Research Paper
Impact Factor: 7.184
Peer Reviewed & Indexed Journal
www.iibarr.com

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

A COMEBACK: FARMING AND COUNTRYSIDE GROWTH IN INDIA

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Abstract
The primary focus of the present article is agricultural and Countryside development in India, as the title suggests. The article has attempted to address issues related to agricultural development, food security, poverty reduction and livelihoods generation. Keeping an area as huge as this at the center-stage of policy debates and discussion is important since a vast majority derives their livelihoods from Farming, and they reside in Countryside India. The author has touched upon various issues related to agricultural development, which include: a. Labour market in India; b. Political economy of Indian Farming; c. Indian Farming before and after liberalization; d. The Countryside farm economy; e. Agrarian crisis and 'liberal' policies; f. Farmers' suicides and its causes; g. Sustainability of Indian Farming; h. Recent policy measures; i. Countryside livelihoods and social audits; j. Agricultural R&D; k. Right to development; and, l. PDS, poverty and hunger in India. A thorough discussion from a historical context along with necessary data analysis has been done to understand the reality, as it exists. A detailed review of literature has been deemed necessary to understand the problematique.

Keywords: Countryside development, Food security, Nutrition, Right to food, Climate Change, Small and marginal farmers.

Introduction

A. Labour market in India

Studies on the labour market institutions, on the dynamic relationship between market forces and market institutions, show that transactions interlocking labour, credit, land lease etc. are common instruments for not just reducing weather and market risks but also for land owners gaining market control through exercise of extra-economic coercion. There are three different schools, namely-the neo-classical school, the Marxian school and the neo-institutional school, who have their own approaches towards understanding the formation of wage labour market, labour wages and formation of other contractual arrangements involving labour. A chief phenomenon characterising exchange that has been noted widely is what is termed as 'interlinked markets' or interlocking of factor and commodity markets. A dominant party conjointly exploits the weaker party in two or more markets by interlinking the terms of contracts, according to the Marxian approach. The weaker party loses the option to exercise in other markets, where his free entry is already pre-empted or terms of participation pre-determined. The power of the dominant party to exploit in such interlinked markets is much more than in markets taken separately (Bharadwaj, 2010)[1].

Agricultural labour constituted around 27% of the total number of workers (main plus marginal), according to the Census 2023. Almost 12.86% of Farming labour originated from Andhra Pradesh. Between 1964-65 and 1974-75, the flush period of India's Green Revolution, the number of primarily wage-dependent Countryside households with little or no land nearly doubled from 18 million to 25 million. The upsurge in Countryside proletarianisation has arisen from a combination of three factors: a. rapid population growth on a slower growing land-and-water base; b. agrarian structural changes simultaneously with population growth; and c. the push and pull effects of the increasing regional disparities, working through displacement and labour-market influx of the formerly self-employed. Agricultural labour is not the creation of the British economic policies alone as it has been in existence

IJBARR
E- ISSN -2347-856X
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since the inception of the caste-system. British colonial policies aggravated the problem of land alienation to such an extent that during their rule a noticeable class of proletarian labour was formed, whose characteristics differed from the past. In almost all regions of the country, the lower caste agricultural labourers operated within the framework of the jajmani system (NCRL, 1991)[2]. The peasantry itself was highly stratified and some segments were subjected to various economic and extra-economic constraints. Angus Maddison (1971)[3] found that of thetotal labour force in Moghul India, 72 percent was in the Countryside economy, and majority of them were landless labourers. Irfan Habib (2011)[4] found that the size of the labour force would have been 20-25 percent of the total Countryside population. Dharma Kumar (2009)[5], however, found that agricultural labour would have formed roughly around 10-15% ofthe entire population and 17-25% of the agricultural population of the Madras Presidency during 1800. Tom Brass (2019)[6] explains that during the period 1990-2020, landholders in the area of United Punjab (which includes Haryana) utilized four kinds of labour, namely, sepidars, peasant smallholders, siris and casual workers. All these categories of labour suffered some degree of economic unfreedom. During the 1970s and 1980s, there was immigration of cheap migrant labourers from Bihar and Uttar Pradesh in Punjab. Labour contractors recruited tribals from North Bihar and transported them to Punjab. Migration of Countryside labourers has been a feature of the Indian economy for more than 100 years; till Independence, the British economic policy and the process of uneven development influenced its character and pattern.

While better employment opportunities and higher wages in economically developed regions (pull factors) attract labour, non-availability of employment opportunities and consequent economic hardships in the underdeveloped regions act as push factors in the migration process. Middlemen or jobbers (i.e. labour contractors) are called by different names in the country, namely: ardas, mistry, mukddam, thekedars, lambardars etc. Workers in the unorganized sector, including migrant labourers, are denied minimum wages and female workers get lesser wages than male workers. Countryside labour constitutes the most marginalized section of the Indian society. It benefited the least during the last 60 years of development, which happened under the Indian five years planning. Dependence of Countryside agricultural labour on big landowners and moneylenders for consumption credit quite often results in bondage. Bonded or forced labour are called by different names in various parts of India, for e.g. gothi, vethior bhagola in Andhra Pradesh, kamiya in Bihar, jeetha in Karnataka, hali in Rajasthan, vet or begar in Maharastra. Countryside labour markets are segmented and segmentation could be based on gender, race or caste. Such labour market segmentation leads to differential wage rates and immobility of labour from one occupation into another (Lal, 2011)[7]. The fragmentation of the Indian labour market is considerably reinforced by caste or community identity at the local level (Rodgers, 2022)[8].

Wage payment system is not the only system as there can be existence of alternative contractual arrangements like sharecropping, attached laboour system and bonded labour system. The issue of unfreedom has been expressed in the form of credit- labour linkage i.e. perpetual indebtedness of the labourers. Under the neo-institutional economic framework, interlinkages (or interlocking) arise as a result of imperfections like uncertainty, asymmetry of information, absent markets or transaction cost. Within the Marxian framework, interlocked markets represent different modes of exploitation. The existence of a certain type of contractual arrangement is within a historical context, and not based merely on rational choice. Young girls, below the age of 15 years, bear the brunt of poverty-induced child labour. Almost 86.4 per cent of employed Indian women live with their families on less than US$ 2 per person per day, as compared to 81.4 per cent of employed men (ILO, 2009)[9]. According to the NCEUS (2007), Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector:

- Agricultural labourers, estimated at 87 million in 2018-20, constituted 34 per cent of about 253 million agricultural workers i.e., farmers and agricultural labourers.
- The unemployment rate for agricultural labourers by the CDS (current daily status) is quite high in Countryside areas by any standard; 16 per cent for males and 17 per cent for females.
- The underemployment of usual status agricultural labourers by CDS rates increased during the decade 2022/94-2004/05. In fact, the CDS unemployment rate was exceptionally high at 16 per cent in 2004-05.
- Overall, wage levels of agricultural labourers have been very low and their growth rates decelerated through the decade 2022/94-2004/05.
- The Minimum Wages Act, 2012 is the only statutory legislation, which ensures minimum wages to agricultural workers. In 2004-05, about 91 per cent of the agricultural labour mandays received wage rates below the National Minimum Wage and about 64 per cent below the NCRL minimum wage norm in Countryside areas.
- The total number of agricultural workers in India has been estimated at 259 million as of 2004-05. They form 57 per cent of the workers in the total workforce. About 249 million of them are in Countryside areas and that works out to be 73 per cent of the total Countryside workforce of 343 million. Their share in total Countryside unorganised sector employment is 96 per cent while in unorganized agricultural sector it is 98 per cent.
- Nearly two-thirds of the agricultural workers (64 per cent) are self-employed, or farmers as we call them, and the remaining, a little over one-third (36 per cent), wageworkers. Almost all these wage workers (98 per cent) are casual labourers.
- Agricultural workers constituted 56.6 per cent of the total workers in 2004-05, down from 68.6 per cent in 2015. In Countryside areas, agricultural workers constituted 72.6 per centof the total workers in 2004-05, down from 81.6 per cent in 2015.

