Political Economy of Agricultural Development in India

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To My Teacher

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Foreword

Prior to independence, agricultural production in India was virtually stagnant for several decades. Soon after independence, the main policy thrust prior to the mid-1960s was agrarian reforms as well as modernizing agriculture through large-scale investment in irrigation and power, and creation of other infrastructure, such as credit institutions, regulated market, roads, and extension and research institutions. As a result, India could succeed in breaking the prolonged structural stagnation. The better performance of agriculture witnessed during the early phase of planning could not be sustained. Moreover, India could not cope with demand for food grains with rising population and dependency on monsoons.

During the mid-1960s, India experienced drought in successive years, in addition to two wars, which led to a food crisis. This crisis prompted the Government of India to give an overriding priority to achieve self-sufficiency in foodgrain production by launching the Green Revolution. Public investment in irrigation and agricultural research was stepped up. Over the Green Revolution period, i.e. from the mid-1960s to the close of the 1980s, India achieved near self-sufficiency in foodgrains production and experienced an improvement in food security. The 1980s were considered to be the best years of Indian agriculture, when labour productivity and total factor productivity were at their peak.

There has also been a significant reduction in poverty, especially during the 1980s. The early phase of the Post-reform period (1990s) witnessed a decline in the overall growth of agriculture and allied sectors. The growth of agriculture and allied activities declined further in the 2000s and beyond. India has also been saddled with ecological and environmental problems due to the over pumping of groundwater and the excessive use of fertilizers and pesticides. Water use efficiency in crop cultivation in India is the lowest in the world. Indian farmers use 3 to 5 times more water than Chinese, Israeli and American farmers. For instance, India exported 10 trillion litres
of water for exporting 37.1 lakh tonnes of basmati rice in 2014–15 alone—from land preparation to post-harvest processing. Further, although use of nitrous, potassium and phosphate fertilizers (NPK) has contributed to agricultural growth, its indiscriminate use has led to salinity in the land and erosion of the soil fertility.

Dr. Venkateswarlu has made a seminal effort to bring out the proximate and structural factors underlying agricultural development in the pre-and post-Independence period from the perspective of political economy. The book goes into the background of the Green Revolution and analyses its costs and benefits. The ecological and environmental problems of India witnessed during the Green Revolution and subsequent period could be due to uncontrolled use of fertilizers and water use inefficiency beyond a point. It is a failure to resolve the conflict between private and social interests though appropriate policy.

Apart from dealing with agricultural growth crisis, the book makes an in-depth analysis of the agrarian crisis. Under the SEZs initiated as a component of the new economic policy which began in the early 1990s, the state governments began to secure agricultural lands using the Land Acquisition Act of 1894, under public purpose; and as a consequence, struggles of affected farmers took place in several states. The book portrays the problems of shortage of institutional credit, marketing inefficiencies and extension failure. Current agricultural growth and agrarian crises have affected the livelihoods of the farming community. Formation of farmers’ collectives with government’s assistance may strengthen the livelihood base of the farming community.

Undoubtedly, it is a very comprehensive and insightful book by Dr. Venkateswarlu on the current problems confronting Indian agriculture. It is an indispensable read for policy makers and researchers to understand the dynamics of Indian agriculture and resolve the problems confronting the farming community.

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Centre for Economic and Social Studies,
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[Former Chairman, National Statistical Commission; Vice-Chancellor, Andhra University; and Vice-Chancellor, Indira Gandhi Institute of Development Research]
Preface-cum-Acknowledgements

The political economy perspective reflects throughout all the chapters of the book, dealing with agricultural development in India. It covers agricultural policies of the colonial period, pre-Green Revolution, early GR and late GR periods. After liberalization, privatization and globalization (LPG) policies of 1991, the early and late globalization phases have been covered. British colonial policies made an adverse impact on Indian agriculture, making it overcrowded due to de-industrialisation. It was turned into a food-importing from a food-exporting one. After Independence, the US policies, as a part of the Colombo Plan, tried to contain communism in India with food aid, so as to defuse peasant struggles. In India, the US helped with the implementation of CDP (1952) and NES (1953); exported foodgrains under PL-480, and sent Ford Foundation teams (1959) for advice. As a result, IADP and IAAP were followed till the mid-1960s. The US exported the Green Revolution to India in 1966, with conditions: (i) rupee devaluation and (ii) not to oppose the Vietnam War. The US supported subsidies for GR inputs and aided international and national research up to 1991.

When the Mexican crisis arose, International Financial Banks became parsimonious and wanted repayments from indebted developing countries. Then the IMF and World Bank became debt collectors of IFBs by giving structural adjustment programme (SAP) loans to indebted countries with conditionalities of state withdrawal and external liberalization throughout the 1980s. The fall of socialism in Eastern Europe (1989) and USSR (1991) ended the cold war.

In India, Rajiv Gandhi adopted the supply side economics of Reagan, and implemented new economic policies (NEP-I) in 1985; and later in 1991, when anti-socialist waves were sweeping, India’s political conditions led to LPG policies (NEP-II) under Sri P. V. Narasimha Rao. In 1995 came WTO, with agreement on agriculture (AOA)—along with TRIPS, TRIMS and GATS. Then, state withdrawal in agriculture and opening up of agriculture began. Thus, Indian agriculture has
been affected under the neoliberal policies. Now, the cropping pattern tilted towards cash crops. Then, the second Green Revolution (GR-II) with non-foodgrain crop orientation attracted genetically modified organisms (GMOs) seeds. Further, agricultural marketing, credit and extension, on the one hand, and on the other, food security policies (PDS and procurement) have changed.

As regards my orientation towards the political economy of development, it is based on my personal experience of socio-political and economic conditions in my life and its understanding with common sense (in Gramscian terms), in conjunction with strengthening of the theoretical foundations at JNU, as a student; and more practical research experience at the Centre for Economic and Social Studies, Hyderabad.

After my admission into JNU, Prof. Sukhadeo Thorat at CSRD came to know about me through a friend of mine (Dr. I. Thirumali), how I was interested in doing a PhD, despite being married and having two sons. Thus, Prof. Thorat accepted me as his student for the MPhil, and he helped me in getting the fellowship earlier and later before he was leaving for Warsaw on fellowship, he made arrangements for renewal (without the MPhil result) of fellowship to avoid difficulties. Really, I am deeply indebted to him and thank him with due respect. Thus, this book is dedicated to Prof. Sukhadeo Thorat, Chairman, ISEC, Bengaluru.

Prof. G.K. Chadha, a great academician-cum-humanist, who was my PhD supervisor (also Prof. Thorat’s), helped me in several ways, before and after completion of my PhD. Having understood my interest in research, he recommended me to CESS. At CESS, since the advice of Prof. S. Galab, the Principal Investigator of DPIP and APRPRP, I have immersed myself in research. During 2015-16, I worked as a Taskforce member in the Commission on Inclusive and Sustainable Agricultural Development of Andhra Pradesh, under the kind supervision of Prof. R. Radhakrishna, the Commission Chairman. In this, I could understand many dimensions of Indian agriculture.

