

SUSTAINABLE AGRICULTURE: A LEGAL PERSPECTIVE

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'The farmer is the father of the world. But it is his greatness that he is not aware of the fact.' [1]

-MAHATMA GANDHI

Agriculture has been acting as a driving force for our economy as it contributes a significant share to make India stand in the global market. Agriculture has been a way of life and continues to be the most important source of livelihood of the masses in India and thus, is an intrinsic part of Indian economy. Also, agro-based industries depend upon agricultural production for their requirement of raw material. This paper is an attempt to understand the legal sphere of the agrarian sector. The relationship between the modern agricultural practices and human-induced environmental degradation have also been assessed. Nevertheless, the government is making various policies and schemes to develop the sector and for safeguarding the farmers, the farmers are deprived of the benefits of these plans due to lack of awareness and the corrupt administrators and politicians. Agriculture productivity depends upon the availability and quality of natural resources like water, soil etc., thus, for agriculture growth to be sustained, there is a need to conserve and make sustainable use of these scarce natural resources. Hence, the sustainability of agriculture is most important for the future generation and all round development of the nation.

INTRODUCTION

'Food which promote life, vitality, strength, health, happiness and satisfaction; which are succulent, juicy, nourishing and pleasing to the heart are dear to one in goodness. Foods which are very bitter, very salty, very sour, very salty, very hot, very pungent, very dry and burning, causing unhappiness, misery and disease are palatable by one in passion. That food which is stale, tasteless, putrid, decomposed, foul and impure as well as the leavings of others is dear to one in nescience.'

BHAGWAT

GITA

CHAPTER 17, VERSE 8,9,10

Food is considered to be the most fundamental need of human beings. Without food, one will not be able to survive. During the nomadic era, peoples were not

specific about their food as the situation over there was hand to mouth. Peoples were not associated with activities like agriculture which includes field cultivation, farming and husbandry. But since there was a constant evolution of human race, the people became more specific and improved their ethnicity of food. People now were able to recognise 'what one should eat'. So the people started cultivating the lands. With the further improvement in the technology, new machines and techniques came up and led to prologue of agrarian sector in the world and cultivation of other commodities such as jute, cotton etc. also widen the scope of the sector.

In India, even before the independence whether during the Vedic period or the mighty eras of the Mughals, the agriculture was given immense importance. There was constant development in the field of agriculture. Initially, during the Vedic period the tools used were mostly of Iron. Later in the era of Guptas, the use of bullocks and horses in ploughing accelerated the cultivation. Further, in the period of Mughals introduction of water technology of Persia and Arab gives a new structure to the irrigation system in India.[2] Also, many of the land reform policy during the regime of Akbar the Great by one of his gems *Todarmal* are still followed in India. In the colonial rule, many of the commercial crops such as cotton, jute and indigo were made available to the global market and most of the lands were given priority for agricultural purposes. After independence, the founding fathers of the nation gave importance to the development of this sector. Ever since the independence, the agricultural policies are reviewed often and reforms are made to benefit the agrarian workers.

Currently, despite being the second most populous country in the world, India have managed to evolve decently in the world of the competitive era. According to the World Bank, India is currently fourth largest economy in the world.[3] With such a massive population of 1.2 billion[4] people, India was able to use their manpower in the field of Agriculture. Around 60%[5] of the country's population has been indulged in the agriculture. It confers employment to a majority of the rural population in the country. India is not only self-sufficient in the field of agriculture but is also among the leading exporter of the agrarian products such as Pulses, Cotton, Wheat, Rice (Paddy) etc. (refer Table A)

Apart from all this, it is a source of revenue for the government, the major portion of land revenue is associated with agriculture. Also, it holds a very significant political and social importance as it is a boon

to the society in terms of employment and serving the fundamental need of food to the people.

