

Agrarian Crisis in India: The Myth of Agrarian Prosperity in the Hirakud Command Area, Western Orissa

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Abstract: A series of food crises in the fifties and sixties compelled India to follow the green revolution module enunciated by US. Several institutes of rural development and agricultural universities worked on the diffusion of agricultural innovation and the Indian peasants were made to believe that inputs such as irrigation, farm mechanization, HYV paddy, chemical fertilizers and pesticides, etc. would increase productivity and make them prosperous in agriculture notwithstanding the disparities in land and access to other resources.

Hirakud dam, the longest earthen dam in the world, was constructed during the period 1948-56 basically to save the coastal delta from flood, but also to store water for irrigation and generation of hydro-power for industrialization. Data collected from six villages of western Orissa in the early eighties and continuous visits to those villages until recently compel us to believe that general agrarian prosperity is a myth in this area. In the initial phase of assured canal irrigation, inexpensive inputs and incentives of the state, the industrious farmers did well. Later on, however, despite increase in the gross production (overall in most of the years) and the price of paddy, the overall increase in the price of inputs and climatic uncertainties have dissuaded people from sticking to agriculture; most of the farmers are highly indebted and many leaving agriculture and some even committing suicide. The changing map of these villages/the entire locality is not because of overall agricultural prosperity but for other developmental initiatives.

Keywords: Semi-feudal mode of production, Agricultural modernization, irrigation, Chemical farming, Mono-cropping, Farmers' indebtedness, Agrarian crisis.

1. Importance of Agriculture

Agriculture is very important in most of the third world countries as these are not well developed in terms of the secondary and tertiary sectors. Small countries, if endowed with maritime, forest and mineral resources can manage by importing food stuffs in exchange of the raw materials or even with manufactured goods. Large nation states, with huge population and large demand for food crops and processed food, as in India, might find it well-nigh difficult although not impossible to manage in today's globalizing world. The difficulty might compound as one keeps depending on others for one of the bare necessities of life; there are also risk and uncertainties in agriculture and as international equation keeps on changing the supply is not assured in quality, quantity and time. That is, it is desirable that India becomes self-sufficient in food production for which agriculture is the base. Although India has about 2.45% of the global land mass, with the possibility of producing a variety of crops, to support about 15% of the world's population, why do we talk of agrarian crisis in India seven decades after Independence when anthropologists (e.g. Maine, 1895) have eulogized the self-sufficient and self-contained nature of the Indian villages for a long time?

2. Agriculture in the Colonial Economy

A general understanding of economic development in India, or for that matter the agrarian situation in India – both at a macro and micro level – must take into account the role of colonialism and planning. British colonialism, with its network of extraction of rent, proliferation of politico-legal system,

commercialization of agriculture, suffocation of village industries and a policy of divide and rule, brought about significant changes in an already fragmented India marked by diversities rather than unity in terms of historicity, region, rule, and culture. The scholars of the 'imperialist school' of historiography emphasize the 'progressive' and 'civilizing' mission of British colonial power. They put forth the general determinants which resulted in the economic development of India: development of transport and communication, increase in commerce, establishment of law and order, efficient administration, improvement in health and education and the general prosperity of agrarian classes due to the increase in the prices of their produce (Morris, 1969; Seal 1968). The scholars of the 'anti-imperialist school' emphasize the high levels of revenue extraction, tariff barriers, arrested industrialization and the conversion of India into a source of raw materials and market for British industrialization (Chandra, 1966; Desai, 1948). The general features of colonialism had their necessary impacts on the village economy. The penetration of capitalism as a world system has a perceptible impact on the nature of economic exchanges in village India (Hale, 1975:23-59). However, it is not the general development of capitalism, but 'the historically specific intervention of different forms of and competing fractions of capital' in the agrarian sector that is important for the type of micro studies (Kurien, 1980) that we are interested in.