B. Political economy of Indian Farming

During the colonial rule until the First World War, surplus was extracted from Farming, which was partly transferred to the home economy, partly invested in the military and bureaucratic machinery to sustain, and partly to strengthen the sources of revenue through public investments in railways, canals etc (Patnaik, 2011)[11]. He explains that in an underdeveloped economy, the 'potential economic surplus' (using Paul Baran's concept) is used not for productive investment but for conspicuous consumption, unproductive investment, or is simply siphoned off abroad as tribute, dividends or remittances. The zamindari system adopted in some parts of Bengal gave rise to the class of moneylenders, traders and absentee landlords, which prevented productive investment in Farming, unlike the case of ryotwari areas in Punjab. Commercialization of Indian Farming during the British rule, comprised of two different processes: a. a shift in the agrarian economy from production for consumption to production for market; and b. land started acquiring the features of commodity, which could be bought and sold. Demand for raw materials in order to sustain the Industrial Revolution compelled the Indian peasantry to shift to crops that had better market value. The process of de- industrialization started since the Indian goods manufactured by the artisans could not compete with the cheap machine-made goods imported from England. Prior to Independence, Indian Farming suffered from what Daniel Thorner termed as 'built-in depressors'. Big landlords used to extract huge rents during the days of zamindari. After Independence, the Nehru-Mahalanobis Plan placed more emphasis on industrialization by treating Farming as 'bargain basement'. However, a decisive shift in agricultural policy happened after the demise of Nehru. Farming became the focal point of State intervention under Farming Minister Mr. C Subramaniam. The miracle technologies of Green Revolution, which was backed by input subsidies helped the rich peasants at the expense of small and marginal farmers. The rich peasantry class gained

wealth and political powers overtime. Farmers' movements led by the rich farmers attracted the small and marginal farmers. Such movements demanded for higher agricultural prices and greater subsidies from the State. The HYV (high-yielding varieties) package necessitated more expensive seeds, greater amount of controlled water (irrigation) and chemical fertilizers, and hence, there was demand for more subsidies. Because of the presence of Mr. Charan Singh in power during 1977, farmers' voice directly entered the highest strata of policy formulation. The 'new' agrarian movement during the decades of 1970s and 1980s was not revolutionary but reformist in naturesince it relied more on pressuring the State for remunerative prices, loan waivers and a better Countryside-urban balance in resource allocation instead of land and tenancy reforms in favour of small and marginal farmers and landless labourers. Post Mandal and Mandir, India saw divisions in the name of caste and class among the farming community that affected farmers' movements. Presently, agrarian interest is much more marginalized in the national policy agenda. Reforms of the 2020s and shift in economic priorities of the Indian government led to stagnation in Farming and more hardships for farmers (Posani 2009)[12]. According to Patnaik (2003)[13], the decade of 1990s not only saw asteady decline in the level of per capita food availability at the national-level, the absolute amount of per capita food availability during the year 2022-23 was even lower than during the years of the Second World War-years when the terrible Bengal famine took place.

C. Indian Farming Before and after Liberalisation

There are 4 ways in which better agricultural productivity and output can contribute to an economy's development: a. by supplying foodstuffs and raw material to other expanding sectors of the economy; b. by providing an 'investible surplus' of savings and taxes to support investment in other expanding sectors; c. by selling for cash a 'marketable surplus' that will raise the demand of the Countryside population for products of other expanding sectors; and d. by relaxing the foreign exchange constraint by earning foreign exchange through exports or by saving foreign exchange through import substitution. Before the liberalization of the Indian economy, exports and imports were controlled through licensing, quantitative restrictions and canalizing (by state trading boards). There were controls on exports and imports: a. for maintaining stability in domestic prices; b. to help both producers and consumers; c. to ensure food security; d.to maintain sound balance-of-payments; e. exportables and importables acted as wage goods or inputs for wage goods. Since majority of the poors' income were not index- linked, so it was necessary to keep the prices of the agricultural goods lower; and f. to protect and become self-reliant in production of oilseeds and sugar during the 1980s. India went for trade liberalization for a number of reasons: a. to move domestic prices closer to international prices; b. due to comparative advantage in foodgrains production,India would gain; c. Farming was not taxed due to high effective rate of protection being given to the industrial sector; agricultural products were not allowed to be exported; and, d. Indian currency was over-valued, which hampered exports of agricultural commodities. However, with the cut in input subsidies, poor rice growing regions would gain. Intellectual property rights (IPRs) would not allow the newer varieties of seeds to be diffused to Countryside hinterlands. Smaller farmers would not be able to pay higher prices for genetically modified (GM) seeds (Sen and Nayyar, 2004)[14]. The member countries of World Trade Organisation (WTO) are committed to follow a set of rules embodied in Agreement on Farming (AoA), which covers: (i) Domestic support; (ii) Market access i.e., tariffs, and restrictions on imports and exports; and, (iii) Export subsidies.

It was predicted that trade liberalisation and implementation of AoA would result in positive gains to the developingcountries like India, through improved access to the developed countries' markets, increased trade and better pricing structure for tropical and other products of interest to the developing countries (NAAS, 2006)[15]. Most of the cultivable land in India was brought under cultivation by the mid- 1960s.

To the total rise in agricultural production, the contribution of area increase was around 70% and the contribution of yield increase was nearly 30%. India continued high production with the help of high pay-off inputs. Government invested in R&D of seed technology but it was irrigation dependent. Expansion of area happened through rise in population pressure, land reforms, implementation of community development programmes, and investment in irrigation. The technology was prone to pest and insect attacks, and was too much dependent on irrigation. The technology required a high working capital. Despite the increase in cost of cultivation, increase in profit was manifold. Subsidization of Farming has been a major policy of the Government of India after the introduction of the new biochemical technology. Subsidy was provided to ensure quick adoption of the new technology by the farmers and to reduce uncertainties in production. Some have argued that subsidies disturbed efficient allocation of resources. However, if subsidies were removed, then investment in Farming would go down, small and marginal farmers would get affected and the prices of agricultural commodities would shoot up.