INDIA'S POSITION IN WORLD AGRICULTURE AS OF 2013 (TABLE A)

| S.NO | Product type | Product | INDIA'S RANK |
|------|-------------------|----------------------------|-----------------|
| 1. | Cereals | | |
| a) | | Millet | 1 st |
| b) | | Rice, wheat and paddy | 2 nd |
| 2. | Vegetables | | |
| a) | | Pulses, ginger & safflower | 1 st |
| b) | | Onion, cabbage & potato | 2 nd |
| 3. | Fruits | | |
| a) | | Mango, papaya banana | 1 st |
| b) | | Sugarcane | 2 nd |
| 4. | Dairy | | |
| a) | | Milk (buffalo and goat) | 1 st |
| | | Milk (cow) | 2 nd |
| 5. | Meat | | |
| a) | | Goat | 2 nd |
| 6. | Fiber | | |
| a) | | Jute | 1 st |
| b) | | Cotton and silk | 2 nd |

Source: FAOSTAT, Food and Agriculture Organization of the United Nations^[6]

Legal Obligation of and Few Policies by Government to develop the Agriculture Sector

Agriculture in India has been always given importance. The Constitution of India protects the interest and development of the agrarian sector in the Directive principles of state policy given in Article 48^[7] and the Fundamental duties guaranteed under Article 51-A(j)^[8].

As agriculture plays a crucial role in the development of the nation. The cumulative effect of Articles 48 and 51A

seems to be that it is the constitutional obligation of the 'State' as well as the 'citizens' to improvise and develop the agrarian sector to grow the nation. Every generation owes a duty to all succeeding generations to develop and conserve the resources of the nation in the best possible way and improve the quality of agriculture and its product.

The government also constantly make efforts to frame policies to reform this particular sector in India. Various government initiatives are as follows:

National Agriculture Policy

The National Policy on Agriculture seeks to actualize the vast untapped growth potential of Indian agriculture, strengthen rural infrastructure to support faster agricultural development, promote value addition, accelerate the growth of agro-business, create employment in rural areas, secure a fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization and globalisation.^[9] The basic aim of this policy was to give benefit to the needy person associated with agriculture as most of the rural population are engaged in the agricultural activity and most of them suffer from food security, unemployment and poor standard of living. Addressing these challenges requires efforts on several fronts like incentive structure, infrastructure, technology, market development, extension, regulations, input supply, tenancy etc. New agriculture policies address the above challenges through efforts in above mentioned areas and also provide direction to the future of agriculture in the country.

Few key feature of National Agriculture Policy

1. The unutilised wastelands were put to use for agriculture and afforestation. Integrated and holistic development of rainfed areas were also promoted and sensitization of farming community with environmental concerns was given priority.
2. A regionally different strategy was adopted for the development of agriculture as per the texture of land.
3. The supply of quality machinery, seeds and chemicals and credit at reasonable rates were given to the farmers.
4. The infrastructure for agriculture and rural development was given importance. Various strategies have been adopted to connect the rural bazaar with the urban market.

5. A need for sustainable agriculture has been given emphasis to ensure the safety of food for the future generation also.

National Policy for Farmers, 2007

The agriculture sector contributes only about 18 percent of the total Gross Domestic Product (GDP), with more than 60% population dependence, resulting in low per capita income in the farm sector.[10] The National Commission of Farmers made a holistic approach to the development of the farm sector and introduced National Farmers Policy in 2007. It aims to improve the economic viability of farming by substantially increasing the net income of farmers. There were reforms to improve land, water, biodiversity and genetic resources which were essential to increase productivity; the support services including provision for seeds, irrigation, and power machinery along with the credit at affordable prices in adequate quantity to farmers; there were provision for safeguarding the livelihood and income security of farmer's families and their health.

