

1. The paper title: Agricultural crisis in India, Sustainable Development of Small and Marginal farmers

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Agricultural crisis in India, Sustainable Development of Small and Marginal farmers

1.00 Introduction

There are more than 450 million smallholder farmers around the global level, most of whom have family farms of less than 2 hectares of land. In many regions of the world, smallholders are the main producers. They contribute about 25% of the world's food supply and represent an important part of the solution for achieving a world free from poverty and hunger, major aims of the UN's Sustainable development Goals to achieve by 2030. (<http://www.syngenta.com/site-services/our-stories/empowering-family-farmers>)

Indian agriculture is the home of small and marginal farmers. Therefore, the future of sustainable agriculture and food security in India depends on the performance of small and marginal farmers. The share of agriculture and allied activities in the GDP declined from 57.7 percent in 1950 -51 to 15.7 percent in 2008-9. Structural composition of the economy would shift furthermore strongly towards services sector, whose share would expand to 70% by 2040, while that of agricultural sector would drop progressively to much below 6 to 7% and industry sector would contribute to not more than 25% in India.

This paper examines agricultural crisis and problems of small and marginal farmers in India, and paper suggests measures for sustainable development of small holdings in the country. The study is based on secondary data collected from various sources such as government reports, journals, newspapers, books and website data etc.

1.1 Sustainable Development of Agriculture

Sankar (2011) has discussed concept of sustainable development. The Brundtland Commission (World Commission on Environment and Development, 1987) defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The UN bodies and many governments consider three dimensions of sustainable development-economic, social and environmental. Economic efficiency is necessary for achieving the maximum possible growth with limited resources. The social dimension is in terms of equity, particularly intra generational equity. Poverty eradication is one of the Millennium Development goals (MDGS); it has become a global public good by global public choice. .

At present, we need to achieve UN's Sustainable development goals at global economy by 2030. The major goal of India's development had been economic growth. The 11th five year plan (2007-12) focused on 'faster and inclusive growth'. An important aspect of inclusive growth in the 11th plan is the target of 4 percent per annum growth in GDP from agriculture and allied sectors. The 12th five year plan (2012-17) is going to focus on small and marginal farmers and resource poor regions.

1.2 Scenario of agriculture in India

As per UN's body Food and agriculture organization (FAO), India accounted for 2.3 percent share in world's total land area and 17.5 percent of world's population. The share of agriculture and allied sectors in GDP stands at less than 15%, while near about 50% of the workforce is still engaged in agriculture. (See table 1.)

Table 1. Share of population dependent on Agriculture (%)

Sector wise population	1960-61	2013-14
Agriculture & allied	60	49
Industry	16	24
Services	24	27
Total	100	100

Source: India Today, August 11, 2014

Crop yield per unit area of all crops has grown since 1950, due to the special emphasis placed on agriculture in the five year plans in India. However, Agriculture product has been increased since green revolution in India due to improvements in irrigation, technology, application of modern agricultural practices and provision of agricultural credit and subsidies. The states of Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Andhra Pradesh, Telangana, Bihar, West Bengal, Gujarat and Maharashtra are key contributors to Indian agriculture.

During 1950-51, the primary sector was contributing 51.9 percent of the country's GDP (at factor cost and at 2004-05 constant prices), which declined to 29.5 percent by 1990-91 and has shrunk further to 13.7 percent by 2012-13. Further, the share of 'agriculture' alone was recorded at a low of 11.6 percent in 2012-13, from a much higher share of 41.8 of the GDP percent during 1950-51. (Acharya 2014). Since 1960, the share of agriculture sector in the overall GDP of the economy has been declined due to the increasing contributions of other sectors, industry and services sectors. (see table 2.)

Hon. ble Governor of Chhattisgarh, Dutt, Shekhar (2014). delivered the Chancellor's Address at the 2nd Convocation of Technical University at Bhilai, on 28th January, 2014. The Government of India has announced a national manufacturing policy in year 2011 with the objective of enhancing the share of manufacturing in GDP to 25% within a decade and creating 100 million jobs. .

