleterious consequences of the human-induced changes in climate will be a major challenge in the twenty-first century. The global warming due to increasing concentrations of green house gases (GHG) has begun to cause sea level rise and an increase in hydro-meteorological natural disasters.^{xxvii}

Despite technological advances such as improved crop varieties and irrigation systems, weather and climate are still playing a key role in our agricultural system.^{xxviii} Increasing evidence over the past few decades indicates that significant changes in climate are taking place due to enhanced human activities. Climate change is expected to increase the frequency and severity of extremes such as heat waves, intensified rainfall, greater flooding, cyclones, drought etc. Such events are bound to affect sustainable agricultural development in an adverse manner^{xxix} and also to threaten seriously the livelihood of billions of people who depend on land for most of their needs.^{xxx}

In our state, agriculture has always been a 'gamble with monsoon', and the present climate change makes it even more so. The economic and livelihood crises created by failed crops have led to large numbers of suicides among the farmers caught in debt trap. The climate change-induced natural disasters could aggravate the poverty and miseries of these farmers.^{xxxi}

Land Degradation

One of the most critical threats to sustainable agriculture is land degradation. Vast areas of cropland, grassland, Hillocks, watersheds, mangroves, woodland and forest have already been lost, and many more are threatened.

Genetically Modified Crops

The benefits of GM crops are far from certain. There is, for example, little consistent evidence of higher yields. Moreover, little is known about the risks. Critics argue that

genetically modified (GM) crops threaten human health and the environment and will allow large corporations to tighten their grip over agricultural production and thus widen socio-economic disparities.^{xxxii}

TRIPS and Agriculture

For agriculture, the most harmful features of the enactment of TRIPS under WTO are the intellectual property rights and patents accorded to plant breeders. This will lead to the corporatization of agriculture, with small farmers becoming the pawns of a few international giants in food production and processing.^{xxxiii}

Bio Fuels

Expanding the area devoted to bio fuels could also accelerate the switch to industrial agriculture, at the expense of small farmers growing food crops, or of people living from forests. There are also major worries about food security. If crops are grown for bio fuels, they displace those that could have been used for food, causing shortages and driving up food prices. In our state, bio fuels may not yet have had a large impact on domestic food markets-especially since the major staple is rice whose production has not been affected. However, this situation could change.^{xxxiv}

Lack of Long Term Policy Perspective

Broadly, the two basic objectives of agricultural policies have been higher production and there by achieving self-sufficiency in food production. Unfortunately, on the policy front there is lack of long-term strategy for sustainable agricultural development.

Lagging Research and Development Efforts

Another important factor limiting the growth potential of the agricultural sustainability is the lack of breakthrough in research and development after the green revolution. Our agricultural research suffers from several weaknesses that hinder sustainability in agriculture like:

- i. Uneven progress of varietal improvement across and regions,
- ii. neglect of crop systems research,
- iii. unimpressive results of local adaptive research,
- iv. inadequacy of collaborative multidisciplinary research,
- v. weak interaction between researchers, extension workers and farmers,
- vi. excessive centralization of planning and monitoring,
- vii. Lack of accountability for performance etc.^{xxxv}

Sustainability in agriculture is not a new issue. Large civilizations have risen on the strength of their agriculture and subsequently collapsed when their farming methods eroded the natural resource base. So today, nothing is more important to humanity than sustainable resources and reliable food production.^{xxxvi} Because of the intensive use of chemicals in agriculture, soil, water and atmosphere are contaminated; human beings nowadays are faced with the dilemma of consuming unsafe food and drinking water and spending extra money to restore the damaged environment and health^{xxxvii}. With mounting criticism and growing recognition of problems with the modernist approach to agriculture as well as increased public awareness about environmental and health issues, search for conceptualizing and depicting of alternative forms of agriculture intensified.

Major quests in agriculture today involve seeking greater resource use efficiency, less negative impact on environment, improved food safety and quality and long-term profitability.^{xxxviii} At present and in the near future, there is no substitute, which can replace

depleted resources, except sustainable agriculture. The ultimate aim of the sustainable agriculture movement is to create farming systems that mitigate or eliminate environmental and health harms associated with industrial agriculture and to provide the farmer an enhanced life. Sustainable agriculture gives due consideration to long-term interests rather than only short-term interests such as profit.^{xxxix}

Shifting to sustainable agriculture paradigm would not be a smooth affair for the farmers. Though, sustainable practices have been the domain of our farming since centuries but many a practice and value have gone into oblivion. It would require retooling the farmers to eschew the exploitative practices and values to adopt conservative and evolving values and practices.^{xl} Amidst the challenging situations, there are highly encouraging efforts of farmers in initiation of sustainable agriculture.

END NOTES

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