After independence, India has been, at least in precept, wedded to democratic socialism through the channel of planned economy. The regulation of forest, land, labour, money-lending; the process of industrial urbanization; the introduction of large scale irrigation projects, developed technology and agricultural banks and cooperatives, etc., have transformed the

rural map of India. That is, three factors – agricultural modernization, formal legislations and industrial-urbanization – subsumed under planning, have been responsible for the economic development in post-colonial rural India.

3. Objective and Methodology

Our objective in this paper is to understand the nature of economic development in rural Orissa consequent upon planning and to see if there is evidence of general agrarian prosperity especially in western Orissa and the implications thereof. For this purpose, we have conducted a diachronic comparative study of six different types of villages in Sambalpur district where in all the factors of planning are operative. As regards the typology of villages in the Indian context, the rural-urban dichotomy (Pahl 1966; Sorokin and Zimmerman, quoted in Desai, 1969:11) is not useful, especially when about 8% of the Indian population comes under the fold of Scheduled Tribe. Hence we have improved on the classification of sociologists (Unnithan, et al. 1965:33; Oommen, 1967) as also from several economic anthropologists (e.g. Raymond Firth, George Dalton, Karl Polanyi, Marshal Sahlins, Karl Marx, Hishashi Nakamura, etc) and thought in terms of a trichotomous spatio-cultural categories – tribal, peasant, suburban – which are not mutually exclusive but can be put on a continuum. Further, considering irrigation as an important factor of agricultural modernization (Epstein, 1962; Kessinger, 1974; Whitecombe, 1971), we thought in terms of an irrigated (wet) village and a non-irrigated (dry) village. Taking these two classifications into account we get six types of villages. For the purpose of anonymity we would refer to the six types of villages that we have studied in Sambalpur district as, tribal dry Village (TDV), tribal wet village (TWV), peasant dry village (PDV), peasant wet village (PWV), sub-urban dry village (SDV), and sub-urban wet village (SWV). We assume that the relations of both formal and informal exchange – both cooperative and exploitative – would vary in these six types of villages with regard to various domains of the village economy – land, labour, credit and market. Further, peoples' reaction towards the external factors of change, their apathy and sympathy towards state, bureaucracy, etc. would also be different in different contexts. The data for the study were collected in 1980-81 by the author himself with the help of an interview guide. Although we have not restudied these villages as such like Scarlett Epstein, we have been revisiting these villages once in a while during last 30 years and would like to restudy the situation in near future. So this paper is based on intensive fieldwork and some impressionistic observation.

4. The Economic Situation of Sambalpur District, 1849-1947

Sambalpur was brought under the direct control of the British rule in 1849 and was under the Central Provinces for a long time. The unification of the district became complete only on 26 October 1949, before which its constituent parts belonged to different provinces and became a district of Orissa only in 1936 when Orissa became a separate state. The British policies were crucial to the then society and more so in the economic arena. This is evident from several studies relating to other regions of Orissa (Acharya, 1976; Baboo, 1985; Das, 1978; Raut, 1979; Pathy, 1976). A general discussion of the agrarian economy of Sambalpur district during the colonial period convinced us that the backward economy of Sambalpur had predominantly semi-

