

Policy Interventions for Sustainable Development of Farmers in India: Framework and Perspectives

Dr. Siran Mukerji¹, Dr. Anjana² and Dr. Purnendu Tripathi³

^{1,2}IGNOU RC, NOIDA

³IGNOU, DELHI

E-mail: ¹siranmukerji@gmail.com, ²anjana.virbhan@gmail.com, ³purnendutripathi@gmail.com

Abstract—Agriculture is the mainstay of Indian Economy with 54.6% of the population engaged in agriculture and allied activities (Census 2011), contributing to 17.4% to the country's Gross Value Added (GVA) for the year 2016-17. However, still the socio-economic upliftment of farmers and workers in agriculture and allied services remains the biggest challenge. Although the Government has taken several steps for the sustainable development of this sector including launching a number of schemes in this direction like National Policy for Farmers (NPF) which are being operationalized through various schemes and programmes that are being implemented by different Central Government Departments and Ministries.

Besides, initiatives have been taken with an objective of doubling farmers' income by the year 2022 for which budgetary allocation has been increased to Rs. 211694 crores and important schemes have been launched such as Soil Health Card Scheme, Paramparagat Krishi Vikas Yojana, Soil Health Management Plan, etc.

In the light of the above, the authors make an effort to put forth a comprehensive study of the major concerns and challenges faced by the cultivators in view of the various environmental factors impinging the productivity and livelihood; and to elucidate upon the government interventions in terms of policy, procedures and measures formulated and implemented for the sustainable development of the farmers.

The research paper while examining effectiveness and outreach potential of these national schemes, also suggests and proposes a framework for sustainable development of farmers through effective policy implementation and related interventions.

1. BACKGROUND

Agriculture being a main constituent of GDP of the country with 54.6% of the population engaged in agriculture and allied activities (Census 2011) and it contributes 17.4% to the country's Gross Value Added (GVA) for the year 2016-17 (at current prices). For sustainable upliftment and development of farmers and agriculture labourers in the allied agriculture sectors, the government not only focuses on advancing the agricultural techniques and procedures for enhancing the agricultural produce but it also concentrates on ameliorating

the standards of living of this segment of people by implementing several socially relevant inclusive schemes.

Through 74.5% rise in budget allocation to agriculture and allied sector in the last five years (Rs.2,11,694 crores), apart from promotion of corpus fund in micro-irrigation scheme (Rs.5000 crores) and Rs.10,881 crores in initiating the scheme Dairy Processing and Infrastructure Development Fund in the year 2017-18 Animal Husbandry Infrastructure Development Fund (AHIDF) with an initial budgetary allocation of Rs. 2450 crores, the policymakers are expecting that these contributions would lead towards the overall goal of doubling the income of farmers who form the backbone of Indian agriculture and economy.

2. SOCIO-ECONOMIC BACKGROUND OF FARMERS IN INDIA

While studying the socio-economic background of the farmers, the following four rationales have been identified and studied and these are: Agricultural and Rural Households; Landholding of Agriculture Households; Source of Agriculture Income in Households; and Expenditure on Agriculture and Allied Activities.

2.1 Agricultural and Rural Households:

The total population has increased to 1210.9 million in 2011, out of which 833.7 million are in the rural areas which is 68.9% of the total population. Conversely, when we see the agricultural workers, there were a total of 97.2 million workers in the year 1951 which rose to 263.1 million in the year 2011 showing an increase of 270.57% in the last 60 years.

Table 1: Population of Agricultural Workers (in Million)

Year	Total Population	Rural Population	Total Workers	Agricultural Workers		
				Cultivators	Agricultural Labourers	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1951	361.	298.6	139.5	69.9	27.3	97.2

	1	(82.7)		(71.9)	(28.1)	(69.7)
1961	439.2	360.3 (82.0)	188.7	99.6 (76.0)	31.5 (24.0)	131.1 (69.5)
1971	548.2	439.0 (80.1)	180.4	78.2 (62.2)	47.5 (37.8)	125.7 (69.7)
1981	683.3	525.6 (76.9)	244.6	92.5 (62.5)	55.5 (37.5)	148.0 (60.5)
1991	846.4	630.6 (74.5)	314.1	110.7 (59.7)	74.6 (40.3)	185.3 (59.0)
2001	1028.7	742.6 (72.2)	402.2	127.3 (54.4)	106.8 (45.6)	234.1 (58.2)
2011	1210.9	833.7 (68.9)	481.9	118.8 (45.1)	144.3 (54.9)	263.1 (54.6)

Source: Ministry of Agriculture and Farmers Welfare, "Pocket Book of Agricultural Statistics 2017", p.14.

