Chapter – Five

Circumstances and Problems of Indian Farmers: An analysis

India is an agriculture based country and about 22 per cent (census 2011) of the population are farmers. They are the backbone of the nation. Hence they palsy vital role in the development of country. Large part of population depends upon agriculture as farmer and agricultural labours. Most of farmers are now leading a miserable life and industrialization has not thriven much in our country. As a result there has been a great pressure on land. Each cultivator has got a very small amount of land. He gets only a small income from the produce of his land. So he cannot maintain his family with that income. For this reason he has to run into debt. Thus we see that the farmers as a class are debtors. We cannot describe what miserable life they lead. They live in wretched huts. They cannot always get two meals a day. They have not even ordinary clothes to wear. When they fall ill, they cannot meet the expenses of treatment and medicine. So, for want of food, drinking water, good dwelling houses they fall ill and die in large numbers for want of treatment and diet.

India accounts for only about 2.4 per cent of the world’s geographical area and 4 per cent of its water resources, but has to support about 17 per cent of the world’s human population and 15 per cent of the livestock. Agriculture is an important sector of the Indian economy, accounting for 14 per cent of the nation’s GDP, about 11 per cent of its exports, about half of the population still relies on agriculture as its principal source of income and it is a source of raw material for a large number of industries. Accelerating the growth of agriculture production is therefore necessary not only to achieve an overall GDP target of 8 per cent during the 12th Plan and meet the rising demand for food, but also to increase incomes of those dependent on agriculture to ensure inclusiveness. Agriculture plays a pivotal role in the Indian economy. Although its contribution to gross domestic product (GDP) is now around one sixth, it provides employment to 56 per cent of the Indian
workforce. Also, the forward and backward linkage effects of agriculture growth increase the incomes in the non-agriculture sector. The growth of some commercial crops has significant potential for promoting exports of agricultural commodities and bringing about faster development of agro-based industries. Thus agriculture not only contributes to overall growth of the economy but also reduces poverty by providing employment and food security to the majority of the population in the country and thus it is the most inclusive growth sectors of the Indian economy. The 12th Five Year Plan Approach Paper also indicates that agricultural development is an important component of faster, more inclusive sustainable growth approach.

The structural reforms and stabilization policies introduced in India in 1991 initially focused on industry, tax reforms, foreign trade and investment, banking and capital markets. The economic reforms did not include any specific package specifically designed for agriculture. In the post-reform (since 1991) period, India has done well in some indicators such as economic growth, exports, balance of payments, resilience to external shocks, service sector growth, significant accumulation of foreign exchange, Information technology (IT) and stock market, improvements in telecommunications etc. GDP growth was around 8 to 9 per cent per annum in the period 2004-05 to 2007-08. India is now 2 trillion dollar economy. Investment and savings rates were quite high 32 to 36 per cent.

However, there have been exclusion problems in the country. In other words, real development in terms of growth shared by all sections of the population has not taken place. We have problems of poverty, unemployment, inequalities in access to health and education and poor performance of agriculture sector. One of the excluded sector during the reform period was agriculture which showed low growth and experienced more farmers’ suicides. There are serious concerns on the performance of agriculture sector in the country. The post-reform growth was led by services. Commodity sector growth (agriculture + industry) has not been higher in the post-reform period as compared to that of 1980s. Particular worry is agriculture sector which showed lower than 2 per cent per annum in the decade of mid-1990s to mid-2000s. There are also concerns on food security and livelihoods.
5.1 Land Degradation, Climate, Tenancy and Holdings of Operated Land in India

The progressive fragmentation of land holdings, degrading natural resource base and emerging concerns of climate change are escalating pressure on land and water. Land and water resources being finite, increased agricultural production and a diversified food basket to meet the requirement of the increasing population with higher per capita income, has to emanate from the same limited net sown area by increasing productivity with an optimal use of available water and land resources. Natural resources viz. arable land, water, soil, biodiversity (plant, animal and microbial genetic resources) are rapidly shrinking due to demographic and socio-economic pressures, monsoon disturbances, increasing frequencies of floods and droughts. Overuse of marginal lands, imbalanced fertigation, deteriorating soil health, diversion of agricultural land to nonagricultural uses, depleting aquifers & irrigation sources, salinization of fertile lands and water-logging are pressing challenges requiring urgent attention. For making agriculture sustainable to meet the country’s food requirement, a prudent land use policy, water availability and soil health have to be maintained at levels that are conducive to pursue agricultural activities with higher level of productivity.

Land degradation is major threat to our food and environmental security. As per estimates of Indian Council of Agricultural Research (2010), out of total geographical area of 328.73 mha, about 120.40 mha is affected by various kind of land degradation resulting in annual soil loss of about 5.3 billion tonnes through erosion. This includes water and wind erosion (94.87 mha), water logging (0.91 mha), soil alkalinity/sodicity (3.71 mha), soil acidity (17.93 mha), soil salinity (2.73 mha) and mining and industrial waste (0.26 mha). Besides, water and wind erosions are wide spread across the country. As much as 5.3 billion tonnes of soil gets eroded every year. Of the soil so eroded, 29 per cent is permanently lost to sea, 10 per cent is deposited in reservoirs reducing their storage capacity and rest 61 per cent gets shifted from one place to another. Significant increase in use of chemical fertilizers particularly in the north-western part of the country coupled with imbalanced nutrient application, non-judicious use of pesticides, intensive cropping system, and
decline in soil bio-diversity and depletion of organic matter in soil are areas of concern requiring urgent attention.