The use of Information and Communication Technology (ICT) and setting up of farm schools to revitalize agricultural extension; coverage of farmers under a comprehensive national social security scheme; effective implementation of Minimum Support Price (MSP) across the country and establishing community foodgrain banks; development of agricultural market infrastructure and terminal markets for agriculture; curriculum reforms in agricultural universities etc. were made to improve the development of the agriculture sector in the world.[11]

National Seed Policy, 2002

As Seed is the most important determinant of agricultural production potential, on which the efficacy of other agriculture inputs is dependent, A National Seed Policy, 2002 was formulated in order to encourage the investment in research and development of the agriculture sector, thereby ensuring availability of high yielding varieties of seeds which will lead to higher production and improving the economic condition of the farmers in the country.

The Government has approved National Seeds Policy to provide protection to new varieties of seeds and set up institutes for the planned development of the sector. The policy aims to improve the of quality seeds by the private sector, establishing state seed testing laboratories, access to breeder seed, etc.[12]

The main features of the National Seeds Policy, 2002 include development of new and improved varieties of

plants, timely availability of quality seeds, compulsory registration of seeds, creation of infrastructure facilities, quality assurance, promotion of seed industry, abolition of licensing for seed dealers, facility for import of best quality seeds, encouragement for export of seeds and creation of Seed Banks and National Seed Grid.

National Agroforestry Policy, 2014

Agroforestry is defined as a land use system which integrates trees and shrubs on farmlands and rural landscapes to enhance productivity, profitability, diversity and ecosystem sustainability. It is a dynamic, ecologically based, natural resource management system that, through the integration of woody perennials on farms and in the agricultural landscape, diversifies and sustains production and builds social institutions.[13]

The policy basically aims at Improving the productivity; employment, income and livelihood opportunities for rural households, especially of the smallholder farmers through agroforestry and meeting the ever-increasing demand for timber, food, fuel, fodder, fertilizer, fibre, and other agroforestry products; conserving the natural resources and forest; protecting the environment & providing environmental security, and increasing the forest / tree cover, there is a need to increase the availability of these from outside the natural forests etc.[14]

The National mission for sustainable agriculture[15]

Agriculture productivity depends upon the availability and quality of natural resources like water and soil, thus, for agriculture growth to be sustained there is a need to conserve and make sustainable use of these scarce natural resources through appropriate location specific measure.

Recognizing the adverse impacts of climate change on the agricultural sector, the government of India launched National Action Plan on Climate Change in 2008. This plan, aim at making appropriate adaptation and mitigation strategies for combating climate change related effects on Indian agriculture and thereby warranting food security and enhancing ecological sustainability.[16]

The National Mission for Sustainable Agriculture (NMSA) is one of the creations of the eight missions introduced under the National Action Plan.[17] The strategies and programmes of action delineated in the mission document aim at promoting sustainable agriculture. Sustainable agriculture[18] refers to the successful management of resources for agriculture to satisfy the changing human need while maintaining

ecological balance by avoiding depletion of natural resources. It is the practice of farming which enables to produce healthy food without compromising with the needs of future generation.

NMSA has recognized the following focus areas viz., Dryland Agriculture, Risk Management, Use of Biotechnology and access to Information. The mission aim at enhancing production especially in rainfed areas centring on integrated farming, optimum utilization of water resources, soil health management, and resource conservation, while minimizing environment impact and making agriculture climate resilient by promoting location specific integrated farming so as to reduce vulnerability to extremes of weather, long dry spells, flooding. Also, NMSA seeks to control emission of Greenhouse Gases (GHG) through environment-friendly technologies, judicious use of chemicals and consequently, enhancing soil carbon storage. The key dimensions of NMSA are 'Improved crop seeds, livestock and fish cultures', 'Water Use Efficiency', 'Pest Management', 'Improved Farm Practices', 'Nutrient Management', 'Agricultural insurance', 'Credit support', 'Markets', 'Access to Information' and 'Livelihood diversification'.^[19]

Paramparagat Krishi Vikas Yojana (PKVY)

"Paramparagat Krishi Vikas Yojana" is an elaborate element of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA). It is the cluster based programme for promoting organic farming. Organic agriculture is the holistic method of farming which excludes the use of synthetic inputs like chemical fertilizers, pesticides etc. and rely on eco-friendly low-cost technologies such as organic waste and other biological materials (bio-fertilizers) for increased sustainable production.