First, I pay my homage to my great teacher, Prof. G.K. Chadha, whose kind encouragement could enable me to finish my PhD. I also pay tributes to Prof. G.S. Bhalla for his encouragement and inducement. Further, I remember my friend Vemulapalli Suryanarayna, who helped me in my studies financially, with all kindness.

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Akina Venkateswarlu
Political Economy: Perspective and Objective

“The philosophers have only interpreted the world in various ways; the point is to change it.”

—Eleventh thesis from Marx’s Theses on Feuerbach, 1845.

This book is intended to analyse the process of agricultural development in India in the post-independence period, from the perspective of political economy. Before covering the post-Independence period of nearly seven decades, the colonial period of the pre-Independence period has also been undertaken.

1. Political Economy Perspective

As it is intended to consider agricultural development from the perspective of political economy, the term “political economy” is to be elaborated in a systematic way. According to Johnston (1988, p. 35):

The term political economy went out of fashion decades ago because economists wanted to concentrate on rigorous analysis of the strictly economic aspects of problems. The term has come back in favour, however, for many of us concerned with problems of development. We recognize that we simply cannot afford to ignore the political dimension that is so important to our understanding of the real world problems and opportunities.

Two quite distinct and fundamentally opposed forms of political economy were experienced. They are called the ‘old political economy’ and the ‘new political economy’. It was the Marxist brand of the ‘old political economy’ whose demise was announced, although its non-Marxist variant has also long since been declared dead. Concentrating on the former, the statement is in line with similar pronouncements to the effect that ‘Marxism is dead’.

First we settle the issue of what political economy we are siding with, i.e. old or new political economy. We follow the approach of the old political economy—Marxist or non-Marxist variety. The old
political economy is in the tradition of classical political economy—a line running from Adam Smith to Karl Marx. There is also a clear line of division, within the *old political economy between a non-Marxist and a Marxist variant*. Lewis stressed capital accumulation and its determinants. Maurice Dobb also highlighted accumulation as it leads to constant creation of new means of production. Ronald Meek also concurred with Dobb in portraying the essence of main classicals (Ricardo and Smith) as the progress of capital accumulation for achieving the material prosperity for the community at large and for all classes. For Marx, accumulation of capital (or ‘expanded reproduction’) is capitalism’s historic mission, and its central dynamic. This process shifts from a constant to an increasing rate, transforms a poor economy. It is the driving-force of capitalist transformation (Byres, 1995). It was a cardinal precept that the rate of accumulation, and, by extension, the speed and the nature of the capitalist transformation of a society depend upon the social character of those who accumulate, i.e. upon their class characteristics.

As per Smith, Ricardo and Marx there were ‘three classes of the community’ with a slight difference for each. In these social structures, the state plays a role directly or indirectly for the capital accumulation; whenever and wherever it was demanded by the dominant class, the state assumed a coercive role, despite Smith’s stress on *laissez faire*. Thus, finally there are three aspects of the political economy: (i) accumulation, (ii) class composition of the society dominated by the class of dominant though in minority; and (iii) the state’s role coercive or non-coercive or hegemonic with legitimacy (Engels, 1947/1894; Marx, 1971a; Gramsci, 1992; Byres, 1995).

Marx (1859) in his *A Contribution to the Critique of Political Economy*, considered that when one has to examine a given country from the standpoint of political economy, it is to be begun with that country’s population, the division of the population into classes, town and country, the sea, the different branches of production, export and import, annual production and consumption, prices, etc. (Marx, 1978, p. 205). Marx stressed that inasmuch as political economy would not exist without private property, and basically this idea about political economy always remained with Marx irrespective of the important distinction between the “classical” and the “vulgar” economists that he would make beginning with the late 1850s. Political economy was always considered by Marx as a bourgeois science—as a representation of the capitalist reality (Chattopadhyay, 1994). Further, Sau (1973) portrayed political economy, based on Engels, with more elaboration:
The conditions under which men produce and exchange vary from country to country, and within each country again from generation to generation. Political economy therefore, cannot be the same for all countries and for all historical epochs; it is essentially a historical science. It deals with material which is historical, that is, constantly changing; it must first investigate the special laws of each individual stage in the evolution of production and exchange, and only when it has completed this investigation will it be able to establish the few quite general laws which hold good for production and exchange in general.

Engels also brought out more clearly, in his *Anti-Duhring*, how political economy deals with the class differences and state’s role in facilitating the accumulation for the dominant class (capitalists):

With the differences in distribution, class differences emerge. Society divides into classes: the privileged and the dispossessed, the exploiters and the exploited, the rulers and the ruled; and the state, which the natural groups of communities of the same tribe had at first arrived at only in order to safeguard their common interests (e.g. irrigation in the East) and for protection against external enemies, from this stage onwards acquires just as much the function of maintaining by force the conditions of existence and domination of the ruling class against the subject class (Engels, 1947).

The most important feature of political economy is that it depends on the objective conditions like production processes and technology, but not on subjective factors, which are important for the neoclassical economists, as they treat psychological utility as the only basis of demand, undermining the supply side factors that depend on the objective conditions. In this connection, Bharadwaj (1980, p. 54) said:

Political economy is the analysis of a concrete situation of objective material conditions as well as the level of consciousness of the contending classes and their interplay. A thorough analysis would require consideration of not only the development of material conditions but also that of production relations, including the possible strategies open to the various constituent classes engaged in the struggle and the probable shape the struggle may take.

Regarding classical political economy, it had developed in direct response to the challenging problems of capitalism as it emerged out of the feudal and mercantalist past. Political economists analysed the problems of advancing a capitalist economy in terms of growing productive forces (division of labour, technical progress, changes in methods of production, mechanization) of the accumulation of surplus at a rate not known earlier and its distribution among the various classes. They investigated the factors that determined the
growth of surplus, the distribution of the surplus and the conflicts that inevitably arose among social classes, sharpened by the process of accumulation (Bharadwaj, 1980, pp. 57-58). In the social dynamics, the primacy of sphere of production over sphere of exchange is to be recognized (Bharadwaj, 1978, p. 91).

Now, we may throw some light on ‘the new political economy’. It is the cousin of neo-classical economics that stresses *laissez faire* with society having no classes. It contains various shades and colours, such as public choice, collective choice, social choice or rational choice theories. It is a cocktail of the Marxist concept of the state without its class analysis, and with the Liptonian theory of urban bias thrown in and blended with neo-classical economics. The fact remains that it provides a powerful theoretical justification for the structural adjustment package of the World Bank/Washington Consensus of the late 1970s and the entire 1980s (Dasgupta, 1997a). Further, the new political economy supports the neoliberal orthodoxy of rolling back of the state, in the name of the ‘development’, as it is necessary ‘to get the prices right’, whereas there is necessity for the state to interfere in the reduction of poverty and of rising inequalities (Byres, 1995).