feudal characteristics. Till independence Sambalpur district was really backward in terms of industrialization, urbanization, education, banking, agricultural practices, etc. Although rich cultivators and *Gountias* took interest in the development of irrigation, the agricultural practices itself were backward and agriculture depended mainly on the monsoon. There was no use of chemical fertilizers and no practice of farm mechanization. People used animal dung, ash, the sediment in the tanks and ponds, and *kharipani* (the distilled refuse of the cowshed in rainy season) as manure. The low yielding broadcast method, as opposed to the high yielding transplant method, and the time consuming lift method of irrigation were in vogue. The agricultural implements were also of low quality and agricultural operations were time consuming and exhausting for both human beings and animals. Some authors have argued that the collection of rent and cess in cash enhanced cultivation of commercial crops like cotton, sugarcane and jute, etc. (Bailey, 1957; Whitecombe, 1971). However, our data pertaining to this period do not fully support this argument. The primary producers produced mainly for immediate consumption and grew mostly food crops. They grew other crops if the soil was suitable and other infrastructure facilities, including irrigation, were available. There were rare instances of shifting cultivation but the gradual concentration of holdings in the hands of a few people and the uneconomic nature of agriculture compelled the down trodden to earn their livelihood from the forests. The absence of a perennial irrigation system, improved inputs and industrial development on the one hand, and the colonial policies – especially regarding land, revenue, forest – on the other, led to a highly stratified agrarian population so far depending on the *jajmani* system and mutual exchange of labour and livestock. It also undermined the informal cooperative activities in the socio-economic arena and people could not stretch their ideas and institutions to cope with the exploitative machineries. The landlords and other intermediaries took advantage of the situation and emerged as a powerful class, who had access to and control over land, labour, credit and market. On the other hand, the lower rungs of the peasantry, the landless labourers, the menials and the aboriginals led a miserable life (Baboo, 1989). At this juncture i.e., at the end of the colonial period the agrarian population could be divided into six categories: (1) the landlords that include the *Gountias*, *Zamindars*, *Maufidars*, etc. who are drawn mainly from the *Brahmin*, *Kulta*, *Mohanti*, *Rajput*, *Aghria* and *Gaud* castes and *Binjhal*, *Sahara* and *Kandha* tribes who kept the best parcels of their land under direct or indirect supervision, giving away the rest of their land on share-cropping and lease; (2) the comparatively poor relatives and friends of the landlords who came from the dominant castes of that region (who received rent-free land i.e., the *bebandobast* plots) and the *jhankars* (invariably tribes); (3) owner-cultivators mainly from *Kulta*, *Dumal*, *Teli*, *Sundhi* and *Aghria* castes (4) lessee and share-croppers with or without their own small land holding; (5) artisans and menials with or without land and (6) the agricultural labourers drawn from low castes, untouchable and aboriginals/tribals who did not have land. Each of the above strata is not purely homogeneous with regard to caste/tribe and land holding; i.e., the categories are not mutually exclusive. The above agrarian categories show their rank in caste (according to ritual status), land holding and type of labour performed by them. In such a system land was concentrated in the hands of a few who did not participate in the process of production. The actual tiller did not have land at

all nor had sufficient land to work on. They were attached to the owner of the land by illegal tenancy, exploitative share-cropping, underpaid labour and usurious credit. The landlords and some rich *rai-yats* acted both as monopolists and monopsonists because market was underdeveloped and people were compelled to sell their products to the same person who had advanced money/paddy during the slack period. Such a system of production relation is usually termed as semi-feudalism, the essential features of which are “1. An extensive non-legalised share-cropping system, 2. perpetual indebtedness of the small tenants, 3. the characteristics feature of the ruling class in rural areas – they operate both as landowners and money lenders to small tenants, 4. the specific historical character of rural markets where small tenants have incomplete access to the market and are forcibly involved in involuntary exchange through the peculiar organization of markets” (Bhaduri, 1973:11).

5. Post-Colonial Situation in Sambalpur

Now it is important to understand what has happened to the agrarian population in Sambalpur district consequent upon agricultural modernization, formal legislations and industrial urbanization in the post-colonial period.