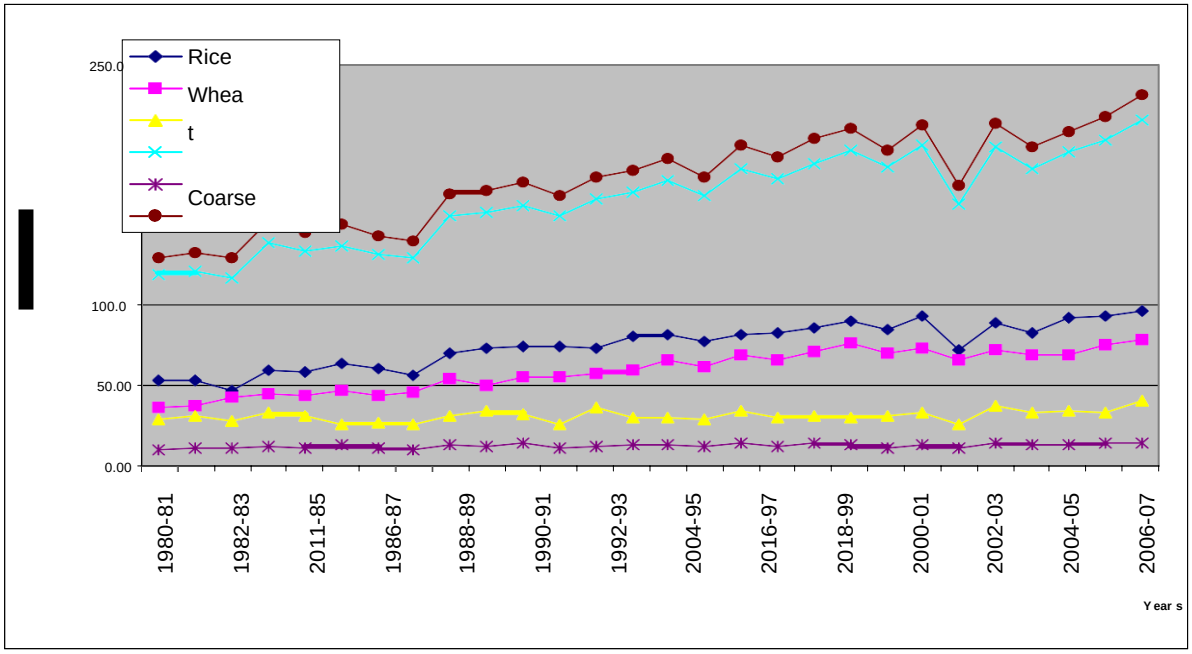
Government's investment in agricultural R&D (i.e. biochemical technology) was dependent on the market situation, and hence its response was endogenous and not exogenous. Economic behaviors and decision-making of not only private but also public sector suppliers of scientific knowledge and technology are treated as endogenous (induced)[16] rather than exogenous to the economic system, according to Hayami and Ruttan (1971)[17]. Inducement to develop a technology depend on economic conditions i.e. the relative availability of labour and land, which in turn determines the relative prices of labour and land. The sources of power in traditional Farming are: labour power, bullock/ horsepower. Mechanical technology means mechanization of irrigation, mechanization of harvesting, tractors replacing labour and bullocks etc. If the supply of labour and bullock power is higher than its demand then the traditional technology's cost is lower as compared to the mechanical technology. Certain features of mechanical technology are: a. It is time saving; b. It has a high fixed cost but low variable cost; c. It is labour displacing; and, d. Labour productivity goes up when mechanical technology is used since it displaces labour. Mechanical technology is a substitute for biological technology, which comprises of labour power and bullock power. Biological sources of technology will be preferred over mechanical technology if its prices were lower compared to the latter. Certain features of biochemical technology are: a. It increases yield; b. It absorbs labour; c. The variable cost is high; and d. It is a substitute for land. Latin America is characterized by the presence of latifundios (very large landholdings) and minifundios (very small landholdings). As opposed to Latin America, in the case of Asia, there exists too little land for too many people. Land ownership in Asian countries like India, Pakistan and Bangladesh has been affected by European rule, introduction of monetized transactions, rise in power of the moneylenders, and rapid growth of Asian populations [Todaro and Smith, (2006)][18].

D. The Countryside Farm Economy

Countryside livelihoods refer to the various sets of entitlements before an individual, which can help him or her in order to live. For too long, Indian farmers have seen rise in prices of agricultural inputs such as fertilizers, seeds, electricity, water etc. during the decade of 1990s and 2000s. Without a corresponding rise in market prices or the minimum support prices, rise in input prices affected the profitability of the farmers. As a result of this, farmers became interested either to leave Farming in order to move towards other professions or occupations, or they have fallen prey to money-lenders and middle-men so as to get loans and credits at exorbitant rates of interests. The rising cost of production has made the farmers depend on informal sources of credit since the transactions costs are too high to receive formal credit along with the problem of moral hazards. Rising input prices and falling market prices have reduced the economic sustainability of Indian Farming. Not enough livelihoods

are generated in the Countryside non-farm economy, which can be a ray of hope for the majority dependent on Farming.According to de Haan and Zoomers (2005)[19], "in the household studies, increased attention was paid to household strategies as a means of capturing the behaviour of low-income people. The concentration on households was considered useful for its potential to bridge the gap between micro-economics, with its focus on the atomistic behaviour ofindividuals, and historical structuralism, which focused on the political economy oif development. The household also came into vogues in a more practical sense; it was considered a convenient unit for the collection of empirical data".

Graph 1: Agricultural production in India (in million tones)



Source: Handbook of Statistics on Indian Economy, RBI

Rates of growth of foodgrains and cereal production have increased from 2003-04onwards, as could be seen from the graph 1. However, there was stagnancy in the growth rates of production of pulses and coarse cereals over the years. Livelihood units such as the individuals, families or businesses change the composition of livelihood 'portfolios' to reflect changing opportunities, hazards, risks and constraints. Such behaviour falls under the broad term of livelihood diversification. In the case of India, there was lesser opportunity for such diversification. The increasingly urban nature of a national economy has turned out to be at odds with the increasingly Countryside nature of a particular enterprise or family strategy. Unlike the tied patron-client labour relationship during the olden days, many jobs nowadays are temporary in nature. Livelihood diversification is considered to be both a coping and a thriving mechanism–thriving where it is driven by a growing and more flexible economy. But the 'coping' dimension usually dominates where diversification is an enforced response to failing Farming, recession and retrenchment. And, this is what has been happening in the case of India (Start and Johnson, 2004)[20]. Earlier, the report by the National Commission on Countryside Labour (NCRL, 1991) suggested that labourers and land- poor farmers have a high propensity to migrate as seasonal labourers. These migrants are highly disadvantaged as they are poverty ridden with too little bargaining power.

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

Table 1: Trend growth rate during the past three decades

	Trend growth rate per annum		
	1980-81 to 2010-90	1990-91 to 2019-2000	2000-01 to 2007-08
Rice	3.55	2.00	1.86
R square	**0.65**	**0.81**	**0.23**
Wheat	3.50	3.51	1.36
R square	**0.73**	**0.92**	**0.34**
Foodgrains	2.70	2.07	1.99
R square	**0.67**	**0.82**	**0.34**

Source: Ministry of Farming, Government of India
Note: The trend growth rate in the production of rice, wheat and food grains for separateperiods have been calculated by the author.

From the table 1, one could make out that trend growth rate in rice production declined from 3.55 percent during the period 1980-81 to 2010-90 to 2.00 percent during the period 1990-91 to 2019-2000, and further to 1.86 percent during the period 2000-01 to 2007-08. Trend growth rate in wheat production increased marginally from 3.50 percent during the period 1980-81 to 2010-90 to 3.51 percent during the period 1990-91to 2019-2000, but fell down sharply to 1.36 percent during the period 2000-01 to 2007-08. Trend growth rate in foodgrains production declined from 2.70 percent during the period 1980-81 to 2010-90 to 2.07 percent during the period 1990-91 to 2019-2000, and further declined to 1.99 percent during the period 2000-01 to 2007-08. Among other things, the sustainable-livelihoods literature identifies five types of capital assets as the basis of household livelihoods: (i) financial capital (e.g. income from employment or self-employment, pensions, credit, remittances from relatives abroad or in urban areas); (ii) human capital (e.g. skills, knowledge); (iii) natural capital (e.g. land, forests, water, genetic resources); (iv) physical capital (e.g. equipment); and (v) social capital (e.g. networks of social relations). Household livelihoods depend on diverse and evolving combinations of these different assets.