Table 2. Share of agriculture in GDP (%)

Sector	1960-61	1999-2000	2013-14
Agriculture allied	49	23	14
Industry & Services	51	73	86
Total	100	100	100

Source: India Today, August 11, 2014.

In 2013-14, total food grain production has been estimated at 265.6 million tones as per the second Advance Estimates (AE), which is higher by 8.5 million tones than the 2012-13 production and 22.1 million tones than average food grain production during the last five years. (GOI, Economic Survey, 2015). India's food grains production remained stagnant at approximately 252 million tons (MT) during both the 2015-16 and 2014-15 crop years. India exports several agricultural products to the Middle East, Southeast and East Asian countries. It earns about 10 percent of its export from this trade. Since 1991, the new economic policy has been adopted by the government for economic reforms. After liberalization; foreign direct investment has come into industry, which has boosted manufacturing and exports. Economic reforms have largely neglected the agricultural sector and only in the last few years have domestic and external trade reforms in the sector started in India.

1.3 Agriculture growth:

The planning Commission fixed a target growth rate of four percent per annum for the 11th plan. The target of four percent growth in GDP from agriculture and allied sectors was felt necessary to achieve overall GDP growth target of nine percent per annum without undue inflation and generate exportable surplus. More than twenty years of economic liberalization policy had adversely affected the Indian agriculture. The most prominent sign of this is in the drastic decline in the growth rate of food grains. In fact, the annual average growth rate of primary sector during the decade of 1980s was 4.74 percent compared to 2.78 percent, during the decade of 1950. Joshi, P.K (2015) has presented Presidential Address at the 74th annual Conference of the Indian society of agricultural Economics held on December 18, 2014 at Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. Joshi says that at the macro level, investment in agriculture has increased from 12 percent in 2005-06 to the current of the agricultural gross domestic product (GDP). Consequently, agricultural growth peaked at 4 percent during the eleventh five year plan, and food grain production reached a record level of 264.38 million tons in 2013-14.

1.4 Agricultural crisis in India

National Bank for Agriculture and rural Development (NABARD) is an apex development financial institution in India at Mumbai with branches all over India. The Chairman of NABARD bank, Bhanwala Harsh Kumar (2015) delivered the Convocation address at the 46th

Convocation of Acharya N.G.Ranga Agricultural University, Guntur, Andhra Pradesh on September 09-, 2015. Bhanwala says that agriculture to be the major source of livelihood of a larger proportion of our rural households. With the marginalization of land holdings, limited access to resources, declining net income, limited weather proofing, lack of social sharing of risk, climate change related problems, agriculture has become more susceptible to distress. The small sizes prevent farmers from adopting improved agricultural technologies and create barriers for accessing credit and adopting improved agricultural practice (.Sankar, 2011). Many farmers are not aware of crop rotation, techniques of production and schemes provided by the government in agricultural sector due to illiteracy, ignorance of farmers.

There are 1.2 billion people in developing countries living on less than \$1.25 a day and India tops the list with 32.8% of the world's extreme poor living here. (Sunday Times of India, January 11, 2015.).Most of the small and marginal farmers are living below the poverty line in various states of the country. These states were largely confined to Eastern India (Bihar, Odisha, Uttar Pradesh, West Bengal, and Jharkhand), Northeast India (Mizoram, Meghalaya and Tripura), and Central India (Madhya Pradesh and Chhattisgarh).These states have 53 percent of smallholders and account for about 70 percent of poor people. Agriculture in these states is largely at subsistence level. Average landholdings in these states are too small to generate enough income, and the smallholders do not have access to adequate and assured services, markets, and finances (Joshi, 2015).

At present, farmer's suicides is a serious problem in India due to crop damage on account of ultimately wet season and other related reasons occurring during March 2015. According to the National Crime Record Bureau figures quoted by Union agriculture Minister Radha Mahan Singh while replying to a question in Rajya Sabha on March 20 this year, the number of suicides committed by persons self-employed in farming/agriculture in 2011, 2012& 2013 was 14, 027, 13,754 and 11,772 respectively. Singh also gave figures for farmer suicides specially attributed to agrarian distress, as reported by states (Bhattacharya, 2015).