5.1 Impact of Formal Legislations

Oliver Goldsmith said ‘laws grind the poor and rich men rule the law’. In a democratic country with planned economy, legislations are supposed to be uniformly applied and in a highly diversified country like India these should be pro-poor to uphold distributive justice. The Orissa Money-lenders Act 1939, the Orissa Estate Abolition Act of 1961 and the Orissa Tenants Relief Act, 1955, the Land Reforms Act of 1960, the Minimum Wage Act 1948, the Orissa Levy Act 1975 (all these modified from time to time) were intended to help the agrarian population in general and the poor in particular. In recent times there have been more efforts to contain hunger, malnutrition, unemployment, unplanned migration; to check usurious practices in the villages and to give remunerative prices for the produce of the farmers. However, all these have had several loopholes; were casually and slowly implemented and the people who were supposed to benefit were not sufficiently educated to claim their rights. On the other hand, the haves have always developed back door methods in connivance with the lower echelons of the bureaucracy to get rid of stringent conditions and have sometimes furthered their interests with the help of the welfare measures of the state (Agro-Economic research Centre, 1978; Jena, 1957; Patnaik, 1957). The very recent initiative of the government to involve people in decentralized planning, the introduction of RTI and sometimes the involvement of the NGOs have been of some help but a rosy picture is still not emerging. On the other hand, sometimes people are simply thinking of their rights and feel that government would ameliorate them from their miseries and develop them in all respects. The false sense of empowerment has also divided the villages and the agrarian population in general, which is more and more visible as one moves from the periphery to the centre. Few examples are cited below.

1. The Land Reforms Act of 1960 intended to ensure the security of the tenure of owner-tenants, the prevention of fragmentation of land, consolidation of holdings and efficient and scientific management of land for increasing agricultural production, fixing the ceiling on the land to be owned by a family, for preventing the growth of large capitalists in

agriculture and redistribution of the surplus land among the small tillers and landless agricultural labourers. But the implementation of these measures have been difficult due to the ambiguity in the definition of family size and the standard acre, the provision of retention of certain types of land (which suits the rich more), want of up-to-date land records, the slow proceedings of the operation at all levels of the bureaucracy, the use of back door methods and the lack of militant movement/resistance by the down trodden (Satapathy, 1977).

2. In case of money-lending the informal transactions, except in case of land and sometimes gold, are rarely noted and there is no witness. The rate of interest in such oral transactions varies from 25% per annum to 420% depending on the collaterals, the relation between the lender and the borrower, the urgency and the credit-worthiness, etc. This happens although there are formal financial agencies and police station right in the villages. The latest money-lenders come from the well-to-do upper class/caste who combine several operations with money-lending like buying paddy from the borrowers, selling rice, fertilizers, pesticides and construction materials (cement, bricks, iron rods) to them. The money-lender always buys cheaper and sells expensive and both the parties know it, but there is no formal mechanism to control it. This is due to the higher opportunity cost relating to formal procedures, and rural connectivity on the one hand, and the convenience and informality on the other. Given the uncertainty in agriculture it is but natural that the poor farmers suffer in these transactions.

5.2 Impact of industrial-urbanisation

The penetration of industrial-urbanisation was very slow in Sambalpur district during 1901-61 when the urban population grew 20 per cent to 40 per cent per decade. Consequent upon the construction of the Hirakud dam in the mid-fifties leading to industrialization around Sambalpur, Hirakud, Brajarajnagar, Belpahad, Jharsuguda and Bargarh, the urban population, with poor infrastructure, grew substantially. The oustees and affected of the Hirakud dam also contributed to this expansion. Urbanism as a way of life has affected all but the tribal villages of our sample. This has meant gradual erosion of the caste-prescribed *jajmani* system which bound the rural population and gave them a sense of collectivity. Urbanisation meant increasing expenditure on avoidable items – theatre/films, hotels, transportation within the town, expensive clothes and shoes, saloons, pots and utensil and on festivities. It is a false notion to term it as better standard of living. Poor farmers and especially their young children and ladies are easily attracted to the urban show-offs and increase their avoidable expenditures. The gents on the other hand, lose substantial money on gambling which is organized in all the drama, opera and *nataks* (usually conducted in the night) of the district and even in the weekly markets during day time. Despite recent ban on such gambling it continues especially during major festivals because the gambling groups and the local liquor-vendors finance fully such entertainment programmes and also finance the temples and the private/aided schools! The important point is that basically the less educated poor villagers in general took to drinking and gambling (although now most of the villagers are drinking, which is one of the main reasons for the underdevelopment in rural areas) and further borrowed from usurious informal sources. Television has replaced many rural entertainment activities and festivities (very often related to beginning and end of major agricultural activities) earlier organized by people themselves. This has made people more