The programme aims at encouraging commercial organic production through certified organic farming; pesticide residue-free produce to improve the health of consumers, and motivating the farmers for natural resource mobilization for input production.^[20]

current scenario

Despite having holding a prominent position in the development plans and policies of the government to develop the agrarian sector, still the sector is lacking behind when it comes to the poor, needy people associated with agriculture in India. The farmers on giving bread to others are not able to earn their own bread. Farmers condition as of now in the country is very vulnerable. Due to the hike in price in every phase, the

small scale farmers are buried inside the debt of moneylenders and are led to live mournful life.

The farmers contribution to the life of the people cannot be expressed in words. Their selfless toiling hard work of the farmers to make the country healthy making their condition so pathetic that they are topping themselves. The Farmer Suicide in the country is increasing with an elevating slope. The key reason behind it is the debt from the moneylenders and not able to pay them due to many factors such as natural calamities^[21], new GM seeds^[22] which are costly so the poor farmers are unable to buy them.

As per The National Crime Records Bureau of India report in 2012, 135,445 people committed suicide in India, of which 13,755 were farmers (11.2%)^[23]. The suicide of farmers in the nation is a disgrace to the country.

The rapidly rising population, the law of inheritance and other socio-economic and cultural factors results in subdivision and fragmentation of landholding. In India, a majority of land holdings are not only small in size but they are scattered too. This has made the employment of modern science and technology a challenging task and thereby, reduces the productivity. The 'Indian agriculture has been rightly said "a gamble in monsoon".' Farmers are more reliant on rain for water supply which is uncertain, inadequate and irregular. In most cases, it is not always lack of water but mismanagement of surface and groundwater which causes a shortage of water, problem of water logging, soil salinity and alkalinity.

The storage facilities with the poor farmers are normally very primitive types, consequently, many times the food grains are either spoiled or eaten by rats and insects. Further, inadequate storage facility compels the farmers to sell their produce immediately after the harvest at the prevailing market price. This restricts the poor farmer's income. Colossal (gross) wastage of valuable food grain and another farm output is also one of the results of inappropriate storage.

Rapidly growing population in India call for higher agricultural output. Consequently, in order to increase productivity, the farmers are using excessive fertilizers without caring much for replenishment of soil. This ignorance of scientific knowledge has eroded land quality and depleted soil fertility. Further, to cater the demands of this escalating population has brought every bit of land under cultivation thereby stimulating

deforestation which ultimately affects our ecological system.

To feed the growing population the Green revolution[24] was started by the government. The essence of this revolution was enhancing the productivity for which the use of High Yield Variety (HYV) seeds, chemical fertilizers, extension of irrigation facilities in the form of major, medium and minor projects like tube well etc., synthetic herbicides and pesticides, multiple cropping, mechanization of agricultural operations and other modern agricultural technologies were introduced. The prominence given to chemical fertilizers under green revolution package has led to environment degradation and pollution like depletion of stratospheric ozone layer, nitrate toxication, the release of greenhouse gases etc. causing various health hazards like cancer, respiratory illness, hypertension etc. and damage to aquatic life, soil erosion, and destruction of useful microorganisms, insects and worms in the soil. [25]

The use of modern mechanical instrument under green revolution programme has led to large-scale deforestation which eventually causes the problem of global warming, lowering ground water level, siltation of rivers and dams draught etc.

Moreover, the persistent use of high yield variety (HYV) seed has led to the loss of biodiversity. These early maturing seed (HYV) lacks necessary nutrients for the development of human body and thereby escalating the problems of cardiac disorders, hypertension, night blindness and other eye disorders. Thus, there is a denial of the right to healthy and nourishing food. Malnutrition and susceptibility to infectious disease are the predictable outcomes if we continue to ignore growing nutritious bio diverse crop.