How to prevent farmer's suicides in India today. Changing rainfall patterns, droughts, and floods have in the past adversely affected food production and led to agrarian distress, often leading to indebtedness by farmers and sometimes suicides in some regions. An increase in the incidence of such extreme events, including rises and falls in temperature and frost, have setback technological advances and adversely affected agricultural production (Joshi, 2015).In recent years, farmers' suicides have increased in some parts of states. Particularly it is notable in Andhra Pradesh, Maharashtra, Karnataka, and Kerala. The official estimates show that the number of suicides is more than 9000 in these four states. This is one of the darker sides of Indian agriculture. (Dev, 2007). Increased indebtedness is noted as a major reason for the spurt in farmer suicides during recent times across a number of states. Many states including Punjab, Andhra Pradesh, Karnataka, Maharashtra and Kerala have recorded a spurt in distress driven suicides among farmers. In most, if not all, such cases, the economic status of the suicide victim was very poor, being small and marginal farmers. (NCEUS, 2008).

About 45 percent of cropped area in the country is irrigated. Irrigation facilities that are currently available do not cover the entire cultivable land .Apart from the areas where perennial rivers flow; most of the agricultural fields do not have irrigation facility. Though various states have plenty of surfaces and groundwater that is underutilized, the irrigation system is inefficient and underdeveloped. In India, out of the net sown area of 141 million hectares just 65 million hectares is the net irrigated area. This means that about 54% of the sown area is dependent on rains.

However, yield of major crops is very low in India, as compared to other countries in the world. Yield of cereals (include wheat, rice, maize, burley, millet, sorghum and mixed grains), for example, measured in terms of kilograms per hectare of harvested land in India's very low at 2962 kg as compared to Brazil (4826kg), China (5891 kg), South Africa (3725kg), even lesser than that of our neighboring countries like Myanmar (3641kg) and Bangladesh (4357kg) and less than half of developed countries like US (7340kg), UK (6630kg) and Korea (6489kg). There are various factors for low yield's in India such as (i) bio- physical factors such as nutrient deficiencies and imbalances, water stress, flooding, suboptimal planting (timing or density), soil problems, weed pressures, insects, diseases, seed quality, etc and (ii) socioeconomic factors such as risk aversion habit, insufficient credit, limited time devoted to activities, lack of knowledge on best practices, profit maximization approach (Bhanwala, 2015). At present, about 57 percent of the geographical area in India is either decertified or degraded by various factors such as Water erosion, wind erosion, vegetal degradation, frost shattering mass movement, salinity/alkalinity, rocky/barrier, water logging, others. (Sankar, 2011).

Electrification, which is essential for agro-processing, is underdeveloped in various states of India. Joshi (2015) pointed out that only 52 percent of the total inhabited villages electrified in Bihar and 60 percent in Odisha, much lower than the all-India level (81Percent) by 2008.. At present, there are a number of agricultural insurance products, but these are neither attracting farmers nor the insurance industry. However, most of the farmers who are able to generate some marketable surplus, are not able to sell their produce in the mandi efficiently due to various problems associated with the Indian marketing system. (Mani, Mohanty and Ashok, 2015). Most important problem for the small farmers is output price fluctuations. There is a big gap between producer prices and consumer prices. (Dev, 2012}. Infrastructure such as rural roads, electricity, retail markets, product storage and other services are inadequate.

In general, it has been found that small and marginal farmers, although, have higher productivity from small holdings compared to large holdings, and have low marketable surplus and profit. The lack of information on agro-ecology and the high demand for management skills are major barriers to the adoption of sustainable agriculture which can be attained only by skilling manpower. (Bhanwala, 2015).

1.5 Status of Small and Marginal farmers in India

Agriculture is dominated by small farmers, with small landholdings in India. It has been observed from table 3 that nearly 70 percent of the operational holdings were marginal holdings with size less than one hectare another 16 percent were small holdings with size between 1-2 hec. in 2002-03. National sample Survey Report No.492, of the government of India pointed out size of farm in India. However, Sankar' (2011) has referred this report which has shown in the following table.