The state of Uttar Pradesh has highest number of agricultural households i.e. 18.05 million which is 20% of the total number of agricultural households in the country which is followed by Maharashtra where it is 7.10 million. However in the state of Rajasthan, the percentage of agricultural households is highest as percentage of rural households i.e. 78.4%.

Table 2: Estimated Number of Agricultural Households, its Percentage Share in Rural Households in the Major States during the Agricultural Year July 2012-June 2013

State	Estimated no. of Agricultural households (00)	Estimated no. of rural households (00)**	Agricultural households as percentage of rural households (%)
(1)	(2)	(3)	(4)
Andhra Pradesh	35968	86763	41.5
Assam	34230	52494	65.2
Bihar	70943	140611	50.5
Chhattisgarh	25608	37472	68.3
Gujarat	39305	58719	66.9
Haryana	15693	25849	60.7
Jharkhand	22336	37516	59.5
Karnataka	42421	77430	54.8
Kerala	14043	51377	27.3
Madhya Pradesh	59950	84666	70.8
Maharashtra	70970	125182	56.7
Odisha	44935	78120	57.5
Punjab	14083	27552	51.1
Rajasthan	64835	82722	78.4
Tamil Nadu	32443	93607	34.7
Telangana	25389	49309	51.5
Uttar Pradesh	180486	241328	74.8
West Bengal	63624	141359	45.0
All India*	902011	1561442	57.8

*All India figures include all States and UTs which are not shown in the Statement. **The estimate of rural households as per the results of the Land and Livestock Holding Survey of NSS 70th round.

Source: Key Indicators of Situation of Agricultural Households in India NSS 70th Round January – December 2013", December 2014, pp.9-10.

The highest number of agricultural and rural households has been reported in the state of Madhya Pradesh which is 15.25 % of the total number of agricultural households and 14.28% of the rural households in the country. The state of Uttar Pradesh has highest number of agricultural households as well as rural households in SC, OBC and other categories of social groups in the country.

2.2 Land Holdings of Agricultural Households:

There are 31.48 million agricultural households that possessed 0.41 to 1 hectare land for agriculture followed by 28.77 million with 0.01 to 0.40 hectare agricultural land.

Table 3: Per 1000 Distribution Of Agricultural Households By Type Of Land Possessed And Number Per 1000 Of Agricultural Households Operated Any Land For Agricultural Activities For Each Size Class Of Land Possessed

Size class of land possessed (ha)	Per 1000 distribution of agricultural households by type of land possessed					Estd. No. of agricultural households (00)
	Homestead only	Homestead and other land	Other land only	No land	All (incl. nr)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<0.01	703	233	11	24	1000	23890
0.01-0.40	100	895	5	0	1000	287663
0.41-1.00	29	965	5	0	1000	314811
1.01-2.00	20	976	1	0	1000	154577
2.01-4.00	19	974	6	0	1000	84345
4.01-10.00	20	972	9	0	1000	33019
10.00+	2	941	57	0	1000	3706
All sizes	67	926	5	1	1000	902011

Source: Key Indicators of Situation of Agricultural Households in India NSS 70th Round January – December 2013", December 2014, p.A-5.

It is also found that 17.6% agricultural households belonging to ST social group possessed land in the size class of 1.01 to 2 hectare. Similarly in SC social group, it is 28% which possessed less than 0.01 hectare land and in OBC, this stands at 52.8% for size class of more than 10 hectare of agricultural land.

Table 4: Per 1000 Distribution Of Agricultural Households By Social Group For Each Size Class Of Land Possessed

Size class of land possessed (ha)	Per 1000 distribution of agricultural households by type of land possessed					Estd. No. of agricultural households (00)
	ST	SC	OBC	Others	All	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<0.01	94	280	522	104	1000	23890
0.01-0.40	97	224	446	233	1000	287663
0.41-1.00	157	159	452	232	1000	314811
1.01-2.00	176	109	455	260	1000	154577
2.01-4.00	138	77	472	313	1000	84345
4.01-10.00	80	62	444	414	1000	33019
10.00+	32	29	528	411	1000	3706
All sizes	134	163	454	249	1000	902011

Source: Key Indicators of Situation of Agricultural Households in India NSS 70th Round January – December 2013”, December 2014, p.12.