Furthermore, climate change is likely to impact agricultural land use and production due to less availability of water for irrigation, higher frequency and intensity of inter and intra-seasonal droughts and floods, low soil organic matter, soil erosion, less availability of energy, coastal flooding etc. could impact agricultural growth adversely. For proper management of natural resources and to ensure sustainable agriculture growth in the country, there is need for a land use policy which should be integrated with all developmental programmes for the holistic development of rural areas, natural resource management and eco-restoration. Considering skewed ownership of land, it is necessary to strengthen implementation of laws relating to land reforms, with particular reference tenancy laws and leasing, distribution of ceiling surplus land and wasteland, providing adequate access to common property and wasteland resources and consolidation of holdings. Computerization of land records, formulation of policy on diversion of agricultural land for non-agricultural uses, updating of land and soil survey maps, finalization of an enabling frame work for involvement of private sector in natural resource management, and encouraging Public Private Partnership in land and watershed development programmes are urgently required.

The land reforms agenda has not gone beyond the imposition of land ceilings even though the incidences of tenancy are too high in most parts of the country. Substantial chunks of scarce land remain untilled because of landowners’ reluctance to lease out land for fear of losing its ownership. A significant per cent of the tenants are landless and marginal farmers. These tenants would benefit from leasing-in since it would help them to expand their miniscule holdings and allow better use of their labour resources. There is a need to urgently address the issue of legalizing land leasing. Provisional results of Agriculture Census 2010-11, shows all details regarding number, area and average size of operational holdings in the country as per available data of various Agriculture Censuses are given in tables 6.1 and 6.2 respectively.
Table 5.1: Distribution of Number of Holdings and Area Operated in India as per Agriculture Census 2010-11

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Size Group</th>
<th>Number of holdings (in million)</th>
<th>Area operated (in million ha.)</th>
<th>Average operated area per holding (ha.)</th>
<th>Percentage of holdings to total holdings</th>
<th>Percentage of area operated to total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marginal (Below 1.00 ha.)</td>
<td>92.4</td>
<td>35.4</td>
<td>0.38</td>
<td>67.04</td>
<td>22.25</td>
</tr>
<tr>
<td>2</td>
<td>Small (1.00-2.00 ha.)</td>
<td>24.7</td>
<td>35.1</td>
<td>1.42</td>
<td>17.93</td>
<td>22.07</td>
</tr>
<tr>
<td>3</td>
<td>Semi-Medium (2.00-4.00 ha.)</td>
<td>13.8</td>
<td>37.5</td>
<td>2.71</td>
<td>10.05</td>
<td>23.59</td>
</tr>
<tr>
<td>4</td>
<td>Medium (4.00-10.00 ha.)</td>
<td>5.9</td>
<td>33.7</td>
<td>5.76</td>
<td>4.25</td>
<td>21.18</td>
</tr>
<tr>
<td>5</td>
<td>Large (Above 10.00 ha.)</td>
<td>1.0</td>
<td>17.4</td>
<td>17.38</td>
<td>0.73</td>
<td>10.92</td>
</tr>
<tr>
<td></td>
<td>All holdings</td>
<td>137.8</td>
<td>159.2</td>
<td>1.16</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Agriculture Census 2010-11.  
Note: Total may not tally due to rounding off.

Table 5.2: Size Group wise Distribution of Average Holdings in India

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marginal (Below 1.00 ha.)</td>
<td>0.40</td>
<td>0.39</td>
<td>0.39</td>
<td>0.39</td>
<td>0.40</td>
<td>0.40</td>
<td>0.38</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Small (1.00-2.00 ha.)</td>
<td>1.44</td>
<td>1.42</td>
<td>1.44</td>
<td>1.43</td>
<td>1.43</td>
<td>1.42</td>
<td>1.38</td>
<td>1.42</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Semi-Medium (2.00-4.00 ha.)</td>
<td>2.81</td>
<td>2.78</td>
<td>2.78</td>
<td>2.77</td>
<td>2.76</td>
<td>2.72</td>
<td>2.67</td>
<td>2.71</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Medium (4.00-10.00 ha.)</td>
<td>6.08</td>
<td>6.04</td>
<td>6.02</td>
<td>5.96</td>
<td>5.90</td>
<td>5.84</td>
<td>5.74</td>
<td>5.76</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Large (Above 10.00 ha.)</td>
<td>18.1</td>
<td>17.57</td>
<td>17.41</td>
<td>17.21</td>
<td>17.33</td>
<td>17.21</td>
<td>17.12</td>
<td>17.08</td>
<td>17.38</td>
</tr>
<tr>
<td></td>
<td>All holdings</td>
<td>22.8</td>
<td>20.00</td>
<td>1.84</td>
<td>1.69</td>
<td>1.55</td>
<td>1.41</td>
<td>1.33</td>
<td>1.23</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Source: Agriculture Census 2010-11.  
Note: Total may not tally due to rounding off.  
*excludes Jharkhand. P: Provisional.

5.2 Roles, Challenges and Opportunities for Formers in India

Small holdings agriculture which is the focus of this section is important for raising agriculture growth, food security and livelihoods in India. It may be noted that Indian agriculture is the home of small and marginal farmers (80 per cent). Therefore, the future of sustainable agriculture growth and food security in India depends on the performance of small and marginal farmers. Agricultural Census data shows that there were about 121 million agricultural holdings in India in 2000-01. Around 99 million were small and marginal farmers. Average size has declined from 2.3 hectare in 1970-71 to 1.37 hectare in 2000-01. Small and marginal farmers account for more than 80 per cent of total farm households. But their share in
operated area is around 44 per cent. Thus, there are significant land inequalities in India.

The role of small farms in development and poverty reduction is well recognized (Lipton, 2006). The global experience of growth and poverty reduction shows that GDP growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture (WDR, 2008). Small holdings play important role in raising agricultural development and poverty reduction.

