6

Addressing Agrarian Distress

Sops versus Development

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In the post-independence period, India is facing its second major challenge in agriculture. The first major challenge was experienced during mid-1960s when, prior to the green revolution, output was rising slowly, the per capita foodgrain production dropped to a very low level (150 kilograms), while population growth was on a rising trajectory, and the country faced serious shortage of staple food. This had left the country hugely dependent on food imports and food aid. The shortage of food was so severe that the then prime minister Lal Bahadur Shastri had to appeal to the countrymen to observe fast and miss one meal once a week to cope with the shortage of food. The country then decided to adopt and promote new high-yielding varieties (HYVs) of wheat and paddy, known as green revolution technology, which were much more responsive to fertilizers and other inputs as compared to the traditional varieties. The adoption of green revolution technology produced quick results. Despite its adoption in a limited area, India was able to emerge out of the crisis situation of shortage of staple food in less than a decade. Since the green revolution, the growth rate in production of all types of food groups except pulses remained higher than the population growth in most of the period. During the last half century (1965 to 2015), the total food production, including cereals, pulses, oilseeds, vegetable, fruits, and livestock products, rose 3.7 times while population rose 2.55 times. The net result has been a 45 per cent increase in per person food production, which has made India not only food self-sufficient

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at an aggregate level but a net food exporting country. This increase in per capita food production is clearly visible in per capita intake of fruits, vegetables, meat, eggs, milk, fish, and sugar. However, per capita intake of cereals showed a decline because of dietary preferences, not because of availability. The effect of this change in consumption basket on dietary energy intake is not significant.

While India was improving food security and leaving behind the era of food shortage, another crisis started building gradually in the form of agrarian dissatisfaction. Some scholars term it as agrarian distress. Farmers' dissatisfaction turned serious during the early 1990s, though it started developing a few years ago. Initially, farmers' dissatisfaction was confined to some pockets with poor resource endowments but it gradually spread to many parts of the country. Incidents of farmers' dissatisfaction/distress are reported from even agriculturally developed states like Punjab, Haryana, and Kerala. The situation became particularly bad in the years and in the areas which suffered floods, droughts, and other natural disasters.. These types of sufferings do not bode well for the country whose economy is growing at a rate of more than 7 per cent a year.

Farm-related problems combined with other aggravating factors push some farmers to take the extreme step of committing suicides, which worsens the suffering of such agricultural households. This chapter is an attempt to understand the genesis, causes, nature, and severity of agrarian dissatisfaction and distress and to propose a strategy to address agrarian challenge in the country.

Genesis and Symptoms

It is important to discuss what agrarian distress is. Agrarian distress manifests at two levels: (*a*) sectoral or macro level and (*b*) household or farm level. Further, the distress could be absolute or relative. The absolute agrarian distress is characterized by a situation wherein agriculture production becomes economically unviable or highly vulnerable. Relative agrarian distress implies widening of the gap in performance of agriculture relative to the rest of the economy. Agrarian distress at the household level refers to a situation when the income of an agricultural household is not adequate to meet family and business obligations.Agrarian distress may be characterized by any one or more of the following:

- Rising debt in relation to net worth
- Net worth turning negative
- Forced migration
- Rise in the instance of hunger
- Sale of productive assets like land, bullock, tractor, and machinery to meet family expenditure

- Sale of family assets to meet family expenditure
- Adoption of untested and risky ventures
- Dissatisfaction with the profession
- Rise in tragedies like suicides

The genesis of agrarian distress, at the aggregate level, lies in the structural imbalance of the Indian economy, reflected in two important indicators. The first is the mismatch in the share of agriculture in national income vis-à-vis its share in workforce and the second is the ratio of per worker income in agriculture vis-à-vis non-agriculture. At the time of the onset of the green revolution (1970–1971), agriculture employed 69 per cent of the workforce and contributed about 42 per cent of national income (Table 6.1). As the green revolution progressed and spread, a sizeable proportion of the labour force shifted from agriculture to non-agriculture sectors. Consequently, the agriculture growth created backward and forward linkages leading to growth in employment in the non-farm sector both in rural and urban areas (Mellor and Lele 1973; Chadha 1986). However, the shift in labour force almost stopped somewhere between 1980–1981 and 1990–1991. During 1980–1881 to 2000–2001, there was negligible shift in labour force from agriculture to non-agriculture whereas the share of agriculture in national income reduced by one-third.

TABLE 6.1 Share of agriculture and non-agricultural sectors in national income and workforce (%)

Year	*Share in national income*		*Share in workforce*	
	Agriculture	*Non-agriculture*	*Agriculture*	*Non-agriculture*
1950–51	51.81	48.19	68.85	31.15
1960–61	42.56	57.44	69.41	30.59
1970–71	41.95	58.05	69.36	30.64
1980–81	35.39	64.61	59.02	40.98
1990–91	29.02	70.98	58.38	41.62
2000–01	23.02	76.98	58.20	41.80
2010–11	18.21	81.79	54.59	45.41

Sources: Author's estimates derived from data available in (*a*) National Accounts Statistics, Central Statistical Organisation (CSO), GOI, various issues and (*b*) *Agricultural Statistics at a Glance*, Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, GOI, various issues.

The decline in the share of agriculture in national income resulted from a faster rate of growth witnessed in the non-agriculture sector, which is considered natural in the development process. However, this growth did not translate into creation of jobs in the non-agriculture sector to pull the workforce away from the agriculture

sector after 1980–1981. The situation started worsening with the beginning of economic reforms in 1991. The economic reforms resulted in acceleration in the growth rate of the non-agriculture sector but the growth rate in the agriculture sector did not follow a secular trend (Figure 6.1). Only for a brief spell did the growth rate rise, which was soon followed by a spell of low growth.