From the foregoing discussion, it can be inferred how the state (politics) is used for the enrichment of the new upcoming class (capitalists), for economic ends; and there was an ample proof from the history of Great Britain, other Western European countries and the USA. Thus, at this juncture, it is necessary and appropriate to consider a brief account of the debate on the primacy of economic structure vs. social superstructure (politics).

2. Debate on Base (Economics) and Superstructure (Politics):
Marxist Outlook

In Marxist/socialist literature, there is a discussion on the base, being the economic foundation of the society, and the superstructure, being the legal and political superstructure, the general process of social, political and intellectual life. Marx brought out this essence of historical materialism, in his Preface to *A Contribution to the Critique of Political Economy* of 1859 in the following passage (though lengthy it is contextual):

In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure of society, the real foundation, on which arises a legal and political superstructure and to which correspond
definite forms of social consciousness. The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness. At a certain stage of development, the material productive forces of society come into conflict with the existing relations of production—or—this merely expresses the same thing in legal terms—with the property relations within the framework of which they have operated hitherto. From forms of development of the productive forces these relations turn into their fetters. Then, begins an era of social revolution. The changes in the economic foundation lead sooner or later to the transformation of the whole immense superstructure (Marx, 1978, pp. 20-21).

Further, as per his understanding, Marx depicted four modes of production in broad outline: the Asiatic, ancient, feudal and modern bourgeois modes of production. He treated the bourgeois mode of production as the last antagonistic form of the social process of production—antagonistic not in the sense of individual antagonism but of an antagonism that would emanate from the individuals’ social conditions of existence. Then, the productive forces developing within bourgeois society would create the material conditions for a solution of this antagonism—“The prehistory of human society accordingly closes with this social formation” (Marx, 1978, p. 21).

There is a view that when Marx and Engels referred base-superstructure relation as seen in the para quoted, they gave primacy to economic base alone, giving secondary role to the superstructure. This is known as base-superstructure debate. In the following, we consider what Marx and Engels exactly meant by base-superstructure interaction; and at the same time we look into the views of other Marxist authors—Lenin, Gramsci, Mao-Tse Tung and Althusser.

(i) Even in the lifetime of Marx and Engels, the same allegation they faced as if they gave primacy to economic base, as if superstructure (politics and ideology) always depends on the base. Engels answered suitably in two letters addressed to (a) J. Bloch (September 21, 1890) and (b) Borgius (January 25, 1894). In the first letter, Engels said:

According to the materialist conception of history, the ultimately determining element in history is the production and reproduction of real life. Other than this neither Marx nor I have ever asserted.

In the second letter, Engels brought out:

Political, juridical, philosophical, religious, literary, artistic, etc., development is based on economic development. But all these react upon one another and also upon the economic base. It is not that the economic position is the cause and alone active, while everything else only has a
passive effect. There is, rather, interaction on the basis of the economic necessity, which ultimately always asserts itself.

(ii) Lenin’s view on dialectics of politics (superstructure) and economics (base) is now considered, as it is contextual. Lenin considered that it is a reality that the dominance of politics is there over economics. Lenin did not accept to regard the economic struggle as the most widely applicable means of drawing the masses into active political struggle, because there was no need whatever to treat economic struggle on priority (Lenin, CW, 1977, Vol. 5, p. 403). Further, he said (ibid., p. 413):

For this reason the conception of the economic struggle as the most widely applicable means of drawing the masses into the political movement, which our economists preach, is so extremely harmful and reactionary in its practical significance.

When Trotsky and Bukharin reproached Lenin for taking ‘political approach’ as against ‘economic approach’ of theirs; and even when Bukharin amended his attitude and tried to give equal importance to economics and politics; Lenin took the position that politics must take precedence over economics; and to argue otherwise is to forget the ABC of Marxism, while stressing, “politics is a concentrated expression of economics” or “politics are concentrated economics” (Lenin, CW, 1973, Vol. 32, p. 83; Vol. 33, p. 316).

(iii) Gramsci’s view stressed the dialectical interaction between economics and politics. In his view, more importantly the metaphor of base and superstructure implies that changes in the economic structure are the primary cause of changes in politics and ideology, in line with Lenin’s, is to attribute revolutionary change to political action; and to establish the principle of the primacy of politics (Simon, 1991, p. 96)

(iv) Mao Tse-Tung (On Contradiction of 1937), dealt with base and superstructure in his own way, by analysing contradiction dividing it into two aspects: the principal and non-principal (secondary):

In the contradiction between the economic base and the superstructure, the economic base is the principal aspect; and there is no change in their respective positions. ..But it must also be admitted that in certain conditions, such aspects as the relations of production, theory and the superstructure in turn manifest themselves in the principal and decisive role. When it is impossible for the productive forces to develop without a change in the relations of production, then the change in the relations of production plays the principal and decisive role (Mao, 1965a, pp. 335-336).
(v) Althusser (1971, p. 135) expressed his view that the determination in the last instance of the base is interpreted by the Marxist tradition in two ways: (1) there is a ‘relative autonomy’ of the superstructure with respect to the base; (2) there is a ‘reciprocal action’ of the superstructure on the base. Further, Althusser’s preservation of the classical base/superstructure topography (determination in the last instance by the economic) is thus conjoined with a reconceptualization of the conformation of social formations: the political and ideological levels enjoy relative autonomy, but not independence (Elliot, 2006, p. 136).

(vi) Joan Robinson in her preface to Kregel’s book of 1973, The Reconstruction of Political Economy, said that she had been trying since the early 1950s to trace the confusions and sophistries of the neo-neoclassical doctrines to their origin in the neglect of historic time in the static equilibrium theory of the neoclassics and at the same time to find a more hopeful alternative in the classical tradition, revived by Sraffa, which flows from Ricardo through Marx, diluted by Marshall and enriched by the analysis of effective demand of Keynes and Kalecki (Kregel, 1973, p. xii). Further, Kregel explained how the neo-classical theory was primarily associated with the names of Jevons, Menger and Walras, concentrated on demand, relative prices and consumption:

Productive relations, real cost and the supply side in general carried very little weight. The class aspect of economic theory was also greatly changed. In the classical tradition Ricardo had advanced the interests of the capitalists against the landlords, who were defended by Malthus; Marx took up the cause of the all but forgotten labouring classes. With the neoclassics all this changed and a man was a man for all that; class relations gave way to the analysis of equal individual atomistic decision-making units and all men were created and existed politically and economically equal (Kregel, 1973, pp. 26-27)

Thus, Kregel criticized the neo-classicals for having thrown away the class relations, as if all men were created and existed politically and economically equal, whereas in reality this is not correct.

3. Politics vs Economics: Dominance of Politics in India

As per Bardhan, political economy refers to the distribution of political and economic power in a given society and how that influences the directions of development and policies that bear on them (Bardhan, n.d). In India, politics dominate over economic development issues because of the parliamentarian democracy.