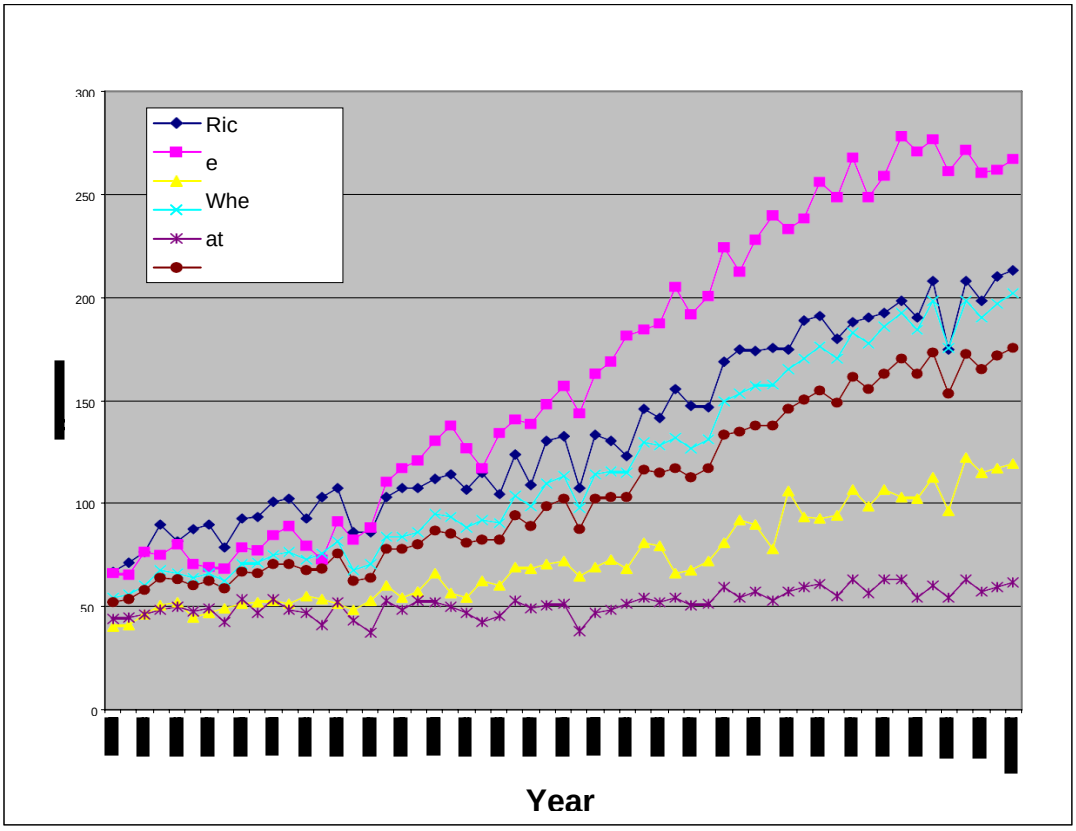
E. Agrarian crisis and 'liberal' policies

It is increasingly felt that Indian Farming is currently suffering from "technology fatigue", due to which the earlier gains made during the Green Revolution has withered away. Moreover, Green Revolution itself has been criticized for being Euro-centric, environmentally unsustainable and being apolitical (it never addressed the issues of land and tenancy reforms, and other related institutional reforms). Green Revolution actually tried to improve yields and production, without taking into account the needed change in Countryside and social institutions. Since it offered a high-valued package, so it helped only the rich farmers (owning large landholdings) from assured irrigated areas. Areas where rainfed irrigation takes place could not gain much from the Green Revolution. Green Revolution only promoted production of certain crops, which are agro-climaticallysuitable for certain regions, which some say have affected biodiversity. It relied excessively on major irrigations (instead of minor irrigation and rainwater harvesting), chemical fertilizers and pesticides. In order to sustain Green Revolution, huge subsidies were given on inputs (for producers of inputs—firms, and consumer of inputs farmers) like electricity, fertilizers etc, thus making the entire effort economically unsustainable.

It was the large farmers, which benefited from the subsidies provided at the cost of the small and the marginal farmers. The Bollgard Bt cottonseed and other such seeds, which have recently been introduced, have failed to cater the needs of the Countryside farming community who belong to the lower income group (as well as socially backward groups), and possess small-sized farmlands and cropping fields. In fact, there are allegations that due to the liberalization of the Indian economy, multi-national corporations (MNCs) from the North got the opportunity of plundering the farmers of the global South, by patenting and giving 'new names' to the indigenous varieties of plants (such as turmeric, basmati rice) and animals (via genetic engineering) from the South, thus leading to bio-piracy. Issues and debates surrounding bio-ethics, bio-piracy and violation of intellectual property rights (IPRs) have come to the forefront during the recent years, which are still needed to be resolved at international forums like World Trade Organisation (WTO).

The 59th round of the National Sample Survey states that agrarian distress is severe in Andhra Pradesh, Karnataka, Maharashtra, Punjab and Rajasthan. High levels of indebtedness are also reported from these states. The influence of moneylenders appears to be strong in Bihar and Rajasthan in terms of extending informal credit to farmers. Traders also have extended loans to indebted farmers (Ghosh and Chandrashekhar, 2005)[21].

Graph 2: Yield in Farming (kg per hectare)



Source: Handbook of Statistics on Indian Economy, RBI

Rate of growth of wheat yield has fallen down since 2023-02, as could be made out from the graph 2. There was stagnancy in the rate of growth of pulses yield. Growth rate in rice yield has increased

marginally during the recent years.

Subsidies should be cut to step-up investments in irrigation and for increasing outlays on poverty alleviation programmes, according to Rao (2005)[24]. Intensive use of inputs in limited pockets, have led to lowering the productivity of inputs, reducing employment elasticity of output through substitution of capital for labour, and environmental degradation such as water logging and salinity, on one hand and lowering of water table, on the other hand. The National Agricultural Policy (NAP) (2000) announced by the Government of India, sought to give a prominent role to contract farming. However, it is said that contract farming has led to 'corporatization' of Indian Farming, which has adversely affected the small and marginal farmers. Contract farming has been criticized as being a tool for the agribusiness firms to exploit an unequal power relationship with growers. However, advocates of contract farming view it as a way to create a synergy between agribusiness firms and small farmers that benefit both without sacrificing the rights of either. It is seen as a mechanism to modernize small peasant holders through transfer of technology.

F. Farmers' suicides and its causes

According to the Situation Assessment Survey of Farmers Indebtedness of Farmer Households National Sample Survey (NSS) 59th Round (January–December 2003):

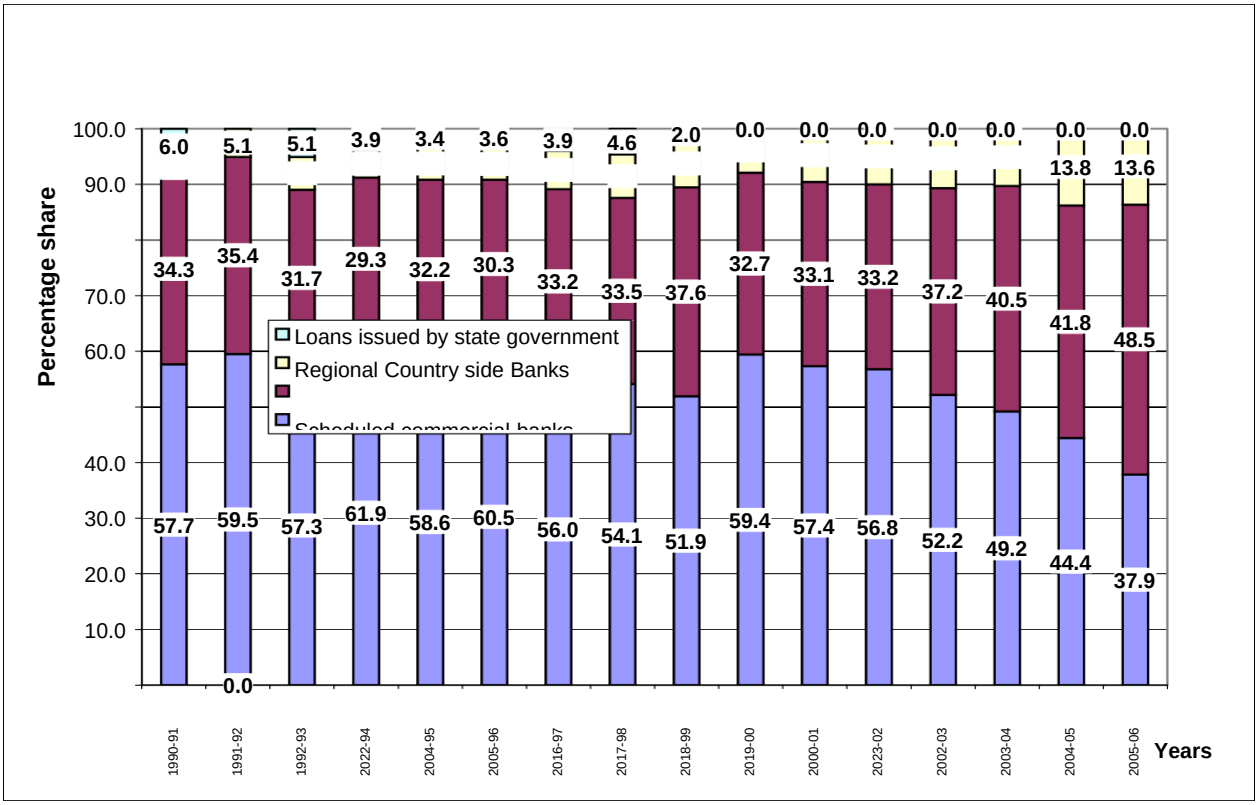
a. Out of 89.35 million farmer households, 43.42 million (48.6%) were reported to be indebted. A similar survey by the NSS relating to 1991 found indebtedness among only 26 per cent of farmers. On an average, the amount of debt per farmer household was Rs. 12,585.
b. At all-India level, estimated number of Countryside households was 147.90 million, of whom 60.4% were farmer households.
c. At all-India level, an estimated 60.4% of Countryside households were farmer households and of them 48.6% were reported to be indebted.
d. The incidence of indebtedness was highest in Andhra Pradesh (82.0%), to be followed by Tamil Nadu (74.5%), Punjab (65.4%), Kerala (64.4%), Karnataka (61.6%) and Maharashtra (54.8%).
e. Haryana, Rajasthan, Gujarat, Madhya Pradesh and West Bengal each had about 50% to 53% farmer households indebted. States with very low proportion of indebted farmer households were Meghalaya, Arunachal Pradesh and Uttaranchal. In each of these States less than 10% farmer households were indebted.
f. Estimated number of indebted farmer households was highest in Uttar Pradesh (6.9 million), to be followed by Andhra Pradesh (4.9 million) and Maharashtra (3.6 million). More than half of the indebted farmer households belonged to the states of Uttar Pradesh, Andhra Pradesh, Maharastra, West Bengal and Madhya Pradesh.
g. Going by principal source of income, 57% farmer households were cultivators. Among them 48% were indebted.
h. The percentage share of estimated all farmer households in different social groups was 13.3% in ST, 17.5% in SC, 41.5% in OBC and 27.7% in Others.
i. The prevalence rate of indebtedness of farmer households in different social groups was 36.3% in ST, 50.2% in SC, 51.4% in OBC and 49.4% in others. The average loan per farmer household in different social groups were 5,500 rupees for ST, 7,200 rupees for SC, 13,500 rupees for OBC and 18,100 rupees for others.
j. The size classes of land possessed considered were: <0.01 ha, 0.01-0.40 ha, 0.41-1.00 ha, 1.01-2.00 ha, 2.01-4.00 ha, 4.01-10.00 ha and more than 10.00 ha. The proportions of total farmer households in these seven classes were estimated as 1.4%, 32.8%, 31.7%, 18.0%, 10.5%, 4.8% and 0.9% respectively. The prevalence rates of indebtedness in these seven classes were 45.3%,