Small holdings also face new challenges on integration of value chains, liberalization and globalization effects, market volatility and other risks and vulnerability, adaptation of climate change etc. (Thapa and Gaiha (2011). Recent “world-wide processes of farm change commercialisation of increasing proportions of input and output: institutional developments such as super markets; privatization of key aspects of technical progress, of output, process grades and standards, now indicate large farm focus” (p.59, Lipton, 2006). Therefore, support is needed for small holdings in the context of these world-wide processes of farm change. There are also high returns from investments in agricultural R&D, rural roads and other infrastructure and knowledge generation. In this section, we examine the role, challenges, policies and opportunities for farmers in India. India is a big country with 1.2 billion population. One state’s population is closer to that of Europe. Therefore, there is also a need to look at regional level to bring out the variations.

5.3 Role of Small Holding Agriculture

Structure of land holdings: India is a land of small and marginal farmers. According to Agricultural Census 2000-01, there were an estimated 98 million small and marginal holdings out of around 120 million total land households in the country. As shown in Table 3, the share of marginal and small farmers accounted for around 81 per cent of operational holdings in 2002-03 as compared to about 62 per cent in 1960-61. Similarly, the area operated by small and marginal farmers has increased from about 19 per cent to 44 per cent during the same period. Recent data for 2005-06 shows that the share of small and marginal farmers in land holdings was 83 per cent (Chand et al, 2011). Thus, the small holding character of Indian
agriculture is much more prominent today than even before. The average size of holdings in India declined from 2.3 ha. in 1970-71 to 1.33 ha. in 2000-01. It may be noted that 63 per cent of land holdings belong to marginal farmers with less than 1 ha. The average size of marginal holdings is only 0.24 at all India level. The average size of small holdings is 1.42 ha. Table 4 shows average size of holdings by farm size. The average size of marginal holdings varies from 0.14 ha. in Kerala to 0.63 ha. in Punjab.

**Access to Irrigation:** The access to irrigation has increased for all categories of farmers. It is the highest for marginal farmers followed by small farmers. Table 5 indicates that the percentage of area under irrigation for small farmers increased from 40 in 1980-81 to 51 in 2000-01. On the other hand, for large farmers it rose from 16 to 31 per cent during the same period. It may, however, be noted that large farmers capitalize on cheaper sources like canals while small farmers have to rent water. About 40 per cent of the irrigated area for large farmers was from canals while it was less than 25 per cent in the case of small and marginal farmers (NCEUS, 2008).

**Access to Fertilizers and Area under HYV:** The fertilizer per hectare is inversely related to farm size for both irrigated and unirrigated areas (Table 6). It increased from marginal farmers in irrigated areas from 100 kgs. in 1980-81 to 252 kgs. in 2001-02. In fact, the per hectare consumption for all farm sizes was similar on irrigated areas in 1981-82 but it rose faster for marginal farmers and small farmers in 2001-02. This is true in the case of unirrigated areas also. Similarly, the percentage of area under high yielding varieties (HYV) is also inversely related to farm size. In the irrigated areas, the coverage of area under HYV was 89 per cent, 86 per cent and 78 per cent respectively in marginal, small and large farmers in 2001-02. In the case of unirrigated areas, the coverage was above 50 per cent for marginal, small and semi-medium but it was only 30 per cent for large farmers in 2001-02.

**Cropping Intensity:** Multiple cropping index is higher for marginal and small farmers than that for medium and large farmers. For marginal farmers, cropping intensity increased from 134 in 1981-82 to 139 in 2001-02. In the case of large
farmer, it rose from 116 to 121 during the same period. The differences across farm sizes persisted over time.

**Cropping Patterns:** The cropping patterns of small and marginal farmers characterized in four parts- (a) small and marginal farmers allocate larger proportion of their cultivated land to high value crops like fruits, and vegetables ; (b) small and marginal farmers seem to have comparative advantage in growing vegetables than fruits because of quick returns in the former; (c) small and marginal farmers allocate larger proportion of rice and wheat than other farmers; (d) small and marginal farmers allocate lower proportion of land to pulses and oilseeds.

**Farm Size, output and productivity:** The contribution to output is higher for marginal and small farmers as compared to their share in area. The share of these farmers was 46.1 per cent in land possessed but they contribute 51.2 per cent to the total output of the country at all India level in 2002-03. There are significant regional variations in their contribution to output. The share of output is less than the operated area in ten states. In rest of the states, the reverse was true. The contribution of small and marginal farmers to output ranges from 19per cent in Punjab to 86per cent in West Bengal. It is less than 50per cent in 9 out of 20 states. In the Eastern states, the share of both area and output are high for these farmers. On the other hand, in some of the states in Central, Western and North-Western regions, medium and large farmers still dominate in both area and output. In terms of production, small and marginal farmers also make larger contribution to the production of high value crops. They contribute around 70 per cent to the total production of vegetables, 55 per cent to fruits against their share of 44per cent in land area (Birthal, 2011). Their share in cereal production is 52 per cent and 69per cent in milk production. Thus, small farmers contribute to both diversification and food security. Only in the cases of pulses and oilseeds, their share is lower than other farmers.

There has been debate in India on the relationship between farm size and productivity. The results of NSS 2003 Farmers’ survey has empirically established that small farms continue to be produce more in value terms per hectare than the medium and large farms. Fig 3 shows that value of output per hectare was Rs. 14754
for marginal farmers, Rs.13001 for small farmers, Rs. 710655 for medium farmers and Rs.8783 for large farmers. It shows that from efficiency point of view, small holdings are equal or better than large holdings. The analysis indicates large regional variations in the value of output per hectare. For marginal farmers, it varies from Rs. 29448 in Punjab to Rs. 7177 in Rajasthan. This is also true for large medium and large farmers, it ranges from Rs.28983 in Punjab to Rs. 4213 in Rajasthan. In many states, small holdings have higher value of output per hectare than large farms. However, in the case of states like, Kerala, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh and Tamil Nadu, the large farms have higher productivity (in value terms) than marginal farmers. In the case of Punjab, the differences in productivity are not large across farm sizes.