individualistic as a result of which they are not even willing to do collective labour for the general development of the village which they did earlier. Through advertisement and films, TV has also spread consumerism and a lofty life style to poor farmers who cannot really afford it but are now compelled to do in all social functions. This keeps the people indebted to different sources and they live by borrowing-repaying-borrowing. TV and mobile phones seem to have more negative impacts including wastage of productive time, health hazards and family disorganization although these could be definitely used as helpful aids. The *sevat* caste groups such as village sweepers, potters, black smiths, barbers and washermen have also lost their regular income attached to the *jajmani* system (in many villages) as their services, in improvised forms and varieties, are available in the village or urban markets. The availability of electricity in many villages, albeit with very low voltage and irregular supply, has helped the villagers in general in terms of physical mobility and longer work hours in the evening (especially for the weavers, potters and *bidi* makers) and use of pump sets and rice hullers. There is general theft of electricity but the rich gain more from this as they have modern electric gadgets but pay the same amount as others (a fixed rate) as the meter system hardly works in the villages. Urbanisation and related employment opportunities on the one hand, and the compulsive rural situation on the other (large family size, fragmentation of holdings and non-availability of non-agricultural activities) has compelled/motivated poor people to migrate more from the dry/non-irrigated area. The rural rich on the other hand, have been trying to construct houses in the nearby urban area for the education of their children or for letting those out. In brief, industrial-urbanisation has created a clear chasm between the rich and the poor in rural area.

5.3 Impact of Agricultural Modernisation

To understand agricultural modernization one has to understand the contradictions involved in the interaction of the exogenous forces of change (e.g. different opportunities like irrigation, credit – cash, kind, services – mediated through different formal agencies, market and the administration by lower bureaucracy) and the indigenous and informal forces (land, labour, credit and market) of the village economy. One has to keep in mind that the owners/controllers/mobilisers of the indigenous forces are not simply responding to the exogenous forces by being changed or developing in-built mechanisms to resist those but they have their own self-imposing characters as well.

Immediately after Independence the government put lots of emphasis on agriculture in the first five year plan although it changed the emphasis to industry in the second five year plan. “The Ford Foundation’s 1959 Report, entitled ‘India’s Food Crisis and Steps to Meet It’, created widespread alarm – perhaps more abroad than in India itself. India’s 500 million people were alleged to be on the brink of a serious food crisis. The impression of chronic food shortages was further heightened in the early 1960s when two of the most severe monsoon failures in recorded history depressed cereal output below national needs, and large-scale food grain (P.L. 480) assistance from the U. S. was required” (Adams, 1970;189). This was followed by the Green Revolution initiative which emphasized on the application of high-yielding variety of seeds (in place of the traditional ones) chemical fertilizers (in place of organic manures), pesticides and perennial irrigation from

dam and the canal system (in place of conventional system of irrigation from rivers, tanks, ponds and wells) in selected pockets of the country. Several institutes of rural development and agricultural universities worked on the diffusion of agricultural innovation and the Indian peasants were made to believe that the new inputs and practices and farm mechanization, etc. would increase productivity and make them prosperous in agriculture notwithstanding the disparities in land and access to other resources.

If India’s post-Independence agricultural performance is judged adequately by these tests, it becomes downright impressive when contrasted with the trend under late British rule¹. The post-independence government thus successfully faced the task of reversing an internal food-grain position that had been deteriorating for some forty years (Adams, 1970)². As regards Sambalpur district irrigation and the higher productivity/gross production accompanied with it have led to an increase in the value of land in the wet villages and hence people have been craving for it. Influential people have also been encroaching on the common property of the villages and now there is very little land available even for defecation. This had led to an increase in the number of disputes in land which has given more scope to the Revenue Department to be corrupt. The distribution of surplus land has been a failure in all the villages; the total surplus land has not been accounted for, the land secured is invariably of inferior quality, the distribution has not been fair and involved bribes. Even when land is given, the poor man often has not been able to take possession of it because of the threat of the ex-owner; the inferior land requires more investment and the poor people do not borrow from the formal financial agencies for such land because of fear of default.