44.4%, 45.6%, 51.0%, 58.2%, 65.1% and 66.4%, i.e. in the different size classes of land possessed, 44% to 66% farmer households were indebted.

k. At national level, on an average, 29 out of 100 indebted households borrowed from 'agricultural/professional money lender'. Among the states the incidence of borrowing from this source was highest in Andhra Pradesh (57 out of 100 indebted households), to be followed by Tamil Nadu (52 out of 100 indebted households).
l. Marriages and ceremonies accounted for 111 rupees per 1000 rupees of outstanding loans of farmer households. Among the states the proportion was highest in Bihar (229 rupees per 1000 rupees), to be followed by Rajasthan (176 rupees per 1000 rupees).
m. The most important source of loan in terms of percentage of outstanding loan amount was banks (36%), to be followed by moneylenders (26%).
n. Average outstanding loan per farmer household was highest in the state of Punjab, to be followedby Kerala, Haryana, Andhra Pradesh and Tamil Nadu.

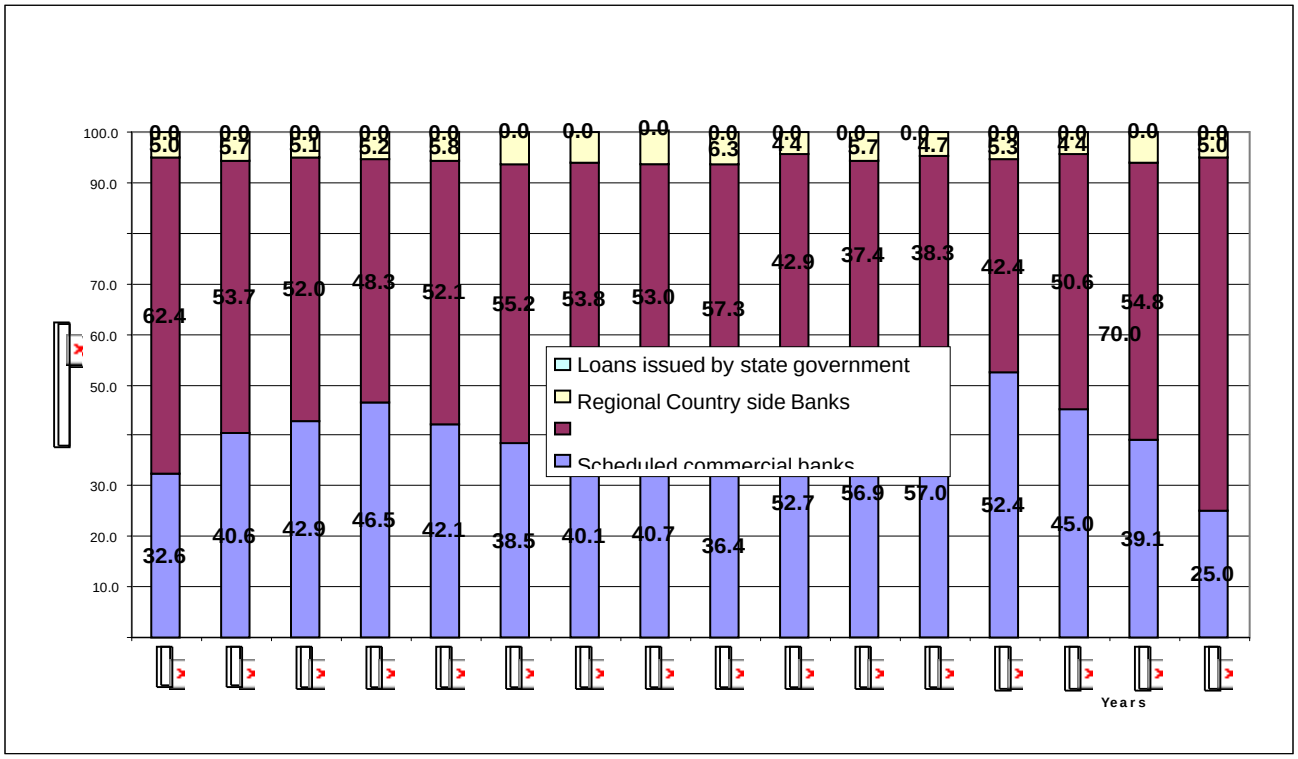
Apart from the psychological factors, socio-economic factors played a key role behind such suicides. Increased cost of inputs, dependence on and fluctuations in rainfall (due to the absence of irrigation), excessive supply of and excessive demand for the crops produced, level of and fluctuation in market prices etc. have affected the profitability of cultivation. Farmer's suicides in Vidharbha region in Maharastra happened due to indebtedness, high cost of inputs (including credit) and over-reliance on Green Revolution technology instead of traditional farming methods (Mohanty, 2005)[29].

Graph 3: Percentage share of various sources of direct institutional credit (loansissued) for Farming and allied activities for the short-term



Source: Handbook of Statistics on Indian Economy, RBI

Graph 4: Percentage share of various sources of direct institutional credit (loansissued) for Farming and allied activities for the long-term



Source: Handbook of Statistics on Indian Economy, RBI

From the graph 3, one could decipher that percentage share of scheduled commercial banks in advancing loans to Farming and allied activities during the short-term has increased overtime at the cost of loans extended by the co-operative banks.