The economic changes (reforms) are generally imposed from the political compulsions either at the national or international levels.
Again these political compulsions depend on the dominance of the changed economic conditions, i.e. the changed class configurations. Sometimes they go together. In this connection, Jalan (2004) rightly points out, keeping the Indian situation of economic reforms in India in 1991:

The political decision-making on economic issues in our country, as indeed in most democracies, is often driven by special interests rather than the common interests of the general public. These special interests are also more diverse in India than in other more developed and mature economies. Thus, there are special regional interests, not only among states, but also within states, depending on the electoral strength of the party in power in different parts of the state. Economic policy making at the political level is further affected by occupational divide (e.g. farm vs. non-farm), the size of enterprise (e.g. large vs. small), caste, religion, political affiliations of trade unions, or asset class of power wielders, and a host of other divisive factors.

The international political scenario changed after the downfall of socialism in Eastern Europe in 1989 and former Union of Soviet Socialist Republics (USSR) in 1991, as the world became unipolar, under the domination of the US as representative of world capitalism. By that time, the structural adjustment programme (SAP) as dictated by Washington Consensus, a unique capitalist agenda, as professed by the World Bank and the International Monetary Fund (IMF) had begun to be implemented in the developing countries since the early 1980s. The Indian political conditions by June 1991 so changed that the Indian polity also adopted the economic policies of SAP, with the implementation of liberalization, privatization and globalization (LPG), as prescribed by the IMF and World Bank.

Another factor, that led to change in the world economic scenario, was the formation of the World Trade Organization (WTO), which prescribed LPG framework in more systematized way, undermining the role of already existing General Agreement on Trade and Tariffs (GATT), and caring less about the United Nations Conference on Trade and Development (UNCTAD). Originally, the GATT came into existence with effect from January 1, 1948; and its most important principle was that of trade without discrimination which each member nation would open its markets equally to every other. In its place the WTO was established from January 01, 1995. It had widened its network to include agreement on agriculture (AOA), trade related intellectual property rights (TRIPS), trade related investment measures (TRIMS), and general agreement on trade in services (GATS). It came into existence after signing the Dunkel draft, which was imposed on
the developing countries by developed countries under the leadership of the USA, with conditionality that it was to be signed without demanding any modifications to the draft. This is *the political and strategic dominance of the US* and other developed countries, which gave scope for them to dictate such terms to developing countries without any challenge (Dubey, 1992). All the contents of the WTO would badly impact on the agriculture of the most of the developing countries, some of them might benefit, of course. This is possible because of the political and economic imperialism of the developed countries, which can be understood only from the political economy perspective.

After Indira Gandhi’s death (1984), her son Rajiv Gandhi became the PM, who used to claim that India had to make development with high growth to enter the twenty-first century. In that context, he initiated the first phase of new economic policy (NEP-I) in 1985 (K.N. Raj, 1985). After his death in 1991, the new Indian government boldly adopted second phase of new economic policy (NEP-II), in the post-downfall of socialism in socialist countries of East Europe (in 1989) and Soviet Union (in 1991). Thus, politics were in command.

In 1992 Kharif times, the Indian Government took two important decisions in regard to agriculture by the decisions of Cabinet Committee on Political Affairs (CCPA) as the role of Cabinet Committee on Economic Affairs (CCEA) was reduced and was ineffective. In this connection, Ashok Mitra (1992) said:

> As far as one’s information goes, the Cabinet Committee on Economic Affairs (CCEA) still exists in a formal sense. It has however been rendered dysfunctional. The selective reduction in the subsidies on fertilizers was decided by the Cabinet Committee on Political Affairs (CCPA). The decision to raise the level of minimum support prices of kharif crops, across-the-board, by something like 15 to 20 per cent, has similarly been taken by the CCPA. The CCEA knows where it belongs; it has disappeared in the hazy background. There is vindication here ....(as) Lenin (said) about economics being distilled politics. It is only appropriate that the crucial decisions in the economic area are taken by the Cabinet Committee on Political Affairs. The stark realities are thereby revealed in their authentic colours.

In 2008, Manmohan Singh, as the Prime Minister of India (who was the Finance Minister of India in 1991) warned the political parties against playing petty politics? with the misery of the people and those parties must stay away from making an issue of rising prices. Then, Ashok Mitra (2008) reprimanded Dr. Manmohan Singh that he should know the meaning of meaning, as he was a teacher of economics in
the past and at that time he was a practising politician, enlightening the view of politics:

Politics in all epochs and in all countries aims at the seizure of power. The capture of power is not an exercise in abstraction. The power politicians aspire to—and seize—is intended to make use of instruments of various descriptions available to the State—administrative, legal, fiscal, monetary—to further their own interests and those of their near and dear ones; the latter category includes not just kith and kin, but caste, religious class or ethnic fraternities too. Those entrenched in power use this power to ensure the enlargement of economic benefits for their particular constituency. Those at present outside the orbit of power will similarly shout themselves hoarse to espouse the economic interests of those who make up their support base. Politics, it follows, is all about economics, and vice versa (Mitra, 2008).

4. Structural Transformation in an Economy: India’s Asymmetric Economic Development

In any economy, the secular decline of the share of agricultural sector in national income and employment occurs as the expansion of manufacturing and other components of the non-agricultural sectors takes place. The importance of this process of the structural transformation and size of the related capital demands place a great burden on agriculture to provide capital for expansion of other sectors. The structural transformation is related with the resolution of agrarian question from pre-capitalist or feudal/semi-feudal structure of production for the growth of industrial and service sectors either in capitalist or socialist way (from the Marxist framework). The transformation has implications in regard to the changing role of capital and labour and also the choice of methods for developing agriculture.

Agricultural development has its own role in economic development. There are supply side factors and demand side factors that the agricultural sector can contribute to the economic development. As regards the supply side, agriculture can supply (i) foodgrains to the workers of non-agricultural sector, (ii) agricultural raw materials for agro-based industries (cotton, sugarcane, etc.), (iii) labourers (found surplus to itself) to non-agricultural sectors, (iv) capital to the non-agricultural sector from two sources: (a) extracting surplus from agriculture within the closed economy, and (b) by earning foreign exchange through exporting agricultural goods. From demand side, agricultural sector creates demand for (1) non-agricultural goods which are useful for the consumption by people
in agricultural sector, i.e. as both durable and non-durable consumer goods, and (2) agricultural inputs, such as HYV seeds, fertilizers and pesticides and agricultural implements and machinery (Johnston and Mellor, 1961).

Further, the structural transformation gives rise to strategic challenges and opportunities, and leads to a discussion of the political economy of agricultural policy design and implementation during the structural transformation. The structural transformation is the defining characteristic of the development process, both cause and effect of economic growth. When overall GDP grows rapidly, the share of agriculture in GDP falls much faster than the share of agricultural labour in the overall labour force. The final outcome of the structural transformation is an economy in which capital and labor productivity in agriculture is equalized with other sectors through well-functioning labor and capital markets. Four important aspects of the structural transformation are (Barrett, Carter and Timmer, 2010): (i) a declining share of agriculture in GDP, (ii) a declining share of agricultural employment in economy-wise employment; (iii) the rise of a modern industrial and service economy; and (iv) a demographic transition wherein rural-to-urban migration takes place leading to urbanization.