5.3.1 Issues and Challenges for Small Holders

There are many issues and challenges for small holding agriculture in India. NSS Farmers’ survey of 2003 brought out many issues relating to small and marginal farmers. Based on this Survey, NCEUS (2008) says that “some of the general issues that confront marginal-small farmers as agriculturalists are: imperfect markets for inputs/product leading to smaller value realizations; absence of access to credit markets or imperfect credit markets leading to sub-optimal investment decisions or input applications; poor human resource base; smaller access to suitable extension services restricting suitable decisions regarding cultivation practices and technological know-how; poorer access to ‘public goods’ such as public irrigation, command area development, electricity grids; greater negative externalities from poor quality land and water management, etc” (p.7). This sub-section discusses some of the key issues and challenges relating to small holding agriculture.

Role of Women: The importance of women in agriculture has been increasing. The share of rural females in agriculture was around 83 per cent in 2004-05 as compared to 67per cent among rural men, showing the importance of women in agriculture in rural areas. Percentage of women among marginal farmers (38.7per cent) is higher than that for large farmers (34.5 per cent) in 2004-05. These proportions have increased over time. Agriculture is becoming increasingly feminized as men are migrating to rural non-farm sector. They work in “land preparation, seed selection
and seed production, sowing, in applying manure, fertilizer and pesticides, weeding, transplanting, threshing, winnowing and harvesting etc as well as in animal husbandry and dairying, fish processing, collection of non timber forest produces (NTFPs), back yard poultry, and collection of fuel wood, fodder and other products for family needs” (GOI, 2007). Despite their importance, women are continually denied their property rights and access to other productive resources. Protecting women’s rights in land, enhancing infrastructure support to women farmers, and giving legal support on existing laws, will facilitate recognition for women as farmers and enable them to access credit, inputs, and marketing outlets.

**Social Groups:** The proportion of socially disadvantaged groups such as Scheduled Castes (SCs) and Scheduled Tribes (STs) is higher among marginal and small farmers than that of medium and large farmers. Around 22 per cent of semi-marginal and marginal farmers are from SCs compared to 7.8 per cent in medium and large farmers. SCs have more than half of their holdings of less than half a hectare. Similarly, 15.6 per cent of small farmers belong to STs compared to 14.9 per cent among medium and large farmers. The distribution of land ownership among STs is better than SCs. However, the quality of STs land is probably of the lowest quality. Social identity of farmers is also seen to mediate access to economic resources and outcomes. Even after accounting for quantity and quality of land owned by socially deprived classes, their access to information, marketing, credit and publicly provided inputs and extension services are lower. This shows that they possibly suffer from discrimination in the delivery of public services as well as market (NCEUS, 2008).

**Land Issue, Land and tenancy security:** National Commission on Enterprises for Unorganized Sector argued that there is a strong evidence that relatively successful implementation of even a modest package of land reforms dramatically improve the prospect of the poor. Regarding small and marginal farmers, they own and cultivate some land but it is a limiting factor for getting resources. Therefore, tenancy security is important for small holding farmers.

Land relations are extremely complicated and this complexity has contributed significantly to the problems facing actual cultivators. Unregistered cultivators, tenants, and tribal cultivators all face difficulties in accessing
institutional credit and other facilities available to farmers with land titles. One priority is to record and register actual cultivators including tenants and women cultivators, and provide passbooks to them, to ensure that they gain access to institutional credit and other inputs. As part of the reforms, lease market should be freed and some sort of security for tenants has to be guaranteed. This will ensure availability of land for cultivation on marginal and small farmers. The land rights of tribals in the agency areas must be protected. There is considerable scope for further land redistribution, particularly when waste and cultivable lands are taken into account. Complementary inputs for cultivation (initial land development, input minikits, credit, etc.) should be provided to all assignees, and the future assignments of land should be in the name of women.

On land market, the Report of the Steering Committee recommended the following. “Small farmers should be assisted to buy land through the provision of institutional credit, on a long term basis, at a low rate of interest and by reducing stamp duty. At the same time, they should be enabled to enlarge their operational holdings by liberalizing the land lease market. The two major elements of such a reform are: security of tenure for tenants during the period of contract; and the right of the land owner to resume land after the period of contract is over” (Planning Commission, 2007a). Basically, we have to ensure land leasing, create conditions including credit, whereby the poor can access land from those who wish to leave agriculture.

Low level of formal education and skills: Education and skills are important for improving farming practices, investment and productivity. In India, the literacy and mean years of education are lower for small holding farmers compared to medium and large farmers. For example, literacy among males and females for marginal farmers respectively were 62.5 per cent and 31.2 per cent while the corresponding numbers for medium and large farmers were 72.9 per cent and 39 per cent. Similarly, mean years of education for males among marginal farmers was 3.9 as compared to 5.3 for medium and large farmers. It is important for small holding farmers to have a reasonable level of awareness regarding information on agriculture. The low level of farmers’ education limits public dissemination of knowledge. The NSS farmers’ Survey clearly shows that awareness about bio-fertilizers, minimum support prices
and WTO is associated with education levels which are lower for marginal and small farmers.