From the graph 4, one could get that percentage share of scheduled commercial banks in advancing loans to Farming and allied activities during the long-term has increased overtime at the cost of loans extended by the co-operative banks. Improving the economic viability of credit institutions was the need during the reforms period. The existing large differentials between the concessional rates of interest charged by institutional sources and market rates is responsible for rent seeking by the middlemen who re-lend credit, especially to the poor households at higher rates of interest. Large farmers have been the major beneficiaries of long-term loans at concessional rates at the expense of small and marginal farmers (Rao, 2005)[30]. Abolition of Regional Countryside Banks (RRBs) and reducing the supply of Countryside credit as recommended by the Narasimham Committee (Committee on Financial Reforms, 1991) have been considered as counter-productive by many. It has been apprehended that demand for removal of restrictions on land market including that on lease market, abolition of ceilings on land holdings and full freedom of the corporate sector to access land for large-scale production can affect the small and marginal farmers (Bhalla, 2005)[31]. Since the early 1990s, RRBs put a curb on recruitment of new staff. As a proportion of total advances, priority sector lending to Countryside and agricultural sector dipped from around 70 percent in 1990 to 57 percent in 2023. While redefining the priority sector comprising of the small farmers and the tiny needy sector in industry, the Narasimham Committee recommended that

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E- ISSN -2347-856X
ISSN -2348-0653

credit to this redefined priority sector should be only 10 per cent of total bank credit. The Committee tried its best to reduce priority sector lending while recommending to reduce the burden of non-performing assets being held by the RRBs (Bose, 2005)[32].

Gulati and Bathla (2002)[33] have found that Commercial Banks (CBs), Regional Countryside Banks (RRBs) and Cooperatives are the three main Countryside financial institutions (RFIs), which provide credit to the agricultural sector at the village level. The informal sources of finance, which include local moneylenders, landlords, traders, etc. chargemore than 20% rate of interest, often keep land as collateral against loan, and still have a very high recovery rate. However, RFIs charge almost half of this interest rate, do nottake land as collateral for most of the crop loans, and still face high defaults. Between the period 1980 and 2018, the recovery of loans in Co-operatives, RRBs and CBs has varied between 39-66%. A categorization of the causes, provided in table 2, indicates that the external factors are essentially related to non-viability of Farming.

G. Sustainability of Indian Farming

Many feel that industrial Farming and animal husbandry, which were being thrusted upon the developing countries by the multilateral donor agencies and multinational corporations (MNCs) for increasing production and raising the level of supernormal profits, have taken its toll on biodiversity, human health and quality of soil.

The so-called Green Revolution technology, which emphasizes on large-scale production of cash crops, mono cropping and development of biotechnology, lately, has made the farmers much more dependent on chemical fertilizers, pesticides and credit. In the absence of these inputs and without the support (in the form of subsidies on inputs) coming from the government, crop-failures and non-profitability have emerged as major problems. Lust for biofuel production in countries from Latin America and the US has made the international prices of staple food sky-high, which affected the poorer section ofthe farming community (including the landless) as net consumers. Although India's reliance on food aid (such as PL-480) has declined overtime due to increase in domestic production of food, there is little evidence that is available to show that increased production has reduced the levels of hunger and malnutrition. Rise in buffer stocks of foodgrains do not always mean that India has become self-sufficient in terms of food security. The rise in food stocks could have happened due to lack of purchasing power, and not necessarily due to changes in the tastes and preferences of consumers whereby they tend to move towards consumption of other products and services instead of food. Absence of purchasing power has also affected the 'effective demand' for industrial goods. From various studies, it could be found that not only Farming induces climate but climate change too can affect agricultural production. Farming contributes about14 percent of annual greenhouse gas (GHG) emissions**.** Changing crop mixes to include more plants that are perennial or have deep root systems is likely to increase the amount of carbon stored in the soil. Cultivation systems that leave residues and reduce tillage, especially deep tillage, encourage the buildup of soil carbon. Soil carbon improves the physical properties of soil. It holds a great proportion of nutrients, cations and trace elements that are of importance to plant growth. Carbon retained in the soil is considered good since that lead to lesser presence of carbon dioxide in the atmosphere.

It has been found that shifting land use from annual crops to perennial crops, pasture, and agroforestry increases both above- and below-ground carbon stocks. Changes in crop genetics and the management of irrigation, fertilizer usage, and soils can reduce both nitrous oxide and methane emissions (IFPRI, 2009)[34]. The Fourth Assessment Report of IPCC (2007) has suggested that a 2°C increase in mean air

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E- ISSN -2347-856X
ISSN -2348-0653

temperature could decrease rain-fed rice yields by 5-12% in China and under one scenario net cereal production in South Asian countries is projected to decline by 4 to 10% by the end of this century. In India, "gross per capita water availability" will decline from around 1,820 cubic metres a year to as low as around 1,140 cubic metres a year by the year 2050. Due to melting of glaciers, Ganga, Indus, Brahmaputra and other rivers that flow in the northern Indian plain may become seasonal rivers with important ramifications for poverty. Climate change would affect forest expansion and migration, and exacerbate threats to biodiversity resulting from land use/cover change and population pressure in most of Asia. The IPCC report says that marine and coastal ecosystems in Asia are likely to be affected by sea level rise and temperature increases. Improvements in water productivity are critical. Since climate change would make rainfall more variable and change its spatial distribution, it will exacerbate the need for better water harvesting, storage, and management. There would thus be the need for innovative institutional mechanisms that give agricultural water users incentives to conserve. Some of the regions to be affected by climate change are: a. the Arctic, because of the impacts of high rates of projected warming on natural systems and human communities; b. Africa, because of low adaptive capacity and projected climate change impacts; c. small islands, where there is high exposure of population and infrastructure to projected climate change impacts; and d. Asian and African megadeltas, due to large populations and high exposure to sea level rise, storm surges and river flooding (IPCC, 2007)[35].

H. Recent policy Measures

According to the loan waiver proposed in Budget 2008-09, all agricultural loans disbursed by scheduled commercial banks, regional Countryside banks and cooperative credit institutions up to March 31, 2007 and overdue as on December 31, 2007 would be writtenoff in the case of small and marginal farmers. For all other farmers, there will be a one- time settlement for the outstanding debt, whereby 25 per cent will be written off if the farmer repays 75 per cent. It excludes from full benefits all the farmers on dry land and poor quality land who hold more than 2 hectares, even though studies show that they are among the worst affected from the agrarian crisis. This package excludes the majority of farmers who have taken debt from private sources. The Government of Kerala has established a Debt Relief Commission, to identify the pockets and categories of severe agrarian distress and provide relief accordingly. The draft policy of the National Commission on Farmers has called for developing and introducing a Livelihood Security Package for farmers by providing them technology choice according to agro-ecological conditions and market demand; soil health enhancement and water conservation; quality and affordability of inputs; credit and insurance and market tie-up, besides necessary health care facilities linked with the National Countryside Health Mission.

The 2018-19 Budget of the Union Government (Rediff, 2008)[37] came up with a slew of measures for the ailing agricultural sector, which included:

- Complete waiver of loans for marginal farmers owning land up to one hectare and small farmers owning land up to 1 and 2 hectares.
- Agricultural loans given by scheduled commericial banks, regional Countryside banks and cooperative credit institutions up to March 31, 2007 and due for December 31 that year will be covered under the waiver scheme to address the problem of indebtedness.
- One time settlement of loans for other farmers.
- Farming loans restructured and rescheduled by banks from 2004-06 and other loans normally rescheduled under RBI guidelines will also be eligible under the waiver scheme.
- Implementation of debt waiver and debt relief will be completed by June 30, 2008.
- Loan waiver scheme to involve loans liability of Rs 60,000 crore and to benefit four crore farmers.
- The corpus of Countryside infrastructure development fund to be raised to Rs 14,000 crore.
- The loan waiver scheme will benefit three crore small and medium farmers and cover loans

totalling Rs 50,000 crore.