In India’s economic development, the structural transformation in post-Independent India did not occur as rapidly as in less populated countries and socialist economies in Asia or some other continents. The asymmetry is quite clear from the fact that in a span of six decades (1950-51 to 2010-11), the share of primary sector in employment decreased by 15.1 percentage points only, as against the decrease of share of GVA by 39.4 percentage points. This asymmetry has to be accounted for by the political economy of development in India, as political parties of ruling classes and dominant capitalist classes within and outside have maintained dominant coalitions sometimes and fragmented coalitions sometimes. The clever capitalist classes change the option of support from one party to another depending on their immediate needs of economic concessions (like tax holidays, evasion of tax, using of public bank funds, etc.).

5. Objective and Organization of the Book

As our study follows the political economy approach, our main objective is to examine how the changes in international and national political conditions determined and are determining the agricultural development of India as a part of the overall economic development. In the pre-Independence period, the British colonial exploitative policies controlled Indian agriculture. In the post-Independence period, the US
or the US dominated international organizations influenced the Indian government’s agricultural policies, depending on the political party in power and its leadership. The inherent character of the ruling classes of different political parties, with similar economic agendas, uphold the interests of capitalist classes and corporates, on the one hand, and accept the external imposition, on the other. The change in political leadership in the country is not making much difference in respect of the adoption of and continuation of the economic and agricultural policies. This is in unison with the view of Marx, expressed in his *The Eighteenth Brumaire of Louis Bonaparte* of 1852 that the interests of the bourgeoisie are better served when they are not themselves the ruling class, with the relative autonomy of the state. Marx’s view, in combination with that of Althusser, was presented by Bardhan:

Marx developed a somewhat more complex theory, according to which the bourgeoisie voluntarily abdicate from power...or abstain from it because they perceive that their interests may be better served by remaining outside politics. This is the origin of the neo-Marxist idea of the state being relatively autonomous of the dominant economic class even though it acts on behalf of the latter and safeguards its interests. To secure the general and long run interests of the dominant class and its hegemony over the dominated classes, it may be necessary for the state to acquire freedom of action or functional autonomy with regard to the particular and short run interests of individual parts of the dominant class (Bardhan, 1998, pp. 32-33).

Thus, the ruling class political parties give a posture to the masses that they are working in the interest of the masses, with timely populist and neo-populist measures to attract the voters to win elections, so as to ultimately serve the class interests of the bourgeoisie. Recently after Trump’s winning elections in the USA and the results of a series of elections in Europe, it is reported that populism has taken rebirth in a new dimension, according to some authors, like Fareed Zakaria.

### 5.1 Organization of the Book

The book is divided into seven parts and twenty-two chapters, as it contains a wide canvas with qualitative coverage of agrarian policies of land and non-land institutions, based on the prevailing conditions of the political economy in the pre-Independent and post-Independent India. Further, from the quantitative side, the requisite statistical data have been analysed showing the economic impact of the agrarian policies under different political regimes and their respective ruling classes.

Part-1 contains theoretical preliminaries, with two chapters.
Chapter 1 deals with the political economy perspective while depicting the objective and Chapter 2 describes the political economy of institutional and technological changes and their dialectical interaction.

Part-2 is concerned with the political economy of the British colonial legacy in land and agricultural policies as a background for implementing land reforms in post-Independent India; and their impact on land ownership and access in India. Chapter 3 analyses British policies of land revenue systems and commercialisation in Indian agriculture in the pre-Independence period. Chapter 4 undertakes the implementation of land reforms in post-Independence India; Chapter 5 deals with the pattern of distribution of landholdings and tenancy based on NSS data.

Part-3 focuses on the political economy of agricultural policies under the US intervention after Independence. Chapter 6 brings out the US involvement in the Pre-Green Revolution phase, and Chapter 7 focuses on the US role in exporting the green revolution into India. Chapter 8 shows the extent of adoption of the Green Revolution and its expansion in India, and the consequent achievements; while Chapter 9 analyses the costs and imbalances of the Green Revolution in Indian agriculture.

Part-4 describes the international and Indian political economic conditions under which liberalization, privatization and globalization (LPG) policies were adopted in India, and India’s entry into WTO; and the Indian agricultural economy under the regimes of LPG and WTO. It also considers special economic zones (SEZs) as an agenda for further globalization. Chapter 10 gives an account of the background of political economy of adoption of neoliberal and globalization policies at global level and India; and India’s entry into WTO. Chapter 11 is concerned with the political economy of establishment of SEZs in a great hurry. Chapter 12 considers the political economy of the second green revolution in terms of adoption of genetically modified seeds (GMOs) on Indian agriculture. Chapter 13 gives an account of the performance of agriculture in the post-neoliberal and post globalization period.

Chapter 14 deals with impact of Globalization and WTO on India’s agricultural exports and imports, employment and consumption. Chapter 15 examines why agricultural capitalism in India could not establish “either from above or from below.”

Part-5 deals with the political economy of non-land institutions—agricultural credit, marketing and extension in Indian agriculture—in Chapters 16, 17 and 18 respectively.
Part-6 gives an account of the political economy of food security policies in India. Chapter 19 takes up the political economy of public distribution system (PDS) in India and the procurement of foodgrain policy for maintaining buffer stocks as a measure of food security is examined in Chapter 20.

Finally, Part-7 considers some concerns of the agrarian crisis in the post-globalization and WTO phase in Chapter 21. Summary and concluding remarks, with recommendations, are portrayed in Chapter 22.

The Colonial Phase is treated as the pre-Independence period (upto 1947), and we consider the problems inherited from the British colonial rule in one of the chapters. However, for considering the agrarian policies and examining the performance of agricultural sector in the post-Independence period, the periodization can be made into five main phases.

The post-Independence phases are portrayed in Table 1. The pre-Green Revolution period (P-I), 1950-51 to 1965-66; early Green Revolution period (P-II), 1966-67 to 1979-80; late green revolution period (P-III), 1980-81 to 1989-90; early liberalization and globalization period (P-IV), 1990-91 to 1999-2000; and late globalization period (P-V); 2001-02 to 2016-17; and last sub-phase (P-V(S)), can be treated as post-financial crisis phase (2006-07 to 2016-17). The first three phases of post-Independence period resemble those of Rao and Storm (1998, p. 204) in the post-Independence period; and first four phases are nearly similar to those of Bhalla (2004, p. 302) and Deshpande, et.al (2004, p. 39).