As per the Census 2011, out of the total female main workers, 55% were agricultural labourers and 24% were cultivators. However, only 12.8 % of the operational holdings were owned by the women (Table 5) which shows gender disparity in ownership of land holdings in agriculture.

Table 5: Percentage Of Operational Land Holdings Owned By Women In Agriculture

Size Group (in ha)	2000-01	2005-06	2010-11
Less than 1.00	11.8	12.6	13.6
1.01-2.00	10.3	11.1	12.2
2.01-4.00	8.7	9.6	10.5
4.01-10.00	6.9	7.8	8.5
10.00+	5.2	6.0	6.8
All sizes	10.8	11.7	12.8

Source: Economic Survey 2017-18 (Agriculture Census 2010-11), p.103.

In order to reduce this disparity and increase the contribution of women in agriculture and allied activities and also ensure empowerment of women in rural agricultural households, the Government of India has undertaken following measures:

- Earmarking at least 30% of the budget allocation for women beneficiaries in all ongoing schemes, programs and development activities;
- Initiating women centric activities to ensure benefits of various schemes/programs reach them;
- Focusing on women Self Help Groups (SHG) to connect them to micro-credit through capacity building activities and to provide information and ensuring their representation in different decision making bodies; and
- Recognizing the critical role of women in agriculture, the Ministry of Agriculture and Farmers Welfare has declared 15th October of every year as Women Farmer’s Day.

Table 6: Percentage Distribution Of Operational Holders In Each Size Groups By Educational Status

Size Group (in ha)	Total number (in %) of operational holders	Educational qualification of operational holders						
		Illite rate	Upto Class V	Middle	Secondary	Senior Secondary	Technical Diploma below degree level	Graduate & above
Less than 1.00	100	31.3	22.2	23.4	15.3	4.8	1.2	1.8
1.01-2.00	100	30.2	23	21.5	15.5	5.8	1.4	2.6
2.01-4.00	100	28.9	23.2	21.7	15.8	6.2	1.2	2.9
4.01-10.00	100	28.6	23.6	20.5	15.8	6.4	1.4	3.6
10.00+	100	31.1	22.5	18.8	15.4	6.1	1.6	4.6
All sizes	100	30.7	22.5	22.7	15.4	5.2	1.3	2.1

Note: total may not tally due to rounding off.

Source: Ministry of Agriculture and Farmers Welfare, Government of India, “All India Report on Input Survey 2011-12”, 2016, p.31.

As is seen from Table 6, about 69.3 percent of the operational holders are literate, 22.5 percent studied up to class V, 22.7 percent up to middle class, 15.4 percent up to secondary, 5.2 percent up to senior secondary, 1.3 percent technical diploma holders below degree level and rest 2.1 percent has graduation and above.

Table 7: Percentage Distribution Of Number Of Operational Holders Into Different Age Groups

Size Group (in ha)	Total number (in %) of operational holders	Up to 30 years	31 - 40 years	41 - 50 years	51 - 60 years	61 - 65 years	66 years and above	Average age (in years)
Less than 1.00	100	3.2	12.1	34.7	34.1	9.9	6	50.08
1.01-2.00	100	4.3	14.7	32.5	30.7	11.4	6.4	49.61
2.01-4.00	100	4.4	12.7	31.4	31.6	12.1	8.1	50.47
4.01-10.00	100	3.6	12	29.1	32.5	13.1	9.7	51.23
10.00+	100	2.8	9	27.5	33.6	14.3	12.7	52.72
All sizes	100	3.5	12.6	33.7	33.2	10.5	6.5	50.1

Note: (1) Total may not tally due to rounding off. (2) Figures in Col.3 to 9 are percentages.

Source: Ministry of Agriculture and Farmers Welfare, Government of India, “All India Report on Input Survey 2011-12”, 2016, p.31.

In the Table 7, the percentage distribution of number of operational holders into pre-defined age-groups may be seen. The average age of an operational holder was estimated at 50 years while maximum number of operational holders (33.7 percent) belonged to the age group (41 – 50) years, followed by (51 – 60) years (33.2 percent), (31 – 40) years (12.6 percent) etc., lowest being in age group – up to 30 years (3.5 percent).