Table 3. Small and Marginal holdings in India 2002-03

Size of farm (hectare)	1960-61	2002-03
Marginal (less than 1 hec.)	39.1	69.8

Small (1-2 hec.)	22.6	16.1
Semi-medium (2-4 hec.)	19.8	9.0
Medium (4-10 hec.)	14.0	4.3
Large (more than10 hec.)	4.5	0.8

Source: (Sankar, 2011,)

During the last three decades, the number of smallholder farmers increased by 77 percent from about 66 million in 1980-81 to 177 million in 2010-11. They now account for about 85 percent of the landholdings in India, compared to 74 percent in 1980-81. According to Joshi's study (2015), the share of smallholders in total holdings was equal to more than 95 percent in the states of Bihar, Daman & Diu, Jammu & Kashmir, Kerala, Tripura, and West Bengal during 2010-11. Agriculture is dominated by small farmers, with small landholdings in India. Mashelkar Raghunath (2015) delivered the Convocation address at the 30th Convocation of Mahatma Fule Krishi Vidyapeeth Maharashtra on 28th February, 2015. According to Mashelkar, The average size of the landholdings decreased from 2.36 ha. (1970) to 1.32 ha (2000) and is likely to be reduced to 0.68 ha. (2020) and then to 0.32ha. (2030).

A recent survey report of the National Sample Survey Organization (NSSO) has shown the present position of small holders in India. A revealing data collected in 2012-13 shows the shocking condition of farmers owning less than a hectare of land. (Sunday Times of India, April 12, 2015). Although such small holders make up nearly 83% of cultivator households, their average monthly income expenditure shows that their expenditure is more than income (See Table 4).

Table 4 -Income and Expenditure of small holders 2012-13

Particulars	Marginal farmers	Small farmers	Big farmers
Land Holding	Up to 1ha	1-2 ha	Over 10 ha.
Proportion of all farmers	75%	10%	0.24%
Share of land owned	30%	24%	6%
Average .Monthly income	Up to Rs.5,247	Rs.7,348	Rs.41,388
Average monthly expenditure	Up to Rs.6,020	Rs.6,457	Rs.14,447
Average investment in productive assets	Up to Rs540	Rs422	Rs 6,987
Average savings/ deficit	Up to Rs.1,500	Rs.439	Rs19,954

Source; Sunday Times of India, April 12, 2015

Pramod Kumar Joshi of the International Food Policy Research Institute says that they succeed because the big farmers have a large area under cultivation, yielding more marketable surplus and they can bargain for more remunerative prices for their produce."Small holders have low production (due to less area) and, thereby, less marketable surplus. Their transition costs are very high. Large farmers also have access to credit, extension, technology, which the small holders do not,' (.Sunday Times of India, April 12, 2015)

1.6 Problems of Small and Marginal farmers in India.

There are various problems of small and marginal farmers in India. Some major problems are as follows.

Lack of literacy and skills

Small and marginal farmers are facing the problem of illiteracy and skills. Education and skills are pre-requisites for improving farming practices, investment and productivity .Dev (2012) has shown that the rate of literacy is lower for small –holding farmers compared to medium and large farmers. Literacy rates among males and females for marginal farmers respectively were 62.5 percent and 31.2 percent while the corresponding numbers for medium and large farmers were 72.9 percent and 39 percent respectively. Therefore, they are unable to know access to agricultural technology advices due to illiteracy.

Inadequate Irrigation facilities:

Water is the leading input in agriculture. Development of irrigation and water management are crucial for raising levels of living in rural areas. Irrigation facilities are inadequate, as revealed by the fact that only 46% of the total cultivable land was irrigated as of 2016, resulting in farmers still being dependent on rainfall, specially the monsoon season, which is often inconsistent and unevenly distributed across the country. Rainfed agriculture is generally done by small and marginal farmers. (Agrawal, Rao, Bhattacharya, 2012)

Lack of implementation of programmes

The Government of India has been introduced various programmes since 1951 under five year plans in order to develop agriculture sector in the country. The Government has implemented agricultural debt, waiver and debt, relief scheme in 2008 to benefit over 36 million farmers. However, most of the subsidies and welfare schemes have not implemented properly, welfare schemes by the central and state governments do not reach the poor farmers. On the contrary, only rich farmers are benefitted by those schemes. Institutional finances are not adequately available and minimum support price fixed by the government do not reach poor farmers. Smallholders face numerous constraints such as inadequate access to improved seeds, information, markets, and finance to achieve potential yields. They are also deprived of adequate and assured irrigation facilities.