The shift from share-cropping (where risk and uncertainty are equally shared), to fixed rent in kind, to fixed rent in cash shows that the lesser (who are always in a superior position) want to remain sure of their rent and make no concessions for weather uncertainties, pest infestation, etc. The higher rent in kind (sometimes six quintal of paddy) and the tendency to keep the lessee attached further shows that land in strategic position, be it in dry or wet villages, are always in demand if there is no chance of substantial earnings from non- agricultural sources.

It is also found that formal agencies are more connected with land and credit situations in the village where as the marketing and employment sectors are almost neglected. In all the villages it has been observed that there is a strong link between land, labour, market and credit. In the face of the unequal distribution of land the neglect of marketing and employment sector affects the rural poor and the substantial land-owners benefit in such a situation. The rural poor are also most affected by fluctuations in rainfall and prices of paddy, fertilizers, pesticides and essential commodities for daily consumption and items of farm cultivation. Since only 24% of the net sown area of the Sambalpur district is irrigated and only 8% of the population employed in the industrial-urban activities, a low rainfall means a low yield and low employment of labour in agriculture. In the face of depletion of the natural resources, mainly flora and fauna, both in land and water, the rural poor, especially in the dry belt would be compelled to move out in abnormal years. On the other hand, in spite of the employment opportunities and slow increase in the wages of different classes of labourers in the wet belt, the rural poor would suffer because of labour attachment, soaring prices of essential commodities, payment in cash and decreasing collection from natural resources. Only in recent times several

employment generation schemes, old age-pension and public distribution system have been helpful to the rural poor but scams abound. Similarly regional marketing cooperatives/*mandis* are paying remunerative prices for the produce of the farmers but every now and then there are lots of complaints from the farmers regarding this formal marketing. The paddy traders in the villages are flourishing unabated.

Despite assured irrigation from the Hirakud dam, it is found that the tail-enders of the canal suffer. Occasional shortage of water in the reservoir because of siltation, diversion of the dam water for industry and the poor and irregular maintenance of the canal system has caused loss and nervousness among the farmers (Baboo, 2009). Recent climatic uncertainties and irregularities have affected the agriculture (paddy, pulses, and vegetables) of the entire Sambalpur district adversely. This has led to increase and fluctuations in the prices of food crops.

The notion that our farmers do not want to take risk in experimenting with new crops and new agricultural practices and that they are very much tradition-bound for which our output is not in a position to meet the demand of our expanding population is not quite tenable even in case of western Orissa and Sambalpur district. Farmers have been adapting and changing. However, they do it slowly with lots of caution as the conventional practices have withstood the test of local agro-climatic conditions and in case of failure the government is not ensuring them against the loss. The farmers are very often not educated/trained enough to use those things. Further, the much hyped inputs and procedures are not dependable for which the farmers are undergoing substantial loss so much so that many of them are committing suicide (Nath, 2016).

6. Data Analysis

Post-colonial agrarian society in Sambalpur district is undergoing a crisis. Irrigation has led to inter-village and inter-regional differences as well as a sharp polarization among the agrarian classes. The six-fold agrarian categories that we had suggested, on the basis of size of holding, caste and type of labour performed, are undergoing differentiation and are under a flux which seem to get polarized and the ultimate social formation may be a complex one where income based on education, business and contract works and subsidies based on protective discrimination would define the categories. A false sense of modernity has made the rural youths wayward and the half-baked educated ones are not interested in agriculture and have become liabilities for their parents as they do not want to do any physical labour. The decrease in cooperation among different groups of people in the village, the evaporation of the *jajmani* system and the depletion of natural resources in the face of the three factors discussed above would make the old people restless as much as the young ones who would like to move more and more out of the villages.

