



SUSTAINABLE AGRICULTURAL DEVELOPMENT: NEED OF HOUR

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ABSTRACT

Agriculture is the 'bread and butter' of 125 crore people of India. But, in last three decades the sector facing so many challenges like, decreasing land area under agriculture, land degradation, soil erosion, drought, moody monsoon, climate change etc. In India, every 32 minutes one farmer was found committing suicide between 1997 and 2005. The first state where suicides were reported was Maharashtra. However, many reasons are responsible for suicides of farmers but main reason is financial problem which is related to sustainable agricultural productivity.

RESEARCH METHODOLOGY: The paper based on secondary data which is collected from the publication of government reports, agricultural statistics at a glance, research articles and books.

OBJECTIVES OF STUDY:

- I. To study the concept of 'Sustainability'.
- II. To overview the contribution of agriculture in Indian economy.
- III. To identify challenges before agricultural development in India.
- IV. To draw the suggestions for sustainable development.

The word 'Sustainable Agricultural Development' is used in the late 1980. It is very vast and dynamic concept. "Sustainability" is one of the buzz-word. Sustainable agriculture uses ecological principles to farm, hence the prefix agro to farm and ecology the science of the relationship between organisms and their environment.

SOME FUNDAMENTAL PRINCIPLES OF SUSTAINABLE AGRICULTURE AS UNDER:

- The farm productivity is enhanced over the long term.
- That adverse impact on the natural resource base and associated ecosystems are ameliorated, minimized or avoided.
- That residues resulting from the use of chemicals in agriculture are minimized.
- That net social benefit from agriculture is maximized. And
- That farming systems are sufficiently flexible to manage risks associated with the vagaries of climate and markets.

For ecological, economic and social sustainability, sustainable agriculture is must. A small farm management to improve productivity, profitability and sustainability of the farming system will go long way to ensure the all round sustainability.

The last six decades agriculture still occupies a place of pride. Table shows the share of Agriculture in National Income in India.

Share of Agriculture Sector in Total Gross Domestic Product (At 1999 prices)Table 1
(In percentage Terms)

Year	Agriculture
1950-51	56.5
1970-71	45.9
1990-91	34.0
2000-01	24.7
2005-06	19.55
2006-07	18.51
2007-08 (2004-05 Prices)	17.8
2008-09	15.7
2009-10	14.7
2010-11	14.5
2011-12	13.9
2012-13	13.6
2013-14	13.5
2014-15	13.4

Source: Central Statistics Organization 2015

The table No.1 shows share of agriculture in total Gross Domestic Product. In 1951, the share of agriculture in GDP was 56.5 percent. At the process of Liberalization, Privatization and Globalization, Industry and Service sector growing rapidly and Agriculture limping along, the percentage share of agriculture in GDP declined and reached a level of 13.4 percent in 2014-15.

Pattern of Investment in Agriculture Sector:

Agriculture sector was composed of agriculture and allied sectors (Animal Husbandry, Fisheries, and Horticulture etc.) and irrigation and flood control.

Table 2
(Rs in Crore)

Plans	Periods	Total Plan Expenditure	Agriculture and Allied Sector	Percentage of Agriculture and Allied Sector to Total Outlay
I st Plan (Actual)	1951-56	1960	600	32
II st Plan (Actual)	1956-61	4670	950	20
III st Plan (Actual)	1961-66	8580	1750	21
IV st Plan (Actual)	1969-74	15800	3670	24
V st Plan (Actual)	1974-79	39430	8740	22
VI st Plan (Actual)	1980-85	109300	26100	24
VII st Plan (Actual)	1985-90	218730	47100	23
VIII st Plan (Actual)	1992-97	475480	101590	21
IX st Plan (Actual)	1997-02	859200	176217	20.5
X st Plan (Actual)	2002-07	1525639	305055	20
XI st Plan (Actual)	2007-12	3676936	723465	19.7
XII st Plan (Actual)	2012-17	7669807	1323119	17.3

Source: Planning Commission, Various Five Year Plan Documents, Economic Survey, 2014-15.

The table 2 shows that, the total expenditure in each plan had increased and correspondingly, the outlay on agriculture and allied sectors to total plan outlay varied between 31 percent and 17.3 percent from the first plan to twelfth plan.

Rural and Urban population in India during 1971 to 2011

Table 3

(In Percentage)

Sr. No.	Year	% of Rural and Urban Population	
		Rural	Urban
1	1971	80.09	19.91
2	1981	76.67	23.33
3	1991	74.29	25.71
4	2001	72.22	27.78
5	2011	68.85	31.15
CGR		-3.56	11.3

Source: Agricultural Statistics at a Glance 2014

The table No. 3 shows that, rural and urban population in India during 1971 to 2011, in rural area population decreases and its compound growth rate is -3.56 during the 40 years. On the other hand, urban population in India is increases and its compound growth rate is 11.3.