Credit and Indebtedness

Indebtedness is the main problem of small and marginal farmers in India. Financing is an important driver for the growth of the agriculture sector. Smallholders lack the financial

resources to improve land or purchase crop insurance and have limited access to formal credit. They face the problem of indebtedness and debt burden. Lack of banking information and financial illiteracy among small holders is also leading to low financing.

Farmer's Suicides

In the era of liberalization policy, the cropping pattern of farmers has been shifted from staple crops to cash crops like oilseeds and cotton. Cash crops are required high investment in modern inputs and wage labour, and increasing credit needs but when the prices declined farmers had no means to supplement their incomes. When crops failed and prices went down they had no means to repay the loans. Further, unlike the industrialists, farmers do not have access to debt relief under any law. In most cases, the suicide victims were small and marginal farmers who could not sustain frequent price shocks (NCEUS, 2008). Indebtedness has been highlighted as the prime cause and leading public intellectuals have called for an end to the "debt deaths" So poorer households have a higher debt burden. This is true for both in Institutional and non- institutional debt. (The Indian Express, July21, 2015).

Real estate people

The government is acquiring fertile land from farmers at lower price for development of roads and transport facilities in the country. Besides, small and Marginal farmers sell fertile land best suited for agriculture purpose at low prices to real estate people like agents, contractors, builders, later on, who prepare plots and give attractive advertisements to sell at exorbitant prices. Desarda(2017) has noted the present position of farmer's struggle in Madhya Pradesh and other states in India.

Lack of bargaining power

According to Joshi's study (2015), smallholders encounter four key marketing constraints in comparison to large farmers, relatively lower marketable surplus, lower bargaining power in influencing output prices, higher transaction costs, greater price volatility, especially of perishable commodities, underdeveloped markets in smallholder-dominated areas. The lower share and volume of marketable surplus and heterogeneous products are a disadvantage to smallholders due to high transaction costs and lack of bargaining power. Exploitation by the middlemen is the reason put forth for not getting the best price for the agricultural product of small farmers.

Patchy and inadequate rainfall

Farmers are facing the problem of patchy and inadequate rainfall in India. The distinguishing feature of the drought in the country is the extent to which rainfall has varied across states. The Indian Metrological Department's (IMD) data between June and September 2015 shows that rainfall has so far been 15 percent below the long-period average (LPA) in the country, but in East and North East India, it has been almost normal. Indeed, there have been flood in parts of Assam. At the same time, large parts of Karnataka, Andhra Pradesh, Telangana and Maharashtra have been hit far more than the average indicates. (Mathew, 2015). Deterioration in soil and water quality has been reported to generate adverse effects on agriculture's production potential. Declining land holding further compounds the problems of smallholders. According to Joshi's study (2015), more than 57 percent of the total reporting area in India is characterized as degraded land as against 17 percent at the global level. In fact, nearly 120.72

million ha. of land in the country is degraded due to soil erosion and about 8.4 million ha. has soil salinity and water-logging problems. About 40 percent of all districts are affected across the country and experts believe the drought may impact at least 10 percent of country's agricultural production. (See table 5).

Table.5 Patchy and inadequate rainfall in India during 2015

Region	Actual Rainfall (mm)	Normal Rainfall (mm)	Departure from LPA
Entire country	661.4	775.7	-15%
Northwest India	459.2	550	-17%
Central India	696.3	867	-20%
South peninsula	497.6	599.9	-17%
East & Northeast India	1179.8	1233.8	-4%

LPA-Long period Average, Source: IMD (, Mathew, 2015).