**Table 1.1: Five Phases: Periodization**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Period</th>
<th>Policies and Results of Agricultural Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial Phase</td>
<td>1757 to 1947</td>
<td>How the British East India Company entered Indian soil for trade purposes and took a turn from economic interests to political interests to colonial domination. How the Company and the Crown policies transformed Indian agriculture in land revenue system and agricultural production have been analysed.</td>
</tr>
<tr>
<td>First Phase (P-I)</td>
<td>1950-51 to 1965-66</td>
<td>Pre-Green Revolution Era—Food Insecurity and Community Development phase, changing the cropping pattern in favour of food crops. For equity in the size of holding, implementation of land reforms: (i) favouring the peasant cultivator through tenancy reforms and abolition of intermediaries, and (ii) bringing equity in access to land and other resources.</td>
</tr>
<tr>
<td>Phase</td>
<td>Period</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------</td>
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</tr>
<tr>
<td>Second Phase (P-II)</td>
<td>1966-67 to 1979-80</td>
<td>Early Green Revolution Period (GR-I)—Making the farmer technology adopter and Phase attending the constraints of technology from farmers’ perspective. Ensuring farmer-friendly technology. Farmers’ participation in the overall growth calculus. Period heralding the technological change (Green Revolution).</td>
</tr>
<tr>
<td>Third Phase (P-III)</td>
<td>1980-81 to 1989-90</td>
<td>Late Green Revolution Period (Pre-Globalization)—Preparing the farmer for participation in the Phase trade-oriented economy. Domestic market reforms to reduce market margins. Initiating the farmer to the WTO regime.</td>
</tr>
<tr>
<td>Fourth Phase (P-IV)</td>
<td>1990-91 to 1999-00</td>
<td>Structural Adjustment-Cum-Globalization Period—Formation of SEZs and Attempts to adopt the Second Green Revolution (GR-II)—Overall Impact of Liberalization process on the Indian agricultural sector.</td>
</tr>
<tr>
<td>Fifth Phase (P-V)</td>
<td>2000-01 to 2016-17</td>
<td>Peak Globalization period—Indian Agriculture in the post-Global Financial, Oil and Foodgrain Crisis</td>
</tr>
<tr>
<td>Sub-Phase P-V(S)</td>
<td>2006-07 to 2016-17</td>
<td>Post-Financial and Foodgrain Crisis period (as a Sub-part in P-V)</td>
</tr>
</tbody>
</table>
Political Economy of Agrarian Question: Dialectical Interaction of Institutional and Technological Changes

As we have already set the political economy approach for our study, in this chapter, some theoretical preliminaries are considered in regard to (i) the political economy of land reforms, in resolving the agrarian question, both in terms of Marxist and non-Marxist versions, for introducing institutional changes, mainly in land structure; and (ii) the political economy of technological changes in agriculture.

Thus, in a way, we analyse the importance of structural transformation in economic development. So it is necessary to examine how the role of institutional and technological changes plays in such transformation. For this, agricultural sector’s development, as a part of the overall economy, undergoes changes in its agrarian structure. Agricultural development depends on the agrarian structure (its institutions and land relations). Now, the question arises what are the components of agrarian structure. The UNO defines agrarian structure as:

the institutional framework of agricultural production. It includes in the first place, land tenure, the legal or customary system under which land is owned; the distribution of farm property between large estates and peasant farms or among peasant farms of various sizes; land tenancy, the system under which land is operated and its production divided between operator and owner; the organization of credit, production and marketing; the mechanism through which agriculture is financed, the burdens imposed on rural population by governments in the form of taxation; and the services supplied by governments to rural populations, such as technical advice and educational facilities, health services, water supply and communications (UNO, 1951, pp. 4-5).

In the process of transformation of agrarian structure, both institutions and technology are to be treated as variables and should be allowed to interact. There are four major components in agricultural
transformation, viz. factor endowments, institutions, technology and political system. As per Shigemochi, the political system assumes a role in the transformation:

Factor endowment of a society is an exogenous variable to political system, in the sense that the latter could affect the former only through combined effects of institutional and technological change; and that the choice of institutions and technology by certain political forces should be subject to the given factor endowments. Any political forces in power should prefer to choose a set of institutions and technology, which is expected to stabilize the system (Shigemochi, 1978, p. 4).

Thus, appropriate institutional structure is necessary for adoption of progressive agricultural technology. There is a dialectical interaction between technology and institutions. Depending on Marx’s view, Ruttan (1978, p. 330) has to say the following:

Although Marx stressed the dialectical relationship between changes in modes of production (technical change) and changes in production relationships (institutional change), he believed the former provided the more dynamic source of change in social organization.

The structural transformation of any pre-capitalist economy, from agricultural to non-agricultural, can be accounted from the points of both Marxist and Non-Marxist political economy. Though epistemologically both have an initial common element to transform the economy, their paths and goals are teleologically different in achieving the intended transition. The “agrarian transition” is closely related to the notion of resolution of “agrarian question” from the Marxist standpoint, where the transformation of a predominantly agrarian society into an industrialized society is considered (Bosale, 2016, p. 277). Thus, first it is necessary to understand the agrarian question and its resolution.

1. Agrarian Question and Structural Transformation

Resolution of the agrarian question starts with change in the institutional structure of the agricultural sector, being the major production sector in terms of shares of both income and employment in pre-capitalist social formation. Land, the principal source of production, is generally monopolized by the landlords in the pre-capitalist societies. Thus, land structure has to be reformed, so as to unleash the productive forces in both agriculture and non-agriculture, through technological progress.

As per Marx, the landed property envisages two types of rents, viz. the absolute ground rent and the differential rent. The excess profit is
called absolute ground rent and thus, it is the monopoly price paid to the land owner. Differential rent in addition to absolute ground rent or without it, arises due to the differences in fertility of the land soil. The basis of capitalism is the surplus appropriation in the form of ‘profit’, a new category of capitalist production.

1.1 Nationalization/Socialization of Land and Three Aspects of the Agrarian Question

In capitalist production, the wages of the working class depend on the prices of agricultural goods. Land ownership leads to absolute ground rent. So the prices of agricultural goods rise. Then, the capitalist has to raise wages for maintaining the subsistence of workers. In such a case, the capitalist has to reduce his profit. From this point of view, the capitalist wants to make the landed property a state property, so that state should draw rent (Marx, 1975, p. 44).

While the bourgeois attacks landed property from this standpoint, the actual sufferers, the peasantry and the rural proletariat under feudalism, want to break those bonds, thereby aspiring to get land for self-cultivation without any owner above them, other than the state. Further, the urban proletariat also, fighting for the rise of wages against the bourgeoisie, had its own interest in releasing the forces of production in agriculture to get food at cheap prices. Thus, almost all classes are against the feudal system.

The Marxists intend to break down the feudal structure by nationalization of land, in the first phase, and by socialization of land in the second phase. The first phase is achieved through bourgeois democratic revolution and the second through socialist revolution as per Marx (1975, pp. 103-104). Lenin gave clarification about nationalization (Lenin, 1965, p. 183):

Nationalization means transferring to the state the right of ownership of the land, the right to draw rent, but not the land itself. Nationalization does not by any means imply that all the peasants will be forced to transfer their land to any one at all. The socialist revolution implies the transfer to the entire society, not only of property in the land, but of the land itself as an object of economic activity.