1.3 Source of Income of Agricultural Households

As per NSS 70th Round January – December 2013, the principal source of income of 63.5% of agricultural households is cultivation, followed by wage or salaried employment (22%) and the least being 1.1% from other agricultural activities. The state with the highest source of income coming from cultivation is Telangana with 86.8% which is followed by 80.5% in Chhattisgarh. Conversely, amongst wage and salaried category in all the states, the 33.4% agricultural households in Rajasthan draw their income from wage and salaried employment.

1.4 Expenditure on Agriculture and Allied Activities

This section delves on the expenditure by the Government of India on agriculture and allied activities. According to the Ministry of Agriculture & Farmers' Welfare Report "Accounts at a Glance 2017-18", there has been a continuous increase in the outlay and expenditure in the Department of Agriculture and Research (DARE) in the last five years. However in the other two departments i.e. Department of Agriculture, Cooperation and Farmers' Welfare (DAC&FW) and Department of Animal Husbandry, Dairying and Fisheries (DAHD&F) there has been initially an increase in years 2013-14 and 2014-15, thereafter there has been a decline in both the outlay as well as expenditure in the year 2015-16, which again increased in the years 2016-17 and 2017-18.

3. PROBLEMS AND CHALLENGES FACED BY THE CULTIVATORS

Natural Calamities: Natural calamity is one of the most serious challenges experienced by the farmers of the country. The farmers face huge crop losses due to drought, floods, cyclones, storms/hailstorms/cloud bursts, fires, landslides, tsunami, and earthquakes whose frequency and intensity has increased in recent years. According to study, during drought period, agriculture absorbs up to 84 percent of all economic impacts. Within the agricultural sector, 42 per cent of assessed losses were that of crops.

Low productivity: According to OECD data, average yield of wheat in India was 3.1 tonnes/ha in the year 2017 which was below the world average of 3.4 tonnes/ha. Even in case of rice, soybean and maize production, the average yield of India is lower than the world average.

Lack of Irrigation: The need for use of lesser amount of water for irrigation is being felt by the farmers in general, however in practice it is not so. In India, some of the regions such as Vidharba, Marathwada, Bundelkhand, Rayalseema, South and north interior Karnataka and western Rajasthan, there is acute water shortage due to low and erratic rainfall.

Low level of formal education and skills: The low level of education and lack of related skills has serious implication on the level of awareness of these operational holders regarding bio-fertilizers, new agricultural technologies including the mobile apps, portals, farmers' websites, etc, marketing information, schemes of the government, funding agencies, social upliftment interventions, etc..

Crop destruction: Crop destruction due to natural calamities, pest infestation, sudden climate changes is a common factor challenging the livelihood of Indian farmers. Lack of awareness towards the schemes related to crop insurance or delayed insurance of crops results in heavy losses which are to be borne by the farmers resulting in multifarious socio-economic problems such as farmers' suicide, indebtedness, migration to urban areas, exploring alternative avenues of livelihood thus leaving farming as a main occupation.

4. INITIATIVES AND INTERVENTIONS FOR THE SUSTAINABLE DEVELOPMENT OF THE FARMERS

Soil Health Card Scheme: This national level scheme for soil health testing was launched 19th February 2015. Under this scheme, soil health card is being issued every two years to all the agriculture land holders with the objective to provide to the farmers crop specific nutrient recommendation

Soil Health Management Plan: Under this scheme, the Ministry establishes various kinds of new soil testing laboratories along with strengthening the existing laboratories. This includes static, mobile and mini laboratories for the benefit of the farmers and in order to enhance the outreach of the scheme to the end users. Paramparagat Krishi Vikas Yojana: The main objectives of this scheme are: to promote the use of natural resources based on integrated, sustainable and climate friendly farming practices; to reduce the dependence of the farmers on external inputs, promotion of soil fertility, natural resources protection and nutrient recycling; reduce the cost of agricultural production of farmers; to promote use of cost effective farm friendly technologies; to provide financial assistance of Rs. 50,000/- per cluster and to provide financial assistance of Rs. 1,20,000/- to each cluster for storage of organic products and transportation to the markets.

National Agriculture Market (e-NAM): This scheme links 585 wholesale APMC (Agricultural Produce Market Committee) mandis across the country through a common e-platform. Another objective of this scheme is to facilitate assaying of

commodities for trading on e-NAM. So far, common tradable parameters have been developed for 90 commodities.