There is a need to minimize the impact of drought, some changes in crop selection should be considered. Sugarcane cultivation is highly water consuming in various states in India.

Impact of climate change

Indian agriculture is experiencing climate change that adversely affects the livelihood of smallholders. More climate shocks are being predicted, and these will increase vulnerability in agriculture. Indian farmers are also facing the problem of climate change. Let us know the extent of damage suffered by farmers in rains and hailstorms during the period of rabi crops, (winter season crops), in the month of February and March- 2015. It has been observed from data that the total area under damaged Rabi crops was 106.73 lakh hectares in 14 states in India. (The Times of India, March 28, 2015.) As per the revised data, the maximum damage was reported from Rajasthan followed by Uttar Pradesh, Haryana, Madhya Pradesh, Gujarat, Maharashtra, Punjab, and Himachal Pradesh. Among all rabi crops, wheat faced the maximum damage (on nearly 63 Lakh hectares of land).

1.7 Policies for sustainable Agricultural Development

The government of India constituted the National Commission on Farmers (NCF) on November 18, 2004. The NCF was chaired by Professor M.S. Swaminathan. There is a need to accept and implement the Farmers' Commission Report, with regard to Minimum Support Price for grains set at production cost plus 50% citing the need to safeguard interests of small farmers and the increasing risk of taking up agriculture as a profession due to adverse incidents caused by climate change.

Green Revolution

.There is a need an ecologically sustainable green revolution. The government should invest more capital for research on appropriate technologies for coarse cereals, pulses and horticultural crops; especially in arid and semi-arid areas. The National Mission for Sustainable

agriculture stresses the need for devising strategies to make Indian agriculture more resilient to climate change. The mission has to identify and develop new varieties of crops and alternative cropping patterns capable withstanding extremes of weather, long dry spells, flooding and variable moisture availability.

Alternative sources of income

Small farmers should be encouraged to develop alternative sources of income and government should start alternative employment generation programme to reduce the dependence on agriculture as the sole source of income. The government should adopt various policies for crop diversification, generation of non-farm opportunities in rural areas and development of agro- based industries. The government should give incentives to farmers in order to cultivate multiple crops and guarantee for minimum support prices of these crops.

Credit for marginal and small farmers;

The government should provide targeting agricultural subsidies and concessional agricultural credit only to small and marginal farmers using unique identification cards. There is need to implement the nutrition based subsidy scheme with fertilizer prices linked to minimum support prices. There is a need to take necessary steps for restructuring farmers' loans and disbursement of crop insurance.

The National Commission for Enterprises in the Unorganized Sector (NCEUS, 2008), was appointed by the Government of India under Chairman of Dr.Arjun Sengupta. This Commission has recommended a special program for marginal and small farmers. As the marginal and small farmers suffer from market failures in agriculture in terms of credit, input supplies and marketing of output, access to technologies etc.NCEUS Report recommended the four measures, such as, (a) Special programmers for marginal and small farmers;(b) Emphasis on accelerated land and water management; (c) Credit for marginal and small farmers; (d) Farmers' debit relief commission.

New Technology and Research

It is necessary to introduce new farm techniques to participate youth and small farmers in agricultural field. This can be attained only by implementing new technologies. Research efforts should continue for the production of crops with higher yield potential and better resistance to pests. Moderately skilled agricultural workers with access to smart apps using smart phones or tablets can benefit from digital farm extension and advisory services.

Soil health

The government should plan to integrate the soil health programme with the e-governance which could provide information on nature of soil to farmers from a computer at the village Gram Panchayat level. Soil Health card scheme is a scheme launched by the government of India in February 2015. The Prime Minister of India Narendra Modi launched a 'soil health card' scheme to check the degradation of soil from excessive use of fertilizer. There should be a similar effort to match crop with climatic conditions. (Mathew, 2015).

Subsidies for farmers

There is a need to provide subsidies for farmers under inputs like pricing of irrigation water, pricing of electricity for pump sets of farmers, and provide Pesticides and fertilizers, new varieties of seeds by the government to farmers at subsidized prices in order to improve productivity through judicious use of inputs. Subsidies must be targeted to achieve equity and environmental sustainability. (Sankar, 2011).