Share of GDP at Constant (2004-05) Prices

Table 4

(In Percentage)

Sr. No.	Year	Agriculture	Industry	Service
1	1999-00	23.2	26.8	50.0
2	2004-05	19.0	27.9	53.0
3	2013-14	13.9	26.1	60.0
CGR		-22.6	-1.32	9.54

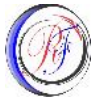
Source: Planning Commission, FICCI

The table No. 4 revealed that share of GDP in agriculture sector is decreases as compare to the industry and service sector During the period 1999-00 to 2013-14 CGR of agriculture, industry and service sector is -22.6, -1.32 and 9.54% respectively.

To conclude, share of agriculture sector in total Gross Domestic Product, pattern of investment in agriculture sector and share of GDP shows decline trend throughout selected period.

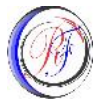
Last few years, the agricultural growth in India has remained stagnant. To achieve prosperity of people dwelling in rural India, it imperative to take some drastic measures, which would agricultural sustainable development.. Since the commencement of 11th five year plan, growth rate of agriculture has virtually remained stagnant. Dr. Manmohan Sing, Hon. Prime Minister of India has appealed to the farming community to work hard for achieve growth rate of 4 percent. But Government has not taken the essential and positive measures for attainment of this objective.

Agriculture production can only be increased by reducing prevailing knowledge deficit of latest agricultural technologies with the farmers. Knowledge deficit can be improved by strengthening of farm technology. Thus Dr. Mohan Dhariya, former president of VANRAI and other organizations suggest some measures.



SOME RECOMMENDATIONS FOR SUSTAINABLE AGRICULTURAL DEVELOPMENT:

- Private individuals of firms lending to farmers should be banned by law and create easily available credit facilities for all needs of agriculture i.e. seeds, harvesting, marketing for having land holding below 2 hectares.
- Before sowing, Government should provide quality seeds, fertilizers, pesticides with more emphasis on organic manures.
- Balanced fertilization is the key for real benefits for agriculture sustainability because, balanced fertilization,
 1. Improves nutrient use efficiency.
 2. Important for desired food quality and premium price.
 3. Improves water quality and water use efficiency.
 4. Reduces the risks of bad weather.
- Due to 65 to 70 percent cultivable land in rain-fed, all inputs made for crops cultivation including the charges for labour should be fully insured.
- Between fields to market, nearly 20 percent agricultural products lost or destroy in transition. It requires necessary arrangement of storage at local places.
- For farmers assurance remunerative support price should be declared much in advance to sowing.
- To protect the interest of both the producers and consumers and abolish existing practice of middlemen, Public Distribution System (PDS) should be strengthened.
- Price Index System for agricultural produce on the basis of inputs required to be made by the farmers is must. It should be introduced for all perishable and non-perishable agricultural produce.
- It is possible to conserve every drop of rainwater, prevent soil erosion and bring most of degraded land or wasteland, it is imperative to introduce scientific Water Shed Management.
- To achieve expected growth rate of agricultural produce it is essential that variety of quality grass cultivations in forest or private lands would considerably enhance production of milks, muttons, wool etc. Deforestation, inadequate land use, unsustainable farming and grazing practices, demographic pressure, markets and legal instruments and climate fluctuation are the main reasons responsible for rising trend in land use degradation.
- Weeds are the major constrains in realizing optimum yield potential which cause a drastic reduction in yield to a level of one third to almost total failure of crop. Weeds 37%, insects 29%, diseases 22%, others 12% are responsible for crop losses in Indian agricultural scenario. Thus weed management is must for increasing agricultural productivity.
- Systematic and scientific plantation of various tree species like teak wood, sandal wood, shisam, bamboo, re sanders etc., which have high commercial value can be raised on large tracks of lands. They could yield lot of revenue in addition to creating employment opportunities and green cover in rural areas. To avoid indiscriminate cutting of trees for domestic purposes and reduce the burden on



forests, small plantations like energy, fuel wood could also be raised in every village.

- It is well established that fields surrounded by wind screens raised by plantation of trees helps to increase the crop yield. This method should also be used to attain higher growth rate in agriculture.

BETTER AGRICULTURAL PRACTICES:

Better agricultural practices are needed to sustainable agricultural growth because excessive use of chemical fertilizers and chemical herbicides has long lasting and deleterious effects on the soil, quality of agricultural produce, health of farmers, consumers and environment.

- Organic farming advocates stopping these drawbacks. Organic farming is practiced in more than 150 countries. In India, about 528117 hectare land is under organic farming. Better agricultural practices should focus on the following areas to achieve the goal of sustainability in agriculture.
- Practices should focus on reduced use of off-farm inputs with less harm to environment and consumers.
- There should be more productive use of biological and genetic potential of plants and animals. Biotechnological tools can help us to create technologies, which have higher potential.
- Efforts should be made to have a better match between cropping patterns and the physical capacity of lands.
- There should be an improved emphasis on conservation of soil, water, energy and biological resources as excessive use of chemical inputs has resulted in degradation of our soil eco-system.
- There should be efforts at every level of farming and more thorough incorporation of natural process always enriches our environment and biodiversity

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