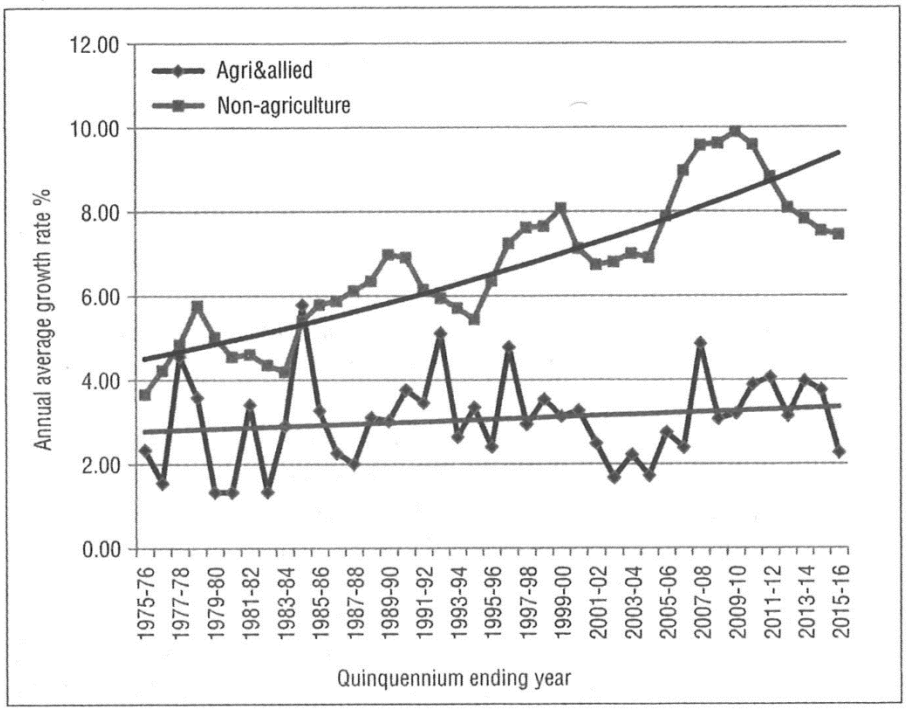

FIGURE 6.1 Average annual growth rate in five year period in agriculture and non-agriculture sectors at constant prices

Disparities in Agricultural and Non-agricultural Incomes

A worker in the agriculture sector earned one-third the income of a worker in the non-agriculture sector at the time of the onset of green revolution. The ratio increased to 38 per cent in the initial phase of green revolution. However, this trend of decline in disparity in sectoral income reversed somewhere during the 1980s and the income earned by an agriculture worker fell to just 29 per cent of the non-agriculture worker by 1990–1991. This can be considered as the beginning of agrarian distress in the country. The disparity between agriculture and non-agriculture income further worsened during the 1990s (Figure 6.2).

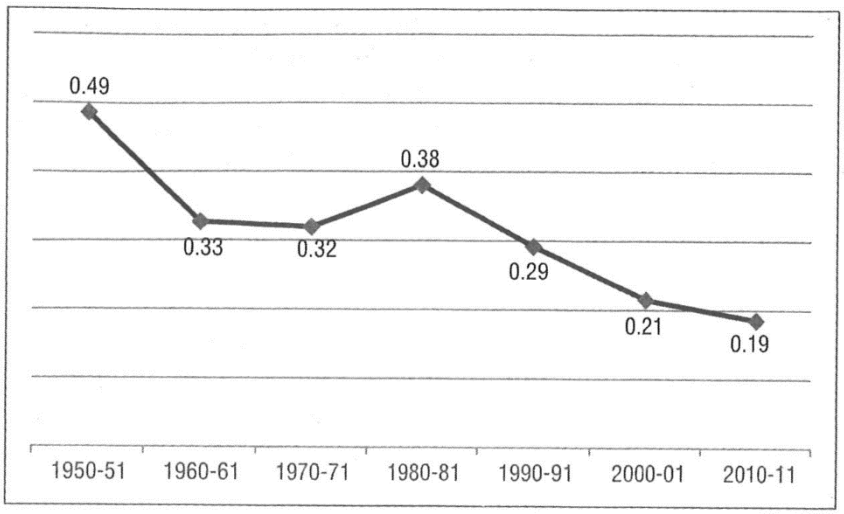

FIGURE 6.2 Ratio of income per worker in agriculture and non-agriculture sectors at current prices

The rise in income of non-agriculture workers put strong pressure on those working in the agriculture sector to catch up with the standard of living of the former. This put pressure on agriculture workers to raise consumption expenditure without commensurate increase in income. However, in the non-agriculture sector, the number and scale of production units have risen sharply but the plot size of agriculture production units has only become smaller.

The terms of trade between sectors is another important factor affecting welfare of farmers. Liberalization and globalization that started during the 1990s led to an increase in the integration of domestic prices with global prices, which contributed strongly to a decline in terms of trade for agriculture during the late 1990s and early 2000s.

Phases in Agriculture Growth and Role of Planning Institutions

It is pertinent to discuss the role of public institutions and their response to address the situation of agrarian distress in particular and the agriculture sector in general. The major responsibility for this is vested with the Planning Commission of India, which was replaced by the National Institution for Transforming India (NITI Aayog) in the year 2015.

The Planning Commission has been preparing five-year plans, development strategies, and policy initiatives for agriculture and other sectors of the economy since its creation in the year 1950. The Planning Commission played a vital

but different role in different phases of agriculture development in the country. Accordingly, Indian agricultural policy can be broadly distinguished into three phases. A detailed description of the policy followed in each phase (found in a study by Rao [1996]) mentions the following sequences.