Capital Investment in Agriculture

There is need to reform the agricultural sector, invest in agriculture, bridge yield gaps, promote agricultural diversification, strength agricultural markets, improve infrastructure, and create huge employment opportunities outside the agriculture sector and introduction of technological, institutional and incentive based reforms.

Remove obstacles in Agriculture Market

The government should remove obstacles in agriculture market for farmers and promote them, where the farmers can directly sell their products at reasonable price to the consumers. There is a need to enhance technical and institutional support to exporters of agricultural products from developing country like India for complying with the technical barriers to Trade and Regulations of the WTO.

Public Private Partnership

Public sector intervention is necessary to develop agriculture markets. A public –private partnership may be desirable in areas where agriculture is going through a transformation process. There is a need to accept the public sector –led cluster approach for smallholders. A commodity -specific cluster approach in production and marketing will help smallholders take advantage of remunerative markets.

Need-based skill development

There is a need to adopt a more –flexi methodology to train the people at large as per their local needs and educate them, and to focus on need-based skill development programmes. National Skill Development Corporation (NSDC) envisages the development of human capital in all sectors of economy. -

Crop Insurance Policy

Crop insurance is must and claim should be settled easily for kharip and Rabbi Seasons under the supervision of the Magistrate at the taluka level. The government also provide insurance policies for farmers in order to cover various risks in agricultural field like personal accident, death, fire (building, farm produce, electronic equipment, and agricultural equipment, tractors, machines, livestock cover, poultry birds, animal driven cart insurance.

Development of irrigation

Water management can be made more effective through interstate co-operation on water resources, where surplus water from perennial rivers can be diverted to the needy areas. Improved modern methods of rain water harvesting should be developed. Connecting the rivers throughout the country will solve this problem. Construction of national waterways will improve the irrigation facility, which in turn can save the farmers, if the monsoon would fail. Development of irrigation and water management are crucial for raising levels of living in rural areas.

Water management

About 45 % of the total cultivated area is irrigated in India. Watershed development and, water conservation by the community are needed under water management, and we need to focus on dry farming. (.Bhandare, 2014). In this context, the Pradhan Mantri Gram Sinchai Yojana, introduced by the Central Government aims to irrigate every farmer's field and improve the efficiency of water use to provide 'more crop per drop' need further impetus. (Bhanwala, 2015).

Village Knowledge Centers

There is a need to set up Village Knowledge Centers (VKCs) the farmers' distress hotspots. These can provide dynamic and demand driven information on all aspects of agricultural and non-farm livelihoods and also serve as guidance centers. These centers will be useful to reduce losses in agriculture and manage their crops better, ensure efficient crop management.

Rural infrastructures

There is a need for public investment in rural infrastructures particularly on road and communication networks for access to markets and information. Public and private investment in post-harvest technologies will not only reduce wastage but also increase value addition and provide greater market opportunities. Kiosks and agricultural digital networks can help in reducing information asymmetries, reducing intermediation costs and accessing agricultural services timely at lower costs. (Sankar, 2011).

1.8 Conclusions

It may be concluded that Small and Marginal farmers in India are facing many problems like fragmented land holding, depleting water table levels, deteriorating soil quality, rising input costs, low productivity., vagaries of the monsoon, problems of Minimum support prices of product, credit and advances, crop insurance, natural calamities, illiteracy etc. Even though agriculture contributes about 15% to India's gross domestic product, a majority of the population directly or indirectly depends on the sector for livelihood. There is a need to adopt agricultural policy at long-term basis for development of agricultural sector in the developing country like India. However; Farm loan waiver is not a pragmatic and long-term solution to problems, which plague the agriculture sector. Yet political parties promise waivers in the hope of garnering votes. Reforms are needed on many fronts such as improving access to institutional credit; ensuring remunerative prices and taking stringent steps to prevent middlemen from exploiting farmers. The adoption of better water conservation and management techniques will improve yields. (The Economic Times, 10April, 2017).

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