But historically the bourgeoisie fighting for the nationalization of land became a rare event because “the bourgeois himself has become an owner of the land.” But it brought land reforms whenever it assumed state power to fulfil the needs of the bourgeoisie. Thus landed property is being moulded in a setting where small-scale and large-scale farming is going on within the capitalist system. In large-scale production, the lands are given to tenants, so that rent can be charged.
As both the small-scale and large-scale farming would suffer, ultimately they have to be converted into collective property of the society (people’s property) so as to abolish the dichotomy between industry and the agricultural sector (Marx, 1971, pp. 812-813). Further, the bourgeoisie after seeing the first socialist revolution of the Paris Commune, in 1871, became an inconsistent fighter of feudalism. Lenin (1946) correctly assessed:

.... is inconceivable when the class struggle between the proletariat and the bourgeoisie is very acute. Such a measure is more likely to be introduced in a ‘Young’ bourgeois society, in one which has not yet developed its contradictions to the full, and was not yet created a proletariat strong enough to direct towards the socialist revolution.

As such, in the twentieth century, feudalism was to be fought by the working class allying with the peasantry with little or no role of the bourgeoisie. In USSR, the land was nationalized in 1917. As regards Eastern Europe, Sanakoyev said that the people’s democracies did not nationalize the land; and only the property of traitors who had collaborated with the Nazis was confiscated. Further, a considerable part of the land was turned over to the peasants who had little or no land at all (Sanakoyev, 1972, p. 73).

1.2 Resolution of the Agrarian Question

From the political economy point of view, agricultural development is viewed from the angle of resolving the agrarian question, as per Kautsky (1988, p. 12). Marxian political economy deals with the problems such as the fate of the peasantry under capitalism, the establishment of capitalism in agriculture, the role of agriculture in sustaining the industrialization process, and the political role of the peasantry and other small capital-holders in the fight against capitalism.

Engels’s The Peasant Question in France and Germany (1975/1894), Lenin’s The Development of Capitalism in Russia (1899), Karl Kaustky’s The Agrarian Question (1988/1899), Preobrazhensky’s The New Economics (1965/1926) influenced to broaden the view of the agrarian question as per Byres (1995 and 2001) in three distinct senses to be distinguished as: (i) the Engels’ sense, the Political aspect (AQ1) (ii) the Kautsky-Lenin sense, the Production aspect of the agrarian question (AQ2) and (iii) the Preobrazhensky sense, the Accumulation aspect of the agrarian question (AQ3).

(i) The Political aspect of the agrarian question (AQ1) is put forward by Engels while dealing with the agrarian and peasant question in Germany and France (Engels, 1894). The initial formulation derived
from an explicitly political concern is with a view to capture political power in European countries where capitalism was developing but had not yet replaced pre-capitalist social relations as the overwhelming agrarian reality, with the expected stark opposition of the capitalist farmer and wage labour. For Engels, and other Marxists of his time, the ‘agrarian question’ was the ‘peasant question’.

(ii) The Production aspect of the agrarian question (AQ2) in the Kautsky-Lenin sense is concerned with the extent to which capitalism has developed in the countryside, the forms that it takes and the barriers which may impede it. This is based on two full-scale and remarkable Marxist analyses of the agrarian question appeared in 1899: Kautsky’s *Agrarian Question* and Lenin’s *Development of Capitalism in Russia*.

(iii) The Accumulation aspect of the agrarian question (AQ3) has its origin in Preobrazhensky’s *New Economics* (1926) concerned with the primary accumulation for socialist industrialization following the Russian Revolution. The third sense was derived from the socialist experience. In the Soviet Union, in the aftermath of the Revolution, the essence of the agrarian question continued to be a differentiated and differentiating peasantry, with attention directed towards the possibly disruptive role of the kulak (the rich peasantry). In the developing countries, where there was no possibility of colonial plunder or war-indemnifications, or getting foreign debt capital without surrendering sovereignty, the role of diverting surplus from agricultural sector for reinvestment and investment in agricultural and non-agricultural sectors respectively by correctly combining agriculture and industry is important, by turning terms of trade against agricultural sector. If nationalization of land and other industrial branches is done as in Socialist countries, it is possible; otherwise it is very difficult as per Stalin (1954, pp. 198-203).

1.3 Death of the Peasantry Argument and Its Validity

Hobsbawm declared “the death of the peasantry” by the middle of the 1980s which was signalled by rural exodus (and the proliferation of vast third World cities) and correlatively the loss of access to land (Watts, 2002). For Kearney also the conditions of transnational globalization and the “death of modernism” are no longer congruent with the category of peasant—typified by essentialist notions of subsistence, autonomy, and land ownership. In its place he substituted a “postpeasant” a condition of “postdevelopmentalism” (Watts, 2009, p. 269). This arose due to the end of “developmentalism” in the 1960s and 1970s (by the failure of post-colonial modernization) and the termination of left and right wing Cold War modernization, which
resulted in the removal of the historical conditions from which the “peasant category” was invented. However, both Hobsbawm and Kearney were criticized by Watts (2009, pp. 269-273).

As per Byres (1991), once the logic of capitalist social relations in agriculture is firmly in place (e.g. agrarian capital and agrarian proletariat), resulting in technical development and enhanced surplus generation (via increased productivity of both land and labour), it may be said that the AQ has been addressed. An unresolved agrarian question is a central characteristic of economic backwardness. As per Bernstein (2004), the classic agrarian question is the agrarian question of capital. The logic of capitalist development in his scheme of resolution of the classical agrarian question subsumes the ‘agrarian question of labour’ also by which, he implies absorption of dispossessed producers from agriculture (via primitive accumulation) in industrial and related non-agricultural sectors (Moyo, Yeros and Jha, 2015).

1.4 Agrarian Question under Globalization and in the Twenty-First Century

As per Bernstein (2004), with contemporary globalization and the massive development of the productive forces in (advanced) capitalist agriculture, the classic agrarian question to industrialisation was no longer significant for international capital. In this sense, then, there was no longer an agrarian question of capital on a world scale, even when the agrarian question—as a basis of national accumulation and industrialisation—had not been resolved in many countries of the South. Further, as per Moyo, Yeros and Jha (2015), Bernstein argument was simply tantamount to “the classical agrarian question is dead” due to the possibility of large capital inflows for developing countries in the era of contemporary globalization. Against those who claimed that classical agrarian question was dead, Moyo, Yeros and Jha (2015):

believe that the agrarian question continues to evolve and is among the most fundamental questions of the 21st century. Indeed, this is the century in which nature, the current system of agriculture, and historical capitalism will reach their reproductive limits. The agrarian question today is a question of wresting global agriculture, land and other natural resources from the predatory logic of monopoly-finance capital and of submitting them to the logic of autonomy, equality and democracy.