The period from 1950/51 to mid-1960s, which is also called the pre-green revolution period, witnessed tremendous agrarian reforms, institutional changes, and the development of major irrigation projects. Intermediary landlordism was abolished, and tenant operators were given security of farming and ownership of land. Land ceiling acts were imposed by all the states to eliminate large-sized holdings, and cooperative credit institutions were strengthened to minimize the exploitation of cultivators by private moneylenders and traders. Land consolidation was also effected to reduce the number of land fragments.

Expansion of area was the main source of growth in the pre-green revolution period. The scope for area expansion diminished considerably in the green revolution period when the growth rate in area was less than half the growth rate in the first period. Increase in productivity became the main source of growth in crop output, and there was a significant acceleration in yield growth in the green revolution period. The main source of productivity increase was technological breakthrough in wheat and rice. Further, the country faced a severe food shortage crisis in the early 1960s for which large imports of wheat had to be made. This forced the policymakers to realize that in future continuous reliance on food imports and aid would impose heavy costs in terms of political pressure and economic instability (Rao 1996). There was a desperate search for a quick breakthrough in agricultural production. One choice before the country was to introduce into cultivation new HYV seeds of of wheat and rice which were available with the Consultative Group on International Agricultural Research (CGIAR) institutes like the International Maize and Wheat Improvement Centre (CIMMYT) and the International Rice Research Institute (IRRI). Amidst a serious debate, the government took a bold decision then to import and spread the HYV seeds of wheat and rice which required the use of fertilizers and irrigation. This marked the second phase in the agriculture policy of the country. The strategy produced quick results as there was a quantum leap in yield. Consequently, wheat and rice production in a short span of 6 years between 1965/66 and 1971/72 witnessed an increase of 30 million tonnes, which is 168 per cent higher than the total achievement in the 15 years following 1950/51.

The new agricultural strategy, also known as the green revolution technology, had its greatest success in the attainment of self-sufficiency in foodgrains. As the green revolution technology involved the use of modern farm inputs, its spread led to a fast growth in the agro-input industry. Agrarian reforms during this period took a back seat while research, extension, input supply, credit, marketing, price

support, and spread of technology were the prime concerns of policymakers (Rao 1996).

Two very important institutions, namely the Food Corporation of India and the Agricultural Prices Commission (subsequently renamed as the Commission for Agricultural Costs and Prices), were created at the beginning of the green revolution period to ensure remunerative prices to producers, to maintain reasonable prices for consumers, and to maintain a buffer stock to guard against the adverse impact of year-to-year fluctuations in output on price stability. These two institutions have mainly benefited rice and wheat crops, which are the major cereals and staple food of the country.

The next phase in Indian agriculture began in the early 1980s. While there was a clear change in economic policy towards delicensing and deregulation in the industry sector, agriculture policy by contrast lacked direction and was marked by confusion. Agricultural growth accompanied by increase in real farm incomes led to the emergence of interest groups and lobbies which started influencing the farm policy in the country. There was a considerable increase in subsidies and support to the agriculture sector during this period while public sector spending in agriculture for infrastructure development started showing a decline in real terms, though investments by farmers kept rising (Mishra and Chand 1995; Chand 2001). The output growth, which was concentrated in very narrow pockets, became broad-based and gathered momentum. The rural economy started witnessing a process of diversification which led to a growth in non-foodgrain output like milk, fishery, poultry, vegetables, and fruits. This accelerated a largely market-driven growth in agricultural gross domestic product (GDP) during the 1980s.

The decade of the 1980s did not see any major policy initiative for agriculture; wider spread of improved technology was the main factor for output growth. Towards the late 1980s, some adverse consequences of the new technology started emerging. Some pockets of the green revolution areas started showing signs of strain on natural resources like land and water. The mounting burden of subsidies put a pressure on the fiscal resources, and after 1980–1981, public investments in agriculture started declining. Some researchers think that the rising bill on farm subsidies was the main cause for the decline in public sector investments in agriculture, which are very important for long-term output growth.

Though the green revolution has been widely diffused in irrigated areas throughout the country, the dryland areas have yet not benefited from the technological breakthrough as witnessed through the green revolution technology. Of late, improved varieties of oilseeds and coarse cereals have provided some opportunities for productivity growth in dryland areas. A new phase was started in India's economic policy in 1991 that marked a significant departure from the past. The government initiated a process of economic reforms which

involved deregulation, reduced government participation in economic activities, and liberalization measures. Though these reforms were not directed at the agriculture sector, the sector was affected indirectly by a devaluation of the exchange rate, liberalization of external trade, and reduced protection to industry. At the international level, there was a new trade accord and the World Trade Organization (WTO) required the opening up of the domestic market. Initially, there were strong apprehensions about the impact of trade liberalization on Indian agriculture which turned out to be a real threat for several commodities produced in the country later on.

All these changes raised new challenges and provided new opportunities that required an appropriate policy response. The price intervention of the last two decades had a very limited coverage, and there was a sort of policy vacuum. There was strong pressure on the government to make a formal statement regarding its agriculture policy so as to provide new direction to agriculture in the new and emerging scenario. In response to this, the Government of India announced a new agricultural policy in July 2000, which is known as the National Agriculture Policy 2000.

The Planning Commission has been the top-level policy think tank of the Government of India equipped with expertise at all levels. In addition, the commission took inputs from outside experts by preparing working group reports and steering committee reports before finalization of five-year plans. It also constituted expert groups and task forces to get recommendations on any emerging issue.

The Planning Commission, based on recommendation of working groups, started recommending a set of reforms in agriculture as early as the 10th Five-Year Plan, which covered the period from 2002 to 2007. The need to implement the reform was further emphasized in the 11th as well as the 12th Five-Year Plans.