**Credit and Indebtedness:** Small holdings need credit for both consumption and investment purposes. Increasing indebtedness is one of the reasons for indebtedness among these farmers in recent years. The analysis shows that overall indebtedness is not higher for small and marginal farmers compared to large farmers. However, the indebtedness for the small & marginal farmers from formal institutional sources is lower than large farmers and the reverse is true in the case of informal sources. The dependence on money lenders is the highest for sub-marginal and marginal farmers. It shows that the share of formal source increases with the size of land. At all India level, the share of formal source varies from 22.6 per cent to 58 per cent for small and marginal farmers while it varies from 65 to 68per cent for medium to large farmers. Dependence of small and marginal farmers on informal sources is high even in states like Andhra Pradesh, Punjab and Tamil Nadu. For example, small and marginal farmers of Andhra Pradesh have to depend on 73per cent to 83per cent of their loans on informal sources. This indicates very low financial inclusion for Andhra Pradesh. The NSS data also shows that across social groups, the indebtedness through formal sources is lower for STs as compared to others.

**Globalization challenges:** Increasing globalization has added to the problems faced by the small holding agriculture. The policies of huge subsidies and protection policies by developed countries have negative effects on small holding farmers in developing countries. If support is not given to small farms, globalization may become advantageous for large farms. There has been adverse impact of trade liberalization on the agricultural economy of the regions growing crops such as plantation, cotton and oil seeds in which foreign trade is important. With liberalization, the issue of efficiency has become highly relevant as domestic production has to compete with products of other countries. In the recent years domestic prices of several agricultural commodities have turned higher than international prices. India is not able to check import of a large number of commodities even at high tariff. This is true not only in the case of import from developed countries where agriculture is highly subsidized but also in the case of products from developing countries. India is facing severe import competition in the
case of items like palm oil from Malaysia and Indonesia, spices from Vietnam, China and Indonesia, tea from Sri Lanka and rice from Thailand and Vietnam (Planning Commission, 2007). To compete in the global market, the country needs to reduce various post-harvest costs and undertake suitable reforms to improve efficiency of domestic markets and delivery systems. To be able to successfully compete in a liberalized trade regime, therefore, there is need for a paradigm shift from merely maximizing growth to achieving efficient growth. For farmers, perhaps the single most adverse effect has been the combination of low prices and output volatility for cash crops. The effect of volatility in international prices on domestic agriculture should be checked by aligning tariffs with the changing price situation.

**Impact of Climate Change:** Climate change is a major challenge for agriculture, food security and rural livelihoods for millions of people including the poor in India. Adverse impact will be more on small holding farmers. Climate change is expected to have adverse impact on the living conditions of farmers, fishers and forest-dependent people who are already vulnerable and food insecure. Rural communities, particularly those living in already fragile environments, face an immediate and ever-growing risk of increased crop failure, loss of livestock, and reduced availability of marine, aquaculture and forest products. They would have adverse effects on food security and livelihoods of small farmers in particular. In order to have climate change sensitive and pro-poor policies, there is a need to focus on small farmers. Agriculture adaptation and mitigation could provide benefits for small farmers. The coping strategies would be useful to have long term adaptation strategies. There is a significant potential for small farmers to sequester soil carbon if appropriate policy reforms are implemented. The importance of collective action in climate change adaptation and mitigation is recognized. Research and practice have shown that collective action institutions are very important for technology transfer in agriculture and natural resource management among small holders and resource dependent communities.

**Water Problems:** Water is the leading input in agriculture. Development of irrigation and water management are crucial for raising levels of living in rural areas. Agriculture has to compete for water with urbanization, drinking water and industrialization. As mentioned above, small holding agriculture depend more on
ground water compared to large farmers who has more access on canal water. Ground water is depleting in many areas of India. Marginal and small farmers are going to face more problems regarding water in future. Therefore, water management is going to be crucial for these farmers (more on this below).

**Diversification:** There has been diversification of Indian diets away from foodgrains to high value products like milk and meat products and vegetables and fruits. The increasing middle-class due to rapid urbanization, increasing per-capita income, increased participation of women in urban jobs and impact of globalization has been largely responsible for the diet diversification in India. Hi-value products have caught the fancy of the expanding middle class and the result is visible in the growing demand for hi-value processed products. There is growing demand for non-foodgrain items in India. The expenditure elasticity for non-cereal food items is still quite high in India. It is thrice as high when compared to cereals in the rural areas and over ten times as high in urban areas. Per capita consumption of fruits and vegetables showed the highest growth followed by edible oils. Diversification to high value crops and allied activities is one of the important sources for raising agricultural growth. Since risk is high for diversification, necessary support in infrastructure and marketing are needed. Price policy should also encourage diversification. Small and marginal farmers can get higher incomes with diversification. But, there are risks in shifting to diversification as the support systems are more for food grains. There is a need for support systems for diversification to help the small holder farmers.

**Risk and vulnerability:** There is enough evidence to suggest that poor and poorest of the poor households are vulnerable to a range of risks affecting individuals, households or whole communities which can have a devastating affect on their livelihoods and well being. They have higher exposure to a variety of risks at individual or household level. Some of them are (a) health shocks: illness, injury, accidents, disability; (b) labour market risk: many work in informal sector and have high risk of unemployment and underemployment; (c) harvest risks, life cycle risks, social risk and special risks for vulnerable groups. In addition, they have community risks such as droughts, floods, cyclones, structural adjustment policies etc. Small and marginal farmers are vulnerable to all these risks. Most of the coping
mechanisms followed by households are: borrowing, sale of assets, spending from savings, assistance from relatives and govt., expanded labour supply, child labour, bonded labour, reducing consumption, migration etc. Comprehensive social protection programmes are required to address the negative effects due risks and vulnerabilities. India has many social protection programmes. The present major schemes for the poor in India fall into four broad categories: (i) food transfer like public distribution system (PDS) and supplementary nutrition (ii) self employment (iii) wage employment and (iv) social security programmes for unorganized workers. The effectiveness of these programmes have to be improved so that small and marginal farmers can also benefit from these programmes. Crop insurance programmes and future markets have to be strengthened to reduce risks in price and yields.