The Green revolution package demands the excessive use of water resources for irrigation purposes. The indiscriminate use and mismanagement of water resources have given rise to the problems of soil salinity, alkalinity, water logging and depletion of ground water at an alarming rate.

From an economic perspective, the new technologies under green revolution package demand a huge amount of investment which can only be, afforded by big farmers. The farmers are required to buy expensive seeds, mechanized equipment, chemical fertilizers etc. which a poor farmer can only dream of. Thus, it is increasing interpersonal inequalities.

Therefore, High-intensity agriculture is not successful in a long run because the benefit of green revolution is masked by the burgeoning problems associated with it.

According to Indian network for climate change assessment report (2007), [26] agriculture is responsible for about 17% of Greenhouse Gases in India. In fact, this sector becomes the largest contributor of GHG, if we combine the emission from the agriculture with the emission caused by deforestation for agriculture, fertilizer manufacturing industries, and agriculture energy use. In such a situation, there is a need that the farm sector is given priority in India's climate mitigation strategy.

The Indian network for climate change assessment (INCCA) report suggests that there is a probability of 10-40% loss in crop production in India by 2080-2100 unless we take mitigation measures and adapt to the global warming.[27] The Intergovernmental Panel on Climate Change (IPCC) in its 5th assessment report estimates that 60% more food will be needed by 2050 given the current trends in food consumption[28]. This means that there will be a considerable threat to the food security of India in future. In such a situation, the govt. must work toward safeguarding farmers, who contribute highly to the GDP and also plays a vital role in the overall labor force in India.

Due to the bulk of uneducated farmers in the rural areas the farmers are not able to use the latest technologies efficiently and due to the lack of proper training and awareness programs, the farmers have a poor market understanding which makes them distress sale and get themselves stuck into the clutches of greedy middlemen. As a result, the poor farmers are deprived of obtaining remunerative prices for their farm produce. Moreover, Farmers are unaware of the price policy and are exploited by several malpractices such as false weight, brokers etc. Despite some mechanization has taken place in the field of the agriculture sector, a majority of farmers in rural areas are still using conventional methods for ploughing, sowing, irrigating, thinning and harvesting. This leads to huge wastage of human labor and low productivity. They do not have enough resources to purchase modern implements and tools such as a tractor, power tiller, combine harvesters, irrigating pumps and other power operated the machine.

Lack of agriculture planning as to "what to produce and where to produce" the farmers grow crops according to their convenience. This results in either excess of production or scarcity.

Conclusion

To conclude, agriculture is the key to the growth and sustainability of Indian economy. However, in spite of such a large contribution of agriculture to the economic development, the urgency to protect, sustain and develop it has been left on the hind side. Under changing agriculture scenario, while the population is escalating expeditiously, the land under cultivation remains the same. Food shortage, thus, becomes inevitable.

Agricultural development is a necessity to enhance productivity and to furnish a source of income to major segments of the population. Revitalization of cooperative institutions, improving rural credit system, human resource development, trade and export promotion, land reforms and develop agriculture research and rural infrastructure are the fundamental issues for the all-round development of agriculture. Efforts are also needed to create awareness among farmers through various programmes.

Despite all the strategies, policies and schemes, the situation seems to be the same with or without it. Most of the time, the government is already aware of the approaching danger (drought or flood), even though it wait for the calamity to strike of as happened in the drought year of 2014 when the farmers suffered heavy loss due to high rain deficit. There is no use of all these development plans if the benefit is not reaching to the intended beneficiary.

Moreover, it has been almost 6 years when National Action Plan for Climate Change was launched, but the government has done nothing since its inception as it is evident from the situation of the poor farmers, who are still at the mercy of the weather.