Reforms and Sectoral Growth

One would like to understand the reasons for acceleration in the growth rate of the non-agriculture sector and the cyclical growth trajectory noticed in the agriculture sector. The key reason for this is that a series of economic reforms were undertaken beginning in 1991 to remove various types of controls, liberalize the economy, attract private investments, and promote globalization. Some of these reforms, particularly globalization and liberalization of external trade, subjected agriculture to international competition but the domestic reforms in agriculture remained patchy and piecemeal. After a lot of pressure from researchers and thinkers, a few reforms were undertaken during the years 2002 to 2004, which imparted some strength to Indian agriculture. These include:

1. Removal of Licensing Requirements, Stock Limits, and Movement Restrictions on Specified Foodstuffs Order, 2002 and 2003. As per this order, wheat, paddy/rice, coarse grains, sugar, edible oilseeds and edible oils, pulses, *gur*, wheat products, and hydrogenated vegetable oil or *vanaspathi* were removed from the list of Essential Commodities Act (ECA), 1955, and a permit or licence was thereafter not required for their trading, storage, and movement.
2. Milk and Milk product Order (MMPO) of 2002 modified the MMPO of 1992 and removed restrictions on setting up of new capacity in milk processing and did away with the concept of milkshed.
3. Removal of prohibition on futures trading in any commodity, in year 2003.

These reforms attracted much-needed investments by the private sector in the dairy sector and in agricultural marketing. By the year 2005, 10 big corporate players entered the arena of agricultural marketing. This resulted in considerable increase in competition in agricultural markets, and farmers were able to get higher market price than the minimum support price (MSP) for wheat and paddy in some states where farm harvest prices often remained lower than MSP. This competition in the primary market raised wholesale and retail prices of wheat followed by rice in the country. Increase in global prices and a sharp shortfall in wheat output in the country in two successive years (2004–2005 and 2005–2006) also pulled domestic prices up. It was then argued by officials in Ministry of Food that the entry of private corporate players in grain marketing was the cause for surge in wheat prices and their activities should be curbed. On this ground, reforms in ECA to liberalize agriculture marketing were rolled back during 2006–2008 leading to the exit of most of the big players from the grain market. So, the situation of agriculture marketing was back to the 2002 level and prices received by farmers in the grain markets were left to be determined by the limited competition among the traditional traders.

While some reforms were attempted in agricultural trade, they did not include reforms in agricultural marketing or transactions of farmers' produce. One reason for this was that agricultural marketing is a state subject – it required reforms by the respective states. However, measures were initiated by the central government to bring reforms in the system of agricultural markets in the states. A Model Act called the State Agricultural Produce Marketing (Development & Regulation) Act, 2003, was prepared and shared with all the states for implementation. Some incentives were also offered to states to adopt the Model Act to improve competitiveness of primary markets. The ground reality has been that various reforms have been considerably diluted and only partly implemented at the state level. In some cases, new conditions were attached to reforms which defeated the

very goal of reforms. Thus, while the non-agriculture sector was getting more and more competitive and availing the benefits of new innovations in trade and commerce, agricultural marketing remained stuck in the old mould with farmers getting depressed prices in the harvest season. The effect of this discriminatory approach of reforms towards agriculture became visible towards the late 1990s, which saw an increase in the number of farmers' suicides and it further worsened thereafter.

Another often less talked of reason for the build-up of agrarian distress is the ecological degradation and unsustainable use of water resources. To cope with these stresses, farmers have been adopting more resource- and capital-intensive production. As the ecological limits cannot be stretched too far, the unsustainable use of natural resources has manifested in various forms, becoming more serious over time. Drying of water bodies, reduced flow of water in streams and rivers, declining groundwater level, and frequent failure of bore wells in some parts of the country are forcing more investment in irrigation, changes in crop pattern, and affecting yield. These changes ultimately affect farm income; in some cases, the shrinking natural resources eventually destroy livelihood options.

As mentioned earlier, the Planning Commission was replaced by the NITI Aayog on 1 January 2015. Soon after its creation, a task force chaired by the vice chairman of NITI Aayog was constituted to look into issues of the agriculture sector (NITI Aayog 2015). After this report, the NITI Aayog published a three-year action agenda which also spelt out the need and type of reforms needed in agriculture (NITI Aayog 2017). However, agriculture being a state subject, reforms in the area of market, land, tenancy, and internal trade are in the state list as per the Constitution of India. The central government can only advise the states to undertake reforms in those areas.

To further address the issue of increase in farmers' income, the NITI Aayog prepared a comprehensive plan for doubling farmers' income by year 2022–2023 (Chand 2017). This includes policy reforms and other initiatives germane to transforming India's agriculture sector and secure farmers' prosperity.

Indicators of Agrarian Distress

It looks strange that despite so much discussion on agrarian distress, quantitative indicators to assess the distress have not been developed. In a pioneering work on agrarian distress, P. Sainath used the information on farmer suicides to draw the country's attention to the plight of farmers and farming. The data on suicides by various socio-economic groups and by gender are published regularly by the National Crime Record Bureau since 1995. In the absence of any other indicator

on distress, we have used farmer suicides to represent the extent, severity, and trend in farmers' distress. This data shows that the number of farmer suicides followed a rising trend during 1995 to 2004. In these nine years, suicides committed by farmers (cultivators and agricultural labourers) increased by 70 per cent, from 10,720 to 18,241 (Figure 6.3). After peaking in 2004, the number of farmer suicides started declining. The declining trend continued until 2013 and shows a small increase during 2014, and again in 2015 which was a drought year. In most years, the incidence of suicides among the farming population was much lower than that among the non-farming population. It will be interesting to find out how the trend in farmer suicides is associated with the performance of the agriculture sector.

Based on information available in various studies and anecdotal evidence, it is observed that agrarian distress is closely associated with the level and growth of farm income. Further, the level and growth of farm income are determined by growth in value added in agriculture at real prices, terms of trade for agriculture, and workforce in agriculture. The growth and changes in these three variables during the last two decades for which farmer suicide data is available are presented in Figures 6.4 to 6.6.