5.4 Genetically Modified Crops and Farmers

A number of social activist groups and studies proposed a link between GM crops and farmer suicides. Bt cotton (Bacillus thuringiensis cotton) was claimed to be responsible for farmer suicides. The Bt cotton seeds cost nearly twice as much as ordinary ones. The higher costs forced many farmers into taking ever larger loans, often from private moneylenders charging exorbitant interest rates (60 per cent a year). The moneylender was claimed to collect his dues at harvest time, by compelling farmers to sell their cotton to him at a price lower than it fetches on the market. According to activists, this created a source of debt and economic stress, ultimately suicides, among farmers. Scholars claim that this Bt cotton theory made certain assumptions and ignored field reality. Crop coverage of bio-tech cotton (also called Bt cotton) and Farmer Suicides over time in Madhya Pradesh India, before and after the introduction of Bt cotton in 2002.

In 2008, a report published by the International Food Policy Research Institute, an agriculture policy think tank based in Washington DC, noted that there was an absence of data relating to "numbers on the actual share of farmers committing suicide who cultivated cotton, let alone Bt cotton." In order to evaluate the "possible (and hypothetical)" existence of a connection the study employed a "second-best" assessment of evidence relating to farmer suicides firstly, and to the
effects of Bt cotton secondly. The analysis revealed that there was no "clear general relationship between Bt cotton and farmer suicides" but also stated that it could not reject the "potential role of Bt cotton varieties in the observed discrete increase in farmer suicides in certain states and years, especially during the peak of 2004 in Andhra Pradesh and Maharashtra." The report also noted that farmer suicides predate the official commercial introduction of Bt cotton by Monsanto Mahyco in 2002 (and its unofficial introduction by Navbharat Seeds in 2001) and that such suicides were a fairly constant portion of the overall national suicide rate since 1997. The report noted that while Bt cotton may have been a factor in specific suicides, the contribution was likely marginal compared to socio-economic factors. Elsewhere, Gruere et al. discuss the introduction and increase in use of Bt cotton in the state of Madhya Pradesh since 2002, and the observed drop in total suicides among that state's farmers in 2006. They then question whether the impact of the increase in use of Bt cotton on farmers suicide in Madhya Pradesh has been to improve or worsen the situation.

In 2011, a review of the evidence regarding the relationship between Bt cotton and farmers' suicides in India was published in the *Journal of Development Studies*, also by researchers from IFPRI, which found that "Available data show no evidence of a 'resurgence' of farmer suicides. Moreover, Bt cotton technology has been very effective overall in India." Matin Qaim finds that Bt cotton is controversial in India, irrespective of the scholarly evidence. Anti-biotech activist groups in India repeat their claim that there is evidence of link between Bt cotton and farmers suicides, a claim that is perpetuated by mass media. This linking of farmers suicide and biotech industry has led to negative opinions in public policy making process.

Stone suggests that the arrival and expansion of GM cotton led to a campaign of misinformation, by all sides, exacerbating the farmer's situation; activists have fuelled the persistence of a legend of failure and rejection of Bt cotton with sensational claims of livestock death and farmer suicide, while the other side has been incorrectly pronouncing Bt cotton a major success based on literature that is actually inconclusive. The cotton cash crop farmer's situation is complex and continues to evolve, suggests Stone. Gilbert, in a 2013 article published in *Nature*,

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states, "contrary to popular myth, the introduction in 2002 of genetically modified Bt cotton is not associated with a rise in suicide rates among Indian farmers". In another 2014 review, Ian Plewis states, "the available data does not support the view that farmer suicides have increased following the introduction of Bt cotton. Taking all states together, there is evidence to support the hypothesis that the reverse is true: male farmer suicide rates have actually declined after 2005 having been increasing before then".

5.5 Relief Package by the Government of India

In 2006, the Government of India identified 31 districts in the four states of Andhra Pradesh, Maharashtra, Karnataka, and Kerala with high relative incidence of farmers suicides. A special rehabilitation package was launched to mitigate the distress of these farmers. The package provided debt relief to farmers, improved supply of institutional credit, improved irrigation facilities, employed experts and social service personnel to provide farming support services, and introduced subsidiary income opportunities through horticulture, livestock, dairying and fisheries. The Government of India also announced an ex-gratia cash assistance from Prime Ministers National Relief Fund to the farmers. Additionally, among other things, the Government of India announced:

- In the Vidarbha region of Maharashtra, that had received considerable mass media news coverage on farmer suicides, all farmer families of Vidarbha in six affected districts of Maharashtra were given a cash sum of 50 million (US$79,000) each, to help pay off the debt principal.

- 7.12 billion (US$110 million) in interest owed, as of 30 June 2006, was waived. The burden of payment was shared equally between the Central and the State government.

- The Government created a special credit vehicle for Vidarbha farmer, to the tune of 12.75 billion (US$200 million). Special teams comprising NABARD and banks were deputed to ensure fresh credit starts flowing to all farmers of the region.
o An allocation of 21.77 billion (US$340 million) was made to improve the irrigation infrastructure so that the farmers of Vidarbha region had assured irrigation facilities in the future.

The Government of India next implemented the Agricultural debt Waiver and Debt Relief Scheme in 2008 to benefit over 36 million farmers at a cost of ₹653 billion (US$10 billion). This spending was aimed at writing off part of loan principal as well as the interest owed by the farmers. Direct agricultural loan by stressed farmers under so-called Kisan Credit Card were also to be covered under this Scheme.