- One crore other farmers will benefit to the tune of Rs 10,000 crore in the waiver.
- Rs 500 crore for corpus fund to subsidise all women Self Helf Groups for LIC cover for permanent disability.
- A target of Rs 2.80 lakh crore for Farming credit set for the coming year.
- Rs 20,000 crore for irrigation projects under AIPB, showing an increase of Rs 9,000 crore over 2007-08.
- National Horticulture Mission to be given Rs 1,100 crore in 2008-09 with special focus on coconut cultivation.
- Rs 75 crore to be given to Farming Ministry for providing mobile soil testing laboratories in 250 districts.
- Rs 644 crore for National Farming Insurance Scheme
- National Plant Protection Training Institute at Hyderabad to be made autonomous body and Rs.29 crore will be allocated to it.
- NREGA scheme to be rolled out in all the 596 Countryside districts in the country in 2008-09.

In a bid to boost procurement of grains and provide competitive prices to farmers, the minimum support price (MSP) for rabi crop for the 2008-09 season has been raised in January, 2009. The MSP of wheat, which earlier was Rs.1,000 per quintal for the 2008- 09 marketing season, has been raised by Rs.80 to Rs.1,080 per quintal. The minimum support price (MSP) for the common variety of paddy was raised to Rs. 850 a quintal from Rs. 745 and for Grade A to Rs. 875 from Rs. 775 as an "ad hoc measure."

I. Countryside livelihoods and social audits

Prof. Jean Dreze (who was erstwhile with the Delhi School of Economics) and many others have worked relentlessly amidst civil society organisations for the enactment of the National Countryside Employment Guaranty Act (NREGA). NREGA opened the doors for right to employment so as to ensure livelihood security of the poor manual labourers by allowing for payments of unemployment compensation to the applicants in case the local panchayats fail to offer employment. NREGA also guarantees equal payment of minimum wages to men and women. The murder of Lalit K Mehta, who was a social activist from Palamau district, Jharkhand, in May, 2008 once again proved the existing nefarious nexus among bureaucracy, contractors and politicians. He was a close aide of Prof. Jean Dreze and was working for conducting social audits at the sites of National Countryside Employment Guarantee Scheme (NREGS). According to the sympathisers, his murder was pre- planned since he exposed corruption in the NREGS that was running in Palamau (EPW, 2009)[38]. Democratic governments fulfill civil liberties and respect rights such as the freedom of information, freedom of association and the right to peaceful assembly by providing space for civil society to act in both the human rights and anti-corruption arenas. Corruption prevents non-discrimination and promotes inequality by perpetuating marginalisation and exclusion. Social auditing in Andhra Pradesh has proved to be fruitful in order to ensure transparency and accountability in the NREGS. Public participation in social auditing and scrutiny has been considered to be empowering. The Right to Information (RTI) Bill and the Lokpal Bill have provided the citizens right to hold the government accountable. Enactment of the RTI Act has empowered the citizens.

J. Agricultural R&D

Support coming from the Government of India and many of the multilateral and bilateral donor agencies has produced an institutionally diverse agricultural research system in India that has achieved many successes, most notably the Green Revolution in the 1960s and 1970s. Many studies have pointed out the impressive performance of the system, with annual rates of return to investment in research ranging between 35 and 155 percent. The first organized effort to promote agricultural development, including

R&E (research and education), in India began in the last quarter of the 19th century with the establishment of the Department of Revenue, Farming, and Commerce along with a bacteriological laboratory and five veterinary colleges. During 1905, the Imperial (now Indian) Agricultural Research Institute (IARI) was established, along with six agricultural colleges. The Imperial (now Indian) Council of Agricultural Research (ICAR) was established in 1929, as a semi-autonomous body to promote, guide and coordinate agricultural research nationally. Based on the recommendation of two joint Indian–American review teams (in 1955 and 1960), state agricultural universities (SAUs) were established, following the land-grant pattern of the United States. The Rockefeller Foundation and the U.S. Agency for International Development (USAID) have played an active role in the establishment of the SAUs and the training of staff through partnerships with US land-grant universities. Studies have shown that the main sources of agricultural growth were irrigation, land reform, infrastructural development, and technical change. Growth in total factor productivity (TFP) has been attributed to investment in agricultural research, which provided high payoffs. Private sector investment currently plays a pivotal role in research that focuses on hybrid seed, biotechnology, pesticides, fertilizer, machinery, animal health, poultry, and food processing. The new seed policy in 1988, which allowed the importation of seed materials, as well as majority ownership of seed companies by foreign companies, created more room for the private sector. The Indian government approved the Protection of Plant Varieties and Farmers Rights Act (2023) so as to provide intellectual property protection to plant breeders. The act emphasizes farmers' rights to save, exchange, and sell unbranded seed of a protected variety, unlike the policies adopted under the International Union for the Protection of New Varieties of Plants (UPOV). India has also amended the Patent Act (1970) to make it compatible with WTO agreements. The amendments enshrined in the Patents (Amendment) Act (2005) grants process and product patents in all fields of technology, which are likely to stimulate research in the biotechnology and plant and animal health sectors. However, there are doubts that such a move would result in increased monopoly rights over invention, thus, affecting price structure. Bhalla (2005)[40] thinks that patenting of research is expected to encourage private research in Farming, though it is likely to raise the cost of adopting new technology, and the diffusion of new technology through public research and extension to the smaller farmers is likely to become more difficult and costlier.

K. Right to development

The right to food campaign came into existence when the Supreme Court of India, in the year 2002, ordered for extension of assistance to those at risk of starvation after the People's Union for Civil Liberties (PUCL), Rajasthan filed a writ petition following the paradox of starvation deaths amidst overflowing foodstocks in 2000. A rights-based approach to development is a conceptual framework for the process of human development that is normatively based on international human rights standards and operationally directed to promoting and protecting human rights. A rights-based approach integrates the norms, standards and principles of the international human rights system into the plans, policies and processes of development. A rights-based approach to development includes the elements: a. express linkage to rights; b. accountability; c. empowerment; d. participation; and f. non-discrimination and attentionto vulnerable groups (UN, 2006)[41]. A rights-based approach would, thus, provide a basis in law from which claimants could seek administrative and or legal recourse. A rights- based approach views governments' promotion of food security as an obligation, hence not as a form of benevolence. According to Stephen Marks (2004)[42], during the decades of 1970s and 1980s, theright to development (RTD) was introduced by the NAM (non-aligned movement) countries as one of several rights that belonged to a third "generation" of human rights. According to this view, the first generation consisted of civil and political rights conceived as freedom from state abuse.

IJBARR
E- ISSN -2347-856X
ISSN -2348-0653

The second generation comprised of economic, social, and cultural rights, claims made against exploiters and oppressors. The third generation consisted of solidarity rights belonging to peoples and covering global concerns like development, environment, humanitarian assistance, peace, communication, and common heritage.