It comes out clearly from Figures 6.3–6.6 that (*a*) farmer suicides increased when agriculture growth slowed down and declined when the growth rate went up, (*b*) suicides increased when terms of trade for agriculture deteriorated (1994–1995 to 2004–2005) and declined with the increase in relative prices of agricultural produce (2004–2005 to 2013–2014), and (*c*) farmers suicides increased when there was increase in workforce in agriculture and declined with the decrease in workforce. These three factors, which are closely associated with rise and fall

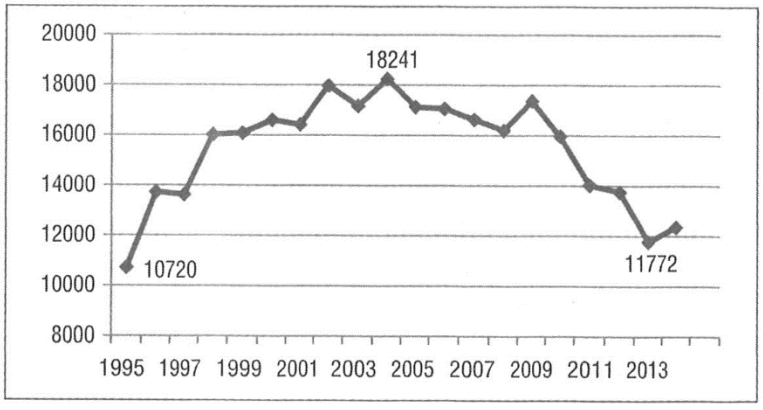

FIGURE 6.3 Number of farmer (cultivators and agricultural labourers) suicides according to the National Crime Research Bureau (NCRB) data

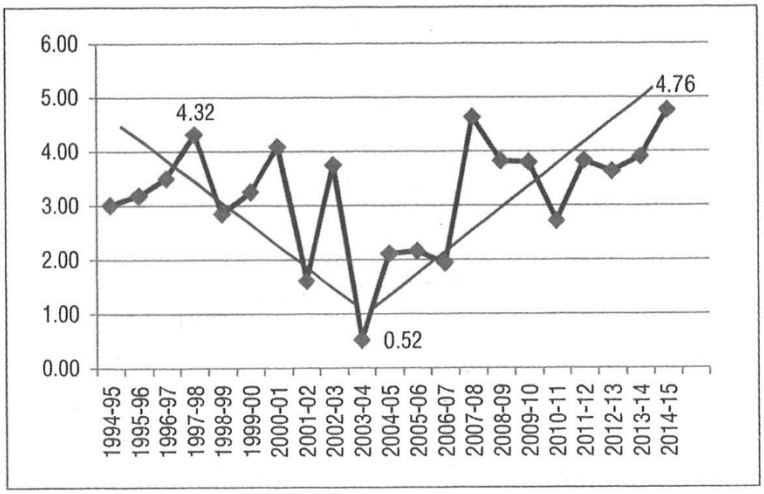

FIGURE 6.4 Five yearly moving average of annual growth rate in GDP agriculture at constant prices of year 2004–2005

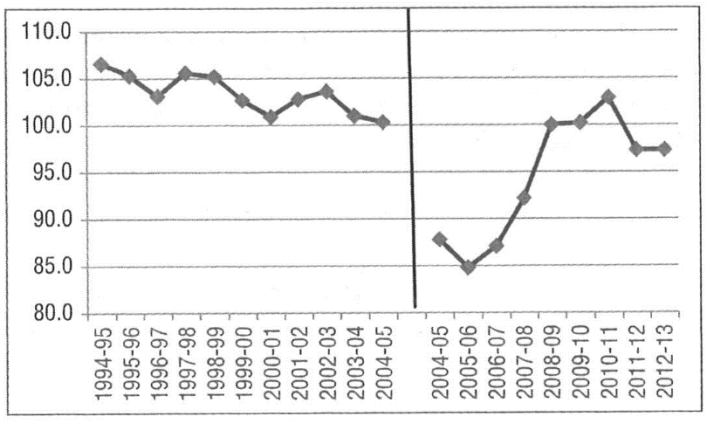

FIGURE 6.5 Terms of trade: prices paid and received by agriculture – old and new series

in farmer suicides, are the three components of agricultural income (Chand, Saxena, and Simmi 2015). The net effect of changes in agriculture growth, terms of trade for agriculture and workers dependent on agriculture, and on income from agriculture is presented in Table 6.2. Income of agricultural labourers and farmers at current prices, deflated by the consumer price index–agricultural labour (CPIAL), increased at the rate of 2.76 per cent per year during 1994–1995 to 2004–2005 and then accelerated to 4.74 per cent per year during 2004–2005 to

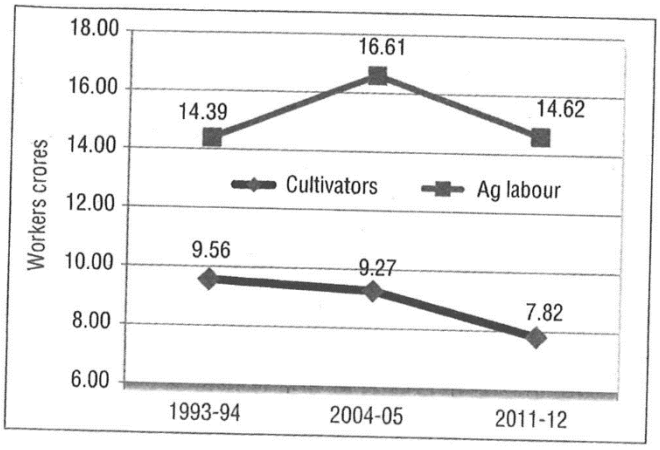

FIGURE 6.6 Workforce in agriculture (numbers in crores)

Source: National Sample Survey Organisation (NSSO, *Employment and Unemployment Situation in India*, National Sample Survey (NSS), various rounds.