5.5.1 Effectiveness of Government Relief and Response

The government's response and relief packages have generally been ineffective, misdirected and flawed. It has focused on credit and loan, rather than income, productivity and farmer prosperity. Assistance in paying off outstanding principal and interest helps the money lenders, but has failed to create reliable and good sources of income for the farmer going forward. The usurious moneylenders continue to offer loans at interest rates between 24 to 50 percent, while income generating potential of the land the farmer works on has remained low and subject to weather conditions. The government has failed to understand that debt relief just postpones the problem and a more lasting answer to farmer distress can only come from reliable income sources, higher crop yields per hectare, irrigation and other infrastructure security. Golait, in a Reserve Bank of India paper, acknowledged the positive role of crop diversification initiative announced in government's response to reports of farmer suicides. Golait added, "Indian agriculture still suffers from: i) poor productivity, ii) falling water levels, iii) expensive credit, iv) a distorted market, v) many middlemen and intermediaries who increase cost but do not add much value, vi) laws that stifle private investment, vii) controlled prices, viii) poor infrastructure, and ix) inappropriate research. Thus the approach with mere emphasis on credit in isolation from the above factors will not help agriculture". Furthermore, recommended Golait, a more pro-active role in creating and maintaining reliable irrigation and other agriculture infrastructure is necessary to address farmer distress in India.
5.6 Socio-Economic Status of Indian Farmers

The Centre for the Study of Developing Societies (CSDS), Delhi has conducted survey across 18 states of India. The survey has conducted between December 2013 and January 2014. The survey was covered 274 villages spread over 137 district of the country. The findings of the survey reveal many facts about the socio-economic status of Indian farmers. The findinds are presented as below:

- 36 per cent farmers live either in a hut or a kuchha house. 44 per cent live in a kutcha- pucca or mixed house. Only 18 per cent of them have a pucca independent house.
- 28 per cent of the farmers were found to be non-literate. 14 per cent have passed matric (Class X), and only 6 per cent entered for a college degree.
- Overall 83 per cent of the farmers consider agriculture to be their main occupation (varies from 62 per cent in Tamil Nadu to 98 per cent in Gujarat).
- 32 per cent of the farmers do work other than farming for additional household income.
- In past one year approximately one in every ten farmers said that their family had to remain without food on few occasions.
- Most farmer households (61 per cent) have two meals a day. Only 2 per cent have one meal a day and 34 per cent eat more than two times a day.
- Only 44 per cent farmers eat all three meals a day, whereas 39 per cent of the surveyed farmers said that they eat lunch and dinner only.
- 65 per cent farmers said that other members from the family also helped in activities related to farming.
- 75 per cent of the farmers said they are engaged in farming for more than ten years.
- Only 10 per cent of the farmers are members of a farmer organization.
- 86 per cent of the farmers or their family owns land.
- 14 per cent of the farmers who took part in the survey were found to be landless or without any land of their own. 60 per cent are small farmers (those who own 1-3 acres of land), 19 per cent fall in the category of medium farmers (own 4-9 acres of land) and 7 per cent are large farmers (own 10 or more acres of land).
Apart from interviewing the farmers, that survey explores facts regarding the female in farmer households. Here we are presenting the some of the key findings:

- As mentioned above, 66 per cent of the women belonging to farmer households are involved in farming.
- 18 per cent women of the farmer households do other non-farming work to contribute financially to the family income.
- 67 per cent women say that the income from agriculture is not sufficient to fulfill the livelihood needs of their family. Only 20 per cent found it to be sufficient.
- 43 per cent women believe that if the main earner of their family would have been doing some other work rather than agriculture, their quality of life would have been better.
- 21 per cent women belonging to farmer households said that price rice was the biggest problem being faced by their household and 13 per cent said poverty is their biggest problem.
- 63 per cent youth belonging to farmer households help the family in farming.
- Only 24 per cent youth belonging to farmer households are interested in continuing farming while 76 per cent would prefer to do some other work rather than farming.
- Among the youth who are interested in continuing farming, most said it is their traditional occupation and they wanted to take it forward.

5.7 Farmers Suicides in India

In 2012, the National Crime Records Bureau of India reported 13,754 farmer suicides. The highest number of farmer suicides were recorded in 2004 when 18,241 farmers committed suicide. The farmers suicide rate in India has ranged between 1.4 to 1.8 per 100,000 total population, over a 10-year period through 2005. India is an agrarian country with around 60per cent of its people depending directly or indirectly upon agriculture. Farmer suicides account for 11.2per cent of all suicides in India. Activists and scholars have offered a number of conflicting reasons for farmer suicides, such as monsoon failure, high debt burdens, genetically modified
crops, government policies, public mental health, personal issues and family problems. There are also accusation of states fudging the data on farmer suicides.

Historical records relating to frustration, revolts and high mortality rates among farmers in India, particularly cash crop farmers, date back to the 19th century. The high land taxes of 1870s, payable in cash regardless of the effects of frequent famines on farm output or productivity, combined with colonial protection of usury, money lenders and landowner rights, contributed to widespread penury and frustration among cotton and other farmers, ultimately leading to Deccan Riots of 1875-1877. The British government enacted the Deccan Agriculturists’ Relief Act in 1879, to limit the interest rate charged by money lenders to Deccan cotton farmers, but applied it selectively to areas that served British cotton trading interests. Rural mortality rates, in predominantly agrarian British India, were very high between 1850 to 1940s. However starvation related deaths far exceeded those by suicide, the latter being officially classified under "injuries". Death rate classified under "injuries", in 1897, was 79 per 100,000 people in Central Provinces of India and 37 per 100,000 people in Bombay Presidency.