L. PDS, poverty and hunger in India

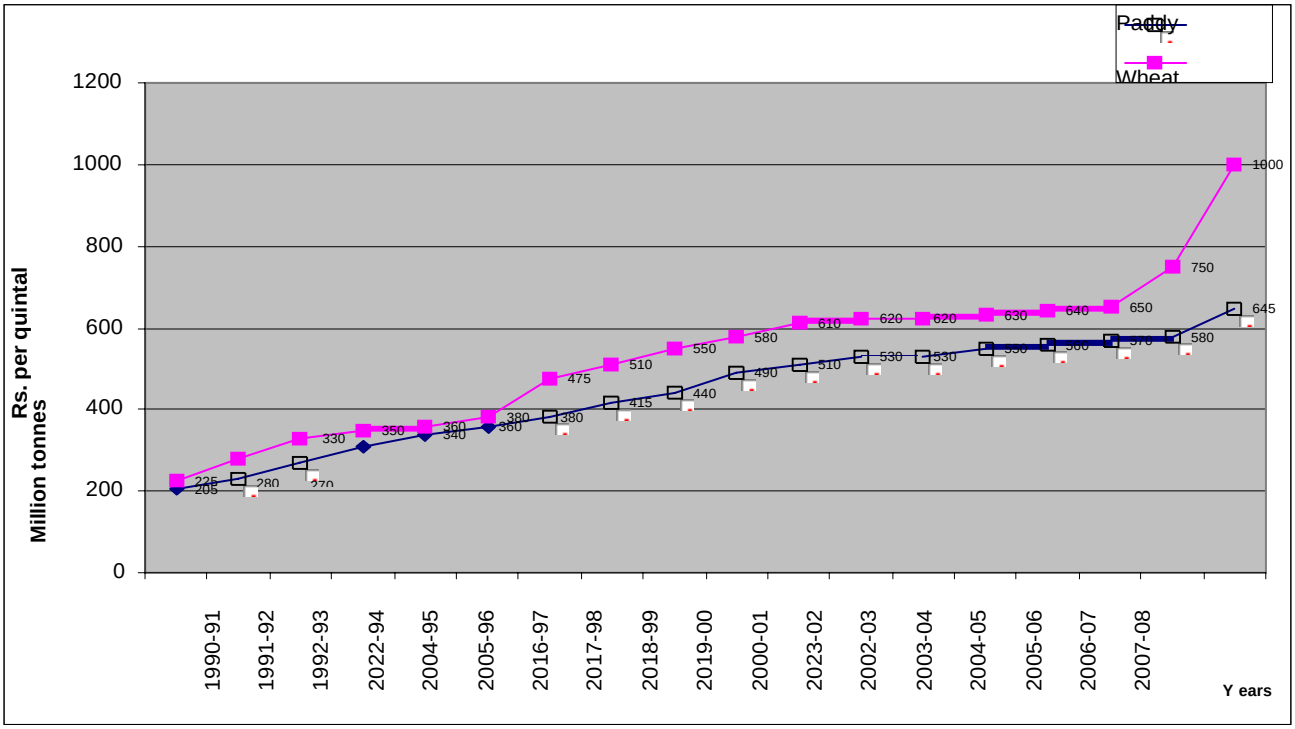
According to the Global Hunger Index (GHI) 2008, which has been prepared by International Food Policy Research Institute (IFPRI), hunger is closely related to poverty,and countries with high levels of hunger are overwhelmingly low- or low-middle-income countries.

Sub-Saharan Africa and South Asia are the regions, which have shown the highest GHI scores and the highest poverty rates. In the nearly two decades since 1990, some regions—South and Southeast Asia, the Near East and North Africa, and Latin America and the Caribbean—have made significant headway in improving food security. However, the GHI remains high in South Asia. In the context of higher food prices, prospects for improving food and nutrition security appear grim, given that at least 800 million people were food insecure even before the advent of food price crisis that hit during the year 2008. A recent analysis of domestic food prices for 58 developing countries shows that latest prices are higher than a year earlier in 78 percent of the cases, and in 43 percent of the cases are higher than 3 months earlier. Mostly affected are sub-Saharan African countries.

Food prices remain at high levels in other regions as well, particularly in Asia for rice and in Central and South America for maize and wheat. Worst affected are the urban poor and food-deficit farmers who are dependent on the market to access food. Moreover, the global economic recession is drying up remittances from family members working abroad that often sustain the food consumption levels of vulnerable households (FAO, 2009)[46] (ii) increasing the welfare facilities for the poor; (iii) rationing during situations of scarcity; and (iv) keeping a check on private trade. In 2017, the Government of India introduced the Targeted PDS (TPDS) in order to curtail the food subsidy. Due to the introduction of the TPDS, the entire population was divided into below-poverty-line (BPL) and above-poverty-line (APL) categories, based on the poverty line defined by the Planning Commission, GoI. The TPDS now has dual central issue prices: prices for BPL consumers and prices for APL consumers. A third price, introduced in 2023, is for beneficiaries of the Antyodaya Scheme (a scheme for the ‘poorest of the poor’, in which food grain is distributed with an additional subsidy). Targeting was introduced so that subsidies on food did not go waste in the form of inefficient expenditure.

Its aim was to subsidise only the poor, and not the entire population in general. However, there are two types of errors that usually occur in any targeted welfare programme like PDS, due to imperfect measurements. An error of wrong exclusion (Type I errors) is referred to as the exclusion of genuinely poor or deserving households from a programme. An error of wrong inclusion (Type II errors) is referred to as the inclusion of non-eligible persons or households in a programme. The government also operates a large number of Centrally Sponsored Schemes (CSS), some of which involve payment or transfer ‘in kind’, e.g. in the form of food for work or midday school meals. The Food Corporation of India (FCI) operates the government’s foodgrain policy, procuring, storing and distributing foodgrains for the TPDS and for CSS, and maintaining buffer stocks to dampen price swings (Swaminathan, 2009)[47].

Graph 5: Minimum support prices (Rs. per quintal) crop-year wise



Source: Handbook of Statistics on Indian Economy, RBI

The minimum support price (MSP) for wheat has increased sharply vis-à-vis rice during the recent years, as could be seen from the graph 5. However, MSPs for both rice and wheat have increased overtime, generally. MSP offered to the peasantry could not rise pari passu with input prices, thus, affecting profitability, as some have alleged.

India lags behind many of its South Asian neighbours in terms of providing basic nutrition to women and children. Nutritional security, which is an alternative measure of poverty, helps one to understand whether access to food is leading to better health and nutritional outcomes. The percentages of children (below 3 years of age) who are underweight, wasted and stunted at the national level are 46%, 19% and 38%, respectively, according to the National Family Health Survey III (NFHS III), which was conducted in 2005-06. Infant mortality rate (IMR) i.e. the number of infant deaths per 1000 live births, is higher in Countryside (62) as compared to the urban areas (42). The NFHS III has also found out that at the national level, percentage of pregnant women in the 15-49 years age group who are anaemic is 57.9 percent. Gender biasness is responsible for low nutritional status of women. Despite the increase in domestic production of foodgrains, the incidence of hunger hovers over the entire country. The Aanganwadi Centres (AWC), created by the Government of India, are aimed at providing services like: health check- ups, immunization, referral services, supplementary feeding, preschool education, and health and nutrition education. Similarly, the Integrated Child Development Scheme (ICDS) is aimed at providing supplementary nutrition to children below 6 years of age, lactating mothers and pregnant women. There are several problems, which are associated with such state-sponsored schemes that include corruption, mismanagement, inefficiency etc. There is a growing consensus among economists and social scientists to widen the connotation of food security by including the concept of nutritional security at the household level. Some have argued that the calorie based definition of food security be

replaced by nutrition based definition of food security at the household level (Vyas, 2000)[50].

Conclusion

The present study shows that backwardness faced by Indian Farming during the colonial days could be overcome to a large extent after Independence. The situation has improved a lot since Independence because of State intervention, which led to the rise in agricultural production and productivity. Investment by the government in R&D and technology has helped India to increase its agricultural output. Many have, however, criticised the recent spate of measures to allow private initiatives in agricultural R&D.

A contradiction between productive technology and eco-friendly technology has made its appearance in the case of Indian Farming. Farming, today, stands at a crossroads, which demands for rational policy formulation and implementation, especially in favour of the small and marginal farmers, and the landless labourers. Creation of off-farm employment through schemes like NREGS might help to ensure livelihood security during the times of extreme poverty and distress. The importance of public accountabilityin government-sponsored schemes cannot be overlooked. There exists gender and regional disparities in nutrition related outcomes, which demands for attention of the policy-makers. The PDS has undergone structural changes and its outreach to the poor has not been up to the mark. After liberalization of the Indian economy, agricultural sector suffered due to neglect and apathy. Indian peasantry had to compete internationallyin the absence of social security and safety nets. The minimum support prices (MSP) offered to the farmers could not rise pari passu with input prices, thus, affecting profitability. Paying more attention to fiscal austerity in the name of efficiency gained momentum during the 1990s. The government could not realize the scope and magnitude of the agrarian crisis until it took the shape when cases of suicides being committed by the farmers made headlines. Striking a 'just' balance between industry and Farming might help India to attain its objective of 'inclusive' development, which has beenpromised during the Eleventh Five Year Plan.

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