Also, the National Mission for Sustainable Agriculture under national action plan has been successful in detecting problems faced by Indian agriculture, but the strategies proposed to tackle these challenges are highly technology focused and most of them target only big farmers, while the small and marginal farmers are left vulnerable. Though more prominence has been given to the efficient water utilization, the chemical fertilizers have been largely ignored in the strategies, which is the major driver of increasing demand for irrigation water.

The search is on for practices that can provide increased productivity, preferably comparable to those of high-intensity agriculture but with fewer environmental costs. All the sectors contributing to the economic development are important, but only a well-developed agricultural sector will lead to comprehensive growth.

[1] LETTER TO MAGANLAL GANDHI; August 21, 1910

[2] Siddiqui (1986)

[3] The World Bank Data, available at: <http://www.worldbank.org/en/news/feature/2012/05/17/india-agriculture-issues-priorities> (Last visited on: February 27, 2016)

[4] Provisional Population Totals, Census 2011, p. 160

[5] Economic Survey 2010, p. 180

[6] FAOSTAT, Food and Agriculture Organization of the United Nations, available at: http://faostat3.fao.org/browse/rankings/countries_by_commodity/E (Last Visited On: 1 March, 2016)

[7] Article 48A. Organisation of agriculture and animal husbandry. _ The State shall endeavour to protect, improve and organise the agriculture and animal husbandry on modern and scientific lines.

[8] Article 51-A. (j) citizen to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement

[9] New Agriculture Policy, available at: <http://rrtd.nic.in/agriculture.html> (Last visited on 26 February, 2016)

[10] The National Policy for Farmers, 2007, available at: <http://www.agricoop.nic.in/NPF/npf2007.pdf> (Last visited on: 26 February, 2016)

[11] *Ibid*

[12] The National Seed Policy, 2002, available at: <http://seednet.gov.in/PDFFILES/National%20Seed%20Policy,%202002.pdf> (Last visited on: 25 February, 2016)

[13] The National Agro-Forestry Policy, 2014, available

at: <http://seednet.gov.in/PDFFILES/National%20Seed%20Policy,%202002.pdf> (Last visited on: 25 February, 2016)

[14] *Ibid*

[15] The National mission for sustainable agriculture is envisaged as one of the eight Missions under the National Action Plan on Climate Change (NAPCC) with the objective of promoting Sustainable Agriculture.

[16] The National Action Plan on Climate Change, at Page 5, available at: <http://www.moef.nic.in/downloads/home/Pg01-52.pdf> (Last visited on: 1 March, 2016)

[17] *Ibid*

[18] Gold, M. (July 2009). What is Sustainable Agriculture? United States Department of Agriculture, Alternative Farming Systems Information Center.

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[21] R. (1 January 2013). "The myth of India's 'GM genocide': Genetically modified cotton blamed for wave of farmer suicides".

[22] GLENN DAVIS STONE, Field versus Farm in Warangal: Bt Cotton, Higher Yields, and Larger Questions World Development, Volume 39, Issue 3, March 2011, Pages 387-398

[23] National Crime Reports Bureau, ADSI Report Annual – 2012 Government of India, page xx and 242

[24] The Green Revolution was started in India in 1960 during 3rd Five Year Plan, M.S. Swaminathan was the man who is responsible for it n India (Influenced by: Norman Borlaug)

[25] Vandana Shiva, "Nothing green in the Green Revolution", *India Today*, 13 August, 2015

[26] Indian network for climate change assessment report (2007), available at: http://www.moef.nic.in/downloads/public-information/Report_INCCA.pdf (Last visited on February 29, 2016)

[27] *Ibid*.

[28] Intergovernmental Panel on Climate Change (IPCC), 5th assessment report, available at: http://www.ipcc.ch/ipccreports/far/wg_II/ipcc_far_wg_II_full_report.pdf (Last visited on February 29, 2016)