Ganapathi and Venkoba Rao analyzed suicides in parts of Tamil Nadu in 1966. They recommended that the distribution of agricultural organo-phosphorus compounds be restricted. Similarly, Nandi et al. in 1979 noted the role of freely available agricultural insecticides in suicides in rural West Bengal and suggested that their availability be regulated. Hegde studied rural suicides in villages of northern Karnataka over 1962 to 1970, and stated the suicide incidence rate to be 5.7 per 100,000 population. Reddy, in 1993, reviewed high rates of farmer suicides in Andhra Pradesh and its relationship to farm size and productivity. Reporting in popular press about farmers' suicides in India began in mid 1990s, particularly by Palagummi Sainath. In 2000s, the issue gained international attention and a variety of Indian government initiatives. National Crime Records Bureau, an office of the Ministry of Home Affairs Government of India, has been collecting and publishing suicide statistics for India since the 1950s, as annual Accidental Deaths & Suicides in India reports. It started separately collecting and publishing farmers suicide statistics from 1995.
Table 5.3 Reasons for Farm Suicides in India

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Percent of Suicides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habits like drinking, gambling, etc.</td>
<td>20.35</td>
</tr>
<tr>
<td><strong>Failure of crops</strong></td>
<td>16.81</td>
</tr>
<tr>
<td>Other reasons (e.g. chit fund)</td>
<td>15.04</td>
</tr>
<tr>
<td>Family problems with spouse, others</td>
<td>13.27</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>9.73</td>
</tr>
<tr>
<td>Marriage of daughters</td>
<td>5.31</td>
</tr>
<tr>
<td>Political affiliation</td>
<td>4.42</td>
</tr>
<tr>
<td>Property disputes</td>
<td>2.65</td>
</tr>
<tr>
<td><strong>Debt burden</strong></td>
<td>2.65</td>
</tr>
<tr>
<td><strong>Price crash</strong></td>
<td>2.65</td>
</tr>
<tr>
<td>Borrowing too much (e.g. for house construction)</td>
<td>2.65</td>
</tr>
<tr>
<td>Losses in non-farm activities</td>
<td>1.77</td>
</tr>
<tr>
<td><strong>Failure of bore well</strong></td>
<td>0.88</td>
</tr>
</tbody>
</table>

Note: Reasons were given by close relatives and friends. There are multiple reasons for suicides. Not even one case was given only one reason.

Various reasons have been offered to explain why farmers commit suicide in India, including: drought, debt, use of genetically modified seed, public health and government economic policies. There is no consensus on what the main causes might be but studies show suicide victims are motivated by more than one cause, on average three or more causes for committing suicide. Panagariya states, "farm-related reasons get cited only approximately 25 percent of the time as reasons for suicide", and, "studies do consistently show greater debt burden and greater reliance on informal sources of credit" amongst farmers who commit suicide.

5.8 How to Improve the Farmers Condition

a) They are to be educated— The farmers are the backbone of the nation. So it is the first duty of the people and the Government of the country to improve their condition. If their condition is not improved, the whole nation will suffer. Generally farmers of our country are not educated. As they are poor, they cannot bear the educational expenses of their children. So they must be given free and compulsory primary education. Thus every cultivator must know how to read, write and do figure works. Then they must learn the principles of scientific agriculture.

b) The old method of cultivation should be changed— Our farmers do not know how to cultivate the land scientifically. They follow the ancient method of
tilling the land with a plough and a pair of oxen. But in Western countries, the farmers use motor tractors. Within a short time they till many acres of land and get more crops. But the Indian farmers cannot till so much land and do not get so much crops. Hence they should be trained to use motor tractors to till the land. The Western farmers use improved manure to make the soil fertile. For this reason also they get more crops. Indian farmers generally use only cow-dung as manure. This also they do not use in large quantities. Hence the fertility of the soil is not increased and the land does not yield more crops.

In Western countries the agricultural land is not divided into small plots. A farmer has got many acres of land in one big plot. It is economical to cultivate such a plot with tractors. In our country, the farmers have got small plots of land and the plots of a cultivator are situated at different places. Motor tractors cannot be used in such small plots. The cost of cultivation also is greater. Hence the farmers should join together and till their land with tractors. It is now done in Russia with great success. This is called collective farming. Like India, Russia also was mainly an agricultural country and the condition of the farmers was very miserable. But now scientific agriculture has been introduced there and the farmers are well off now and the country also has been prosperous.

c) They should learn thrift— Our farmers should learn to be thrifty. They spend more than what they earn. When they reap the harvest, they sell the crops and get money. At that time they spend money lavishly. They do not then think of the future. Within a short time they spend all their money. Then they are compelled to borrow money. In this way they run into debt.

d) They should learn some craft—Indian farmers are not engaged for all the time in cultivating their land. Sometimes they have to remain idle. If they learn some handicrafts, such as spinning, weaving, they can earn some money and supplement their income from cultivation. They can thus be free from want.

e) Duty of the Government— The prosperity of the country depends largely on agriculture, our Government should try to improve the condition of the farmers. They should set up agricultural schools and model farms to educate
the farmers free of cost. They should irrigate the land to make it fertile. They
should lend money to the farmers at a nominal interest during the season of
cultivation. They should distribute good seeds and manure to the farmers. The
farmers may not be able to buy tractors. Our Government should lend tractors
to them at a nominal charge.

India is mainly an agricultural country. Hence its prosperity depends largely on
the improvement of agriculture. This can be done if the condition of the farmers can
be improved. If agriculture is neglected, all classes of people will suffer. There had
been, for some years, shortage of food crops in India. We had to buy food crops
from other countries at a very high price. Hence we all now feel the importance of
growing more food. So for this reason at present there has been some improvement
in this respect. More food crops are being produced now. As a result, our country is
now self-sufficient in the matter of food crops. The farmers should get every facility
to grow more food. If we can depend on our own food crops, we can save much
money. This money may be spent in buying machinery for the development of
industry. Considering all these, the Planning Commission has laid great importance
on the problem of growing more food. In Community Development Projects also,
our Government is trying to improve the condition of the farmers in all possible
ways. All India Radio has a programme for the farmers. It is called “Krishi Kathar
Ashar”. It is very useful for the farmers. They may learn many things to improve
their knowledge of cultivation if they listen to this programme.