7. Conclusions

Hirakud dam, the longest earthen dam in the world, was constructed during the period 1948-56 basically to save the costal delta from flood but also to store water for irrigation and generation of hydro-power for industrialization. Data collected from six different types of villages of western Orissa in the early eighties and continuous visits to those villages until recently compel us to believe that general agrarian prosperity is a myth in this area. In the initial phase of assured canal irrigation, inexpensive inputs and incentives of the state the

industrious farmers did well. Later on, however, despite increase in the gross production (overall in most of the years) and the price of paddy, the overall increase in the price of inputs and climatic uncertainties have dissuaded people from sticking to agriculture; most of the farmers are highly indebted and many leaving agriculture and some even committing suicide³. In many villages of Bargarh district many migrant Telugu farmers (owners and lessee) have been cultivating the land on lease in cash/kind. Sometimes these industrious farmers are also undergoing loss but manage to go on as there is strong cooperation amongst them and they have also the economy of scale. If these people go back to their own state Andhra Pradesh then hundreds of acres of land would remain fallow as the locals no more consider agriculture an economic proposition. The map of these villages/the entire locality is changing and visible in terms of the construction of the houses, some formal offices and the concrete roads. This change is not because of overall agricultural prosperity but for several developmental initiatives undertaken by the government. However, as human beings have intervened so much in Nature in the form of chemical agriculture and genetic engineering, without realizing its long-term repercussions, the future seems to be bleak. Sustainability in agriculture can be possible by reverting back to traditional farming method, crop rotation, diversification of crops and ultimately Natural Farming (Fukuoka, 1978) which seems to be a distant dream.

Notes

1. Between 1920 and 1945 non-foodgrain output grew at an average annual rate of 1.08 per cent, compared to a population growth rate of 1.12 per cent. In the Independence period non-food grain outputs have expanded at triple this rate, or 3.61 per cent. The record of food grains is even more awesome. Between 1920 and 1945 the growth rate of foodgrains was virtually nil, only 0.03 per cent per annum, contrasted to the population growth rate of over one per cent. Between 1911 and 1941, total foodgrain output in British India shrank by 29 per cent, or 1.14 per cent per capita per annum. On the early years see George Blyn, *Agricultural Trends in India, 1891-1947: Output, Availability, and Productivity* (Philadelphia: University of Pennsylvania Press, 1966), p. 108. It should be noted that there exists considerable variation in the crop and regional series making up the aggregate non-foodgrain and food grain data. (Ibid., pp. 96 and 102) Fourth Five Year Plan, pp. 109-192.

2. The 3 per cent growth rate after Independence is an actual gain of over 4 per cent compared to the prevailing trend. Against the earlier record, agricultural performance in the 1950s and 1960s has been quite respectable, involving as it has an about face of the farming sector, which contributes half of the gross national product. In analyzing the causes of the rise in agricultural production it is necessary to distinguish proximate causes from fundamental ones. The proximate causes of growth are the farm inputs: land, labor, water, and improved techniques; the fundamental, or institutional, bases for the improvements in the rural economy are the immediate factor causing the expansion of agricultural output shortly after Independence: the more extensive use of land and the added amounts of labor. The effects of area increase from 1949-50 to 1964-65 are summarized in the following statement of the Planning Commission: Trends fitted to the adjusted series of production for this period show that aggregate production rose at an average of 3.2 per cent per annum, foodgrains 3.0 per cent and non-foodgrain crops 3.6 per cent. Somewhat over half

the increase in total crop production was derived from higher yields per hectare. The remainder represents the contribution of area growth (estimated at about 1.55 per cent per annum). In the case of foodgrains, the rate of yield improvement (1.6 per cent per annum) was much faster than in other crops (1.1 per cent per annum) and also accounted for a significantly larger proportion of the increase in output.

3. More than 3,600 farmers, including 474 women have committed suicide between 1999 and 2013 because of poor harvest, crop loss, and indebtedness.

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