Pradhan Mantri Fasal Bima Yojana: This crop insurance scheme of the Government covers all risk of crop cycle, preventive sowing, risk to standing crops, and post harvest losses meant for all food grains, oil seeds and annual commercial/horticultural crops..

Pradhan Mantri Krishi Sinchayee Yojana – Micro Irrigation: This scheme has two major components: to adopt and encourage use of drip and sprinkler irrigation system; and development of small water resources. Funds are also being made available on low interest to the states for encouraging modern irrigation methods such as drip and sprinkler irrigation through public and private investment.

National Food Security Mission (NFSM): This includes initiating a special scheme under RKVY known as “Targeting Rice Fallow Areas in Eastern India for Pulses” in Rabi 2016. The year 2018-19 has been declared as Millet Year (Nutri Cereal). As a part of NFSM, the Government has launched the National Oilseeds and Oil Palm Mission (NMOOP).

Agriculture Mechanization: The need for providing support to small and marginal farmers for enhancing mechanization in the field of agriculture, the Government of India initiated a number of schemes. Thus more funds were allocated for this important function and more number of machines was distributed to the farmers in order to promote agricultural mechanization.

Model Contract Farming Act 2018: Under this Act, for the first time in the country, farmers and agriculture based industries have been linked. It is expected to generate employment opportunities in rural areas apart from enhancing the income of the farmers from agricultural commodities. In order to organize the farmers, FPCs or FPOs will be encouraged.

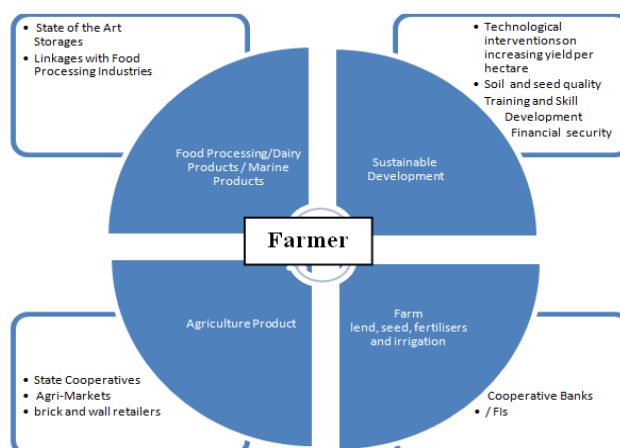
Dairy Development: With the aim of doubling the income of dairy farmers and accelerating the efforts made under white revolution, the Dairy Processing and Infrastructure Development Fund (DIDF) scheme has been established in the year 2017-18 with a total fund of Rs.10,881 crores. Under this scheme, loan is provided at a subsidized rate of 6.5% per annum to the milk cooperative institutions through NABARD.

National Livestock Mission: National Livestock Mission (NLM) has commenced from the year 2014-15 with the objective of covering all the activities required to ensure quantitative and qualitative improvement in livestock production systems and capacity building of all stakeholders.

Animal Husbandry Infrastructure Development Fund: Financial assistance under this fund will be provided to develop infrastructure in animal husbandry sector, apart from promotion of entrepreneurship for small animals and poultry. Thus helping in doubling the income of the farmers of the country.

5. SUMMARY AND CONCLUSION

Since agriculture in India has a major role to play in furthering the Indian economy and 54% of the population is engaged in agriculture and allied activities, the Government of India in the last decade has initiated numerous plans and schemes for the upliftment of the farmers so as to ensure sustainability in the growth and development of the sector. Soil Health Card Scheme, Paramparagat Krishi Vikas Yojana, National Agriculture Market, Pradhan Mantri Fasal Bima Yojana, Pradhan Mantri Krishi Sinchayee Yojana are some of the principle governmental interventions that have been implemented for improving the livelihood of the farmers which in turn is having positive implications on the agriculture sector as a whole in the country. In addition to these, budgetary allocations have been made by the government in a number of boards/funds such as National Horticulture Board, Coconut Development Board, National Bee Board, National Oil Seeds and Oil Palm Mission, DIDF, AHIDF, etc for holistic growth and development of agriculture and allied sectors. More so, based on the deliberations held in this paper, it has been indeed felt that there should be a progressive framework for sustainable development of farmers and agriculture workers in agriculture and allied sectors combining government initiatives, cooperative bodies, financial institutions and integrated marketing of agriculture produce. A model in progress for the framework is represented below:



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