Note: 1 crore = 10 million.

2013–2014. The income shrunk by 1.68 per cent in the drought year 2014–2015. The analysis presented in the preceding section confirms that income is crucial to alleviate agrarian distress. Therefore, all factors which contribute to rise in income should be rigorously followed.

TABLE 6.2 Growth rate in real agriculture income during the rising and falling phase of agrarian distress (%/year)

Period	*Total Sectoral Income*	*Income per Worker*
1993–1994 to 2004–2005	2.76	2.24
2004–2005 to 2013–2014	4.74	7.25
2014–2015	–1.68	-

Sources: Author's estimate derived by subtracting wage bill paid for hired labour from net value added in agriculture from following sources: (*a*) data on net value added in agriculture taken from National Accounts Statistics, CSO, various issues and (*b*) data on wage bill computed by multiplying wage rates with days of employment in agriculture taken from *Rural Labour Enquiry Reports* (*RLER*s) and NSS rounds on employment and unemployment.

Distress at Household Level

At the household level, the agrarian distress develops and worsens under two types of circumstances. The first situation arises when the income of a farmer is

chronically lower than his family expenditure and a farmer borrows money from some other source to meet the gap. Expenditure on social ceremonies and illness of family members, which is not part of regular household expenditure, are also important reasons to borrow money, particularly from non-institutional sources, and to fall under debt. The accumulated debt in such situations most often becomes so large that it becomes impossible to repay it from the household income. Some farmers are forced to sell a part or the whole of their farmland and other household assets to repay the loan and to meet the expenditure on social ceremonies. Some of the farmers, who do not find any way to get out of this situation, are forced to undergo humiliation as a defaulter and are unable to face their family and society. The loss of honour due to default in loan repayment and sensitivity towards the ensuing humiliation pushes some farmers to the extreme step of ending their life.

The second situation involves a sudden loss in income due to failure of crop or price crash for the major income earning crops grown by a farmer, making it difficult to run the household. In the absence of crop insurance or adequate relief, crop failure can have a devastating effect on farm income. Further, there is no mechanism except MSP to escape the effect of price crash. Any loss of income of severe nature on account of crop failure or market failure becomes a source of distress and frustration, and in some cases leads to the extreme step. This is more pertinent in the case of high value commercial crops. A year or two of high prices induce many farmers to invest excessive resources in risky commercial crops. The sudden increase in supply is often met with a violent price crash. Without risk coverage, which is unknown to most Indian farmers, the price volatility can have a devastating effect on farm income and farmers' well-being.

Another factor that leads to household level distress is consumption expenditure. As it is well known, the consumption basket is expanding and expenditure on items such as social ceremonies, education, and health is rising. Some farmers spend beyond their means on social ceremonies. A culture of profligate expenditure on social ceremonies and conspicuous consumption is growing in rural areas. As agriculture income often falls short of meeting such expenditures, farmers borrow money from private sources at exorbitant interest rates.

Strategy

The demands as well as responses to address agrarian distress focus mainly on treating the symptoms and not doing much for treating the causes. Most efforts take the easier options of relief, compensation, and social safety measures. Voices are also raised to increase farm subsidies, offer higher prices for farm produce, and ensure minimum income to the farmers. The fact is that the Planning Commission over the 11th and 12th plan periods was arguing consistently in the plan documents

to contain subsidies while raising public investment. Providing relief to the sector or households that suffer erosion in their income due to events like crop failure, market failure, and tragedy like suicides,is an important short-term measure, but it does not offer a solution for the problem. It is also noted that despite increase in safety net and relief measures in recent years, agrarian dissatisfaction has been spreading and becoming more severe. Therefore, there is a need to do a rethink on the responses to the agrarian challenge and follow a development strategy that can address the root causes and prevent agrarian distress in the country.

Raising Farm Income

It is evident that the level of agrarian distress is closely linked to two factors – the level of farmers' income and the level of household consumption expenditure. The level of farm income is determined by the scale of farm, productivity, input–output relationship (technology), price of input and output, and external shocks. Prices of farm commodities relative to prices of other commodities also matter in affecting real income of farmers. Income per farmer can be raised by shifting agriculture workers to non-farm occupations.

In order to make farming economically viable, some minimum scale is a must. A handkerchief size of landholding can never generate adequate income for the operator howsoever efficient it may be. Further, fresh evidence from cost of cultivation data shows that long-held inverse relation between farm size and productivity is changing.

A comparison of income of a farmer with the poverty line for rural India for the year 2011–2012 shows that average income of a farmer household dependent on agriculture is only 58 per cent above the poverty line based on Tendulkar methodology[1] (PC 2013). The average farm income per farm household was estimated to be INR 77,230 while the poverty line for a family of five members in rural area is INR 48,960. This also implies that a farmer having landholding below 0.63 hectare will not earn enough income from agriculture even to keep his family out of poverty. In other words, about 53 per cent of farm households in India will be living under poverty if they do not have earnings from non-farm sources.

Thus, to save them from distress, they need to have either income from non-farm sources or a larger size of land holding. Even if the suggestion of Dr M. S. Swaminathan to keep MSP 50 per cent higher than the sum of paid out and imputed cost (including land rent and wage bill for farmer's own labour and family) is accepted, and agriculture prices are jagged up by 50 per cent, still 39 per cent of farmers will continue to remain under poverty if they do not have non-farm income. In fact, the level of income to keep a family out of distress is much higher than the given poverty line.

Other measures needed to improve farm income include increase in productivity, improved technology, increase in crop intensity, shift of resources towards high value enterprises, better prices for farm produce, and shift from farm to non-farm jobs. They require a strong and well-thought development strategy. But even if all plans have suggested the right measures, they were ignored mainly at the level of states and also sometimes at the level of the centre.

Sops versus Development

A feeling is developing in the country that agrarian distress can be addressed by providing compensation, relief, free or subsidized inputs, or liberal financial support to farmers. These measures are important to provide succour and immediate help to those severely affected by distress, like farmer suicides and crop damage. Such help must be provided quickly, but it cannot make the agriculture sector distress free. Unfortunately, the quick fix and populist measures are being emphasized more than the development strategy. The reason is that competitive populism prevailing in the country has created a strong 'sops psyche' and weakened the 'development psyche'. This is evident from the resources we allocate to subsidies and investment in agriculture (Table 6.3). The amount spent on subsidies for the agriculture sector excluding power subsidies is 2.4 times the amount spent on development of infrastructure by the central government and all the states taken together for creating a base for long-run growth. According to some estimates, state-level subsidies on power used in agriculture and other small heads add up to more than INR 1 lakh crore. When these state-level subsidies are added to fertilizer and other agricultural subsidies, their level becomes more than five times the resources allocated for infrastructure development in agriculture. These issues were addressed by the plans but never implemented.

TABLE 6.3 Public sector capital formation and central subsidies for agriculture and allied sectors at current prices

Year	*Public sector investment*		*Subsidies by central government*	
	INR (Crore)	*% of GDP Agr*	*INR (Crore)*	*% of GDP Agr*
2011–2012	36,712	2.44	90,130	5.99
2012–2013	40,425	2.42	106,923	6.41
2013–2014	48,963	2.60	111,758	5.94

Source: National Accounts Statistics, CSO, GOI, various issues.

An illustration of sops versus development to raise income and address agrarian distress is presented in Table 6.4. Raising farm income through an increase in

TABLE 6.4 Sops and development options to raise income of farmers

Factors affecting income	*Sops: effect*	*Development: effect*
1. Use of modern inputs	Subsidy: low quality input, spurious inputs, leakages	Competitive market: quality input
2. Irrigation	Free power and water, subsidy on diesel: poor supply, excessive use and over-exploitation of water	Regular and reliable supply: efficient use. Adoption of modern irrigation technology.
3. Resources to invest	Interest subsidy, loan waiving: corruption, reluctance to lend	Easy and ready access to institutional credit, Kisan Credit Card: less cost and time, smooth flow
4. Farm-level prices	MSP 5higher than open market price: only some commodities in some states benefit, increase in food subsidy, suppress market development	Agricultural Price and Marketing Committee (APMC) reform, Electronic National Agricultural Market (eNAM), modern infrastructure, value chain: competitive prices, break traders' cartels, integration between surplus and deficit regions, value addition, higher share of producers in consumer rupee, benefit of exports
5. Price crash	Public procurement: cost to exchequer, compound price volatility	Responsive trade policy, market intelligence, deficiency price payment, price insurance, futures: check glut, reach global market, hedging
6. Low scale – farm size	Raise prices to raise income: price distortions, promotion of inefficiency	a. Diversification, intensive and precision farming, give knowledge and skill: high return, low cost. b. Liberalize land-lease market: raise farm size, facilitate exit c. Impart skill: non-farm employment d. FPO
7. Crop loss	Pay relief to family: short-term relief	Crop insurance: payment of claims, entitlement
8. Degradation of land and over exploitation of water	Fertilizer subsidy, subsidy on water pumps: further degradation and over-exploitation	Check ecological degradation, community participation, resource conservation technologies: sustainable resource use

Source: Author.

productivity requires an increase in the use of modern inputs and irrigation. There is a sop route, and there is a development route to raise the use of modern inputs and irrigation. The sop route is to provide subsidy to farmers on seed, fertilizer,

chemicals, growth hormone, and such inputs. Any intervention leading to sales at a price below the market price has a hazard of rent seeking and is prone to dilution in quality, as seen recently in the case of subsidy on seed and chemicals in cotton in Punjab, where the white fly had caused widespread damage to the cotton crop. Anecdotal and oral evidence indicates that a large chunk of subsidies on seed, equipment, and chemicals is siphoned off by dealers and department officials, and farmers get a smaller share and an inferior product. In contrast, the development approach is focussed on promoting a competitive market and on monitoring and regulating quality. Similarly, for irrigation, the populist approach is providing free power, leading to over-exploitation of water, and the higher investment in submersible pump going beyond the reach of small farmers. In contrast, reliable and assured power supply and use of modern irrigation technologies lead to sustainable use of water.

Given that there are trade-offs built into the sops versus investment debate there is a need for consensus among political parties to put agriculture on the development path as per the roadmap for doubling farmers' income suggested by the NITI Aayog.

On the output side, demand is rising for effective and higher MSP for more crops in all states. The common perception is that the MSP is higher than market price. This is true in some cases. In some cases, farmers get prices higher than MSP even under existing market imperfections. Enforcing MSP in such cases will not only distort market, it will also pull down prices. The alternative option of raising price realization by farmers is to raise their share in the price paid by consumers as is envisaged under the Electronic National Agricultural Market (eNAM). The electronic platform and unified NAM and some other market reforms can fetch much higher prices to the farmers than MSP by increased competition, better spatial integration of prices, reduced number of intermediaries, and development of value chain.

Recent Government Initiatives

During 2017 and 2018, the government has announced a number of initiatives for the development of agriculture for improving agriculture production, efficiency, and market; addressing risk and shocks, saving cost, and raising scale; and non-farming employment. These are listed below:

1. Prioritization of incomplete major irrigation projects, command area development, more crop per drop, restoration, rehabilitation and revival of traditional water bodies, watershed development, and convergence with MGNREG[2]

2. Revamped and enlarged crop insurance scheme
3. Soil health card
4. Direct benefit transfer to replace input subsidies: pilot on reforms
5. Investments
6. eNAM for better prices and fair deal for farmers in market
7. Sharing of Model Agricultural Produce and Livestock Marketing Act (2017)
8. Sharing of Model Contract farming Act (2018).
9. 100 per cent foreign investment in processed food retailing provided they are manufactured in India
10. Rurban mission
11. Model land lease law prepared by NITI Aayog
12. Skill India Mission
13. Start-ups in agriculture

These are not sops but development initiatives to strengthen agriculture and to put it on a sound growth path, making it attractive to farmers. The initiatives also include measures to shift the workforce from the farm sector to the non-farm sector.

The big question is to make these initiatives deliver, and this requires strong collaboration and cooperation from the states for these initiatives. The central government can achieve some milestones in manufacturing services on its own but any major success in agriculture requires ideas, initiatives, and resources from the centre and their implementation by the states along with contribution from the states. One area where major difference to agrarian distress can be made is through the creation of jobs for rural youth, which will reduce agrarian distress in two ways: first, by raising per worker income in agriculture and, second, by contribution of farm family members working outside the farm. Realization of this will also require making rural youth employable by equipping them with the required skill. The Skill India Mission must focus on this. There is considerable scope to raise agricultural income through post-harvest value addition.

Doubling Farm Income to Address Agrarian Distress

In 2015, Prime Minister Narendra Modi has given a clarion call for doubling farmers' income. This is a development initiative and not a sop. Achieving this goal has been challenged by many experts, and some of them have dubbed it as a 'miracle of miracle or a mere dream' (Gulati and Saini 2016). Some experts are optimistic about this and feel it is doable (Chand 2016). However, if it cannot be done, then agrarian dissatisfaction also cannot be addressed. It needs to be noted that doubling of farmers' income does not require doubling of production.

A three-pronged strategy focussed on (*a*) development initiatives, (*b*) technology, and (*c*) policy reforms in agriculture is needed to double farmers' income. The country needs to increase use of quality seed, increase power supply to agriculture, and improve efficiency in use of inputs like fertilizer, water, and labour. The area under irrigation has to be expanded by 1.78 million hectares, and area under double cropping should be increased by 1.85 million hectares every year. Besides, the area under fruit and vegetables is required to be increased by 5 per cent each year. In the case of livestock, improvement in herd quality, better feed, increase in artificial insemination, reduction in calving interval, and lowering age of first calving are the potential sources of growth.

Sustainable growth in productivity and farmers' income requires a paradigm shift from input-intensive technologies, which have dominated Indian agriculture since the onset of green revolution. Emphasis is also laid on transformative rather than incremental gain from agricultural research and innovation. Breakthroughs in basic and other modern sciences offer voluminous opportunities for developing transformative technologies for agriculture. However, this has not been happening for a variety of reasons. An important reason for this is that public policy on agricultural research and development (R&D) has relied heavily on genetic manipulation of plant traits and on plant breeding for raising productivity and to some extent imparting resistance to diseases and pests. This approach has delivered rich dividends in terms of growth in output, which has been driven by intensive use of input and which ignored sustainability aspects and input management. There is a feeling that natural resources management and agronomic aspects have remained under-exploited in the country.

Breakthroughs in basic and other modern sciences offer many opportunities for developing transformative technologies for agriculture outside the discipline of plant breeding. These include new methods of raising plants, precision farming, application of advance sensors, use of drones, use of bio-fertilizers, biological nitrogen fixation, crop modelling, weather tracking, and vertical farming. Accordingly, the world is moving towards application of new scientific tools in agriculture. Many of these tools are being popularized by start-ups in the private sector. The public sector R&D system should pro-actively promote science-based techniques and farming systems.

There can be two approaches to double farming income – first, the exploitative approach involving over-exploitation of land and water, biodiversity, and environment degradation and, second, a sustainable intensification approach that follows boundary-breaking innovations in which multiple research areas are brought together to design new innovative farming systems.

About one-third of the increase in farmers' income is easily attainable through better price realization, efficient post-harvest management, competitive value

chains, and adoption of allied activities. This requires comprehensive reforms in market, land lease, and raising of trees on private land. Agriculture has suffered due to the absence of modern capital and modern knowledge. There is a need to liberalize agriculture to attract responsible private investments in production and market. Similarly, farmer producer organizations (FPOs) and farmer producer cooperatives (FPCs) can play a big role in promoting small farm business. Ensuring MSP alone for farm produce through competitive market or government intervention will result in sizeable increase in farmers' income in many states.

Most of the development initiatives and policies for agriculture are implemented by the states. States invest much more than the outlay by the centre on many development activities, such as irrigation. The progress of various reforms related to market and land lease are also state subjects. Therefore, it is essential to mobilize states to own and achieve the goal of doubling farmers' income. If concerted and well-coordinated planning is undertaken by the centre and all the states and union territories, the country can achieve the goal of doubling farmers' income by the year 2022.

Conclusion

The solution to the problem of agrarian distress lies in growth and development, and not in sops. Agrarian distress cannot be removed by doubling farm subsidies, MSP, NREGA, or food subsidies. The only way to address this is to undertake development measures which can lead to fast growth in income per farmer. This strategy should also involve increase in income within the agriculture sector and shift of a sizeable workforce from agriculture to non-farm occupations.

Notes

1. As per the Tendulkar methodology, the poverty line has been expressed in terms of average monthly per capita expenditure (MPCE) based on mixed Reference Period for rural and urban areas. The poverty line for 2011–2012 for rural and urban areas based on MPCE is estimated at INR 816 and INR 1,000 respectively. Thus, for a family of five, the poverty line in rural areas in terms of annual consumption expenditure turns out to be INR 48,960.
2. These are initiatives under the Prime Minister's Krishi Sinchai Yojana (or Agricultural Irrigation Programme).

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