Moyo, Yeros and Jha (2013 and 2015) analysed as to how agrarian question of capital and labour have integrated impact in resolving the agrarian question respectively from the views of Byres (1991) and Bernstein (2004). The latter, while grappling with the Eurocentric Marxist binary of backwardness/industrialization, prescribed
industrialisation as its main remedy. But, as per Moyo, Yeros and Jha (2013), the classical agrarian question incorporated two sets of questions of industrialization and that of national liberation. The earlier European vanguard, in the course of imperialist rivalries, was called upon to respond to the challenge of industrialization, and the nationalist vanguard under imperialist domination was presented most immediately with the task of liberation. Anti-imperialist nationalism spread and gained its footing in the South.

Akram-Lodhi and Kay (2010) drew attention over the second half of the twentieth century, agriculture was effectively ‘decoupled’ from the problem of capital accumulation (the agrarian question of capital) as stressed by Byres (1991). Capital, now globalized, connected with transnational capital, does not require access to surplus agricultural resources in order to facilitate accumulation. It therefore no longer needs to reorganize agricultural production. Agrarian transition is no longer the necessary pre-condition for development of capitalism.

Akram-Lodhi and Kay (2010) point out that neoliberal globalization and the global agricultural export regimes have led to more capital-intensive production. It has increased peasant differentiation, pulling in the petty commodity producers in the lower order to join these supply chains, only to get entangled in the viability crisis, indebtedness, poverty and semi-proletarianization throughout the developing countries. Export markets in several countries have replaced home market orientation. These aspects were dealt at length by Nanda (1995) and Utsa Patnaik (1996).

Akram-Lodhi and Kay (2010) further argue that despite the ongoing systemic global subsistence crisis of 21st century, there is not going to be any ‘death of peasantry’ as historian Eric Hobsbawm/Kearny predicted. The agrarian question appears to have lost the role that it played in the classical transitions, in building accumulation. The peasant question has not disappeared but re-emerged as the global peasant question with multiple sub-questions within it.

2. Institutional Change in Land Tenures (Reforms)

By the end of the Second World War, the developed countries got changes in their agrarian structures in several ways after the French revolution 1789. In all ex-colonial countries the transformation from pre-capitalist to capitalist societies became somewhat difficult and late due to the colonial plunder of capital by the colonial masters, due to center-periphery relations. As such, the agrarian structures of all the ex-colonies and other developing countries which became independent after the Second World War required changes in their
agrarian structures. In all these countries, the pre-capitalist societies, along with traditional technical knowledge, were retained either unchanged or reinforced to the advantage of colonial masters. The agrarian structure began to widen its aspects of the economy of the society, in the latter half of the 20th century.

The agrarian structures of developing countries were suffering from the defects of land tenure structure, involving property relations; leaving aside the organization and services. This is, despite the agrarian reforms carried on in all the developing countries in the post Second World War period. The defects in the land tenure structure pointed out are: (i) inequitable distribution of holdings, (ii) fragmentation of holdings, (iii) small size of holdings, and (iv) tenancy system in different forms (share cropping, etc.).

In developing countries the prevalent tenancy is sharecropping. This is deleterious to the improvement of agricultural production. The rent collected is a monopoly price charged by the landlord. The capitalist ground rent allows average rate of profit over the costs borne by the tenant, whereas the pre-capitalist ground rent does not allow, as

\[
\text{The rent collected by the landlord from the peasant (tenant) is not confined to the portion of surplus value which remains after deduction of the owner’s profits, but embraces the whole surplus product and sometimes even a part of the necessary product. The rent paid by the tenant is of a feudal and not of a capitalist nature (Kotovosky, 1964, p. 22).}
\]

Thus, so long as the pre-capitalist rent remains unaltered, the tenant can get only subsistence and sometimes even this is not obtained and he has to resort to consumption loans at exorbitant rates of interest. In such a case, the tenant cannot adopt technical changes for two reasons: (i) he does not have investible surplus and (ii) even if he embraces technical upgradation, he has to give a higher share to the landlord.

Where tenants pay fixed produce or cash rent, they have incentives to adopt technology. Even then they may not do so, due to insecurity of tenure. The UNO report notes,

\[
\text{The payment of rent in the form of fixed amount of produce or payment in fixed sums of money, are less common forms of tenancy in underdeveloped countries. From the standpoint of the tenant, these forms are clearly preferable, since with a fixed rental he has an acceptance to increase production and he gains the full benefit of any improvement on the land in so far as his tenancy is secure (UNO,1951, p. 16).}
\]

It is doubtful to believe that the insecurity of tenure and the sharecrop tenancy have changed to a large extent even after land reforms. This
depends on the bargaining capacity of the tenants in the lease market. Generally the effect of land reforms is allowed to run dubious forms of sharecropping, with more insecurity, as the demand for lease is increasing due to the dependence of a high proportion of population on agriculture.

For fruitful application of technological innovations in agriculture, there should be change in the institutional set-up to absorb the new technology. According to Johnston and Mellor (1961), there would be three phases for agricultural development; of which institutional change in land tenure structure is to be carried on in the first phase. The second and third phases are related to technological changes; in the second phase capital-saving and labour-intensive technology, and in the third phase capital-intensive and labour-saving technology are to be followed. But, the question arises as to who has to initiate the changes.

2.1 Land Reforms for the Changing Agrarian Structure

In the resolution of the agrarian question, it was seen how land reforms would be undertaken under the Marxist framework. From the Non-Marxist framework, land reform has been the major change in land ownership rights and so this assumed the role of political elites in the post-Second World War period, when many developing countries became independent.

If the Marxist revolutionary peasant proletarian way is not followed, the other way to gradual transformation from feudal or pre-capitalist society to capitalist society is through bourgeois-landlord agrarian reforms, as assessed by Lenin (Kotovosky, 1964, pp. ix-x). This second way was being followed in the developing countries. Most of these countries were subjected to colonial exploitation, by retaining or reinforcing the existing feudal and/or semi-feudal relations of production. As per Kotovosky (ibid.x), the bourgeois-landlord type of land reforms is the way:

By means of which semi-feudal landholding is partially restricted and is then gradually transformed into capitalist landholding with the strengthening of the stratum of rich peasants and the impoverishment and proletarianisation of the vast majority of the peasantry.

As a principle, the bourgeois-landlord land reforms also incorporate ‘equitable distribution of land’ and ‘land to the tiller’ on paper, but in practice it is not so. The principle is to win over the peasantry that constitutes majority of the society, as the peasantry are influenced by the concepts of nationalism, equality and democracy (Joshi, 1982a, pp.
52-55). The political elite keeps reforms on paper, as it is useful to see that the peasantry should not get revolutionized on Chinese path.

Some think that equitable distribution of land and land to the tiller may dislocate the agricultural production in the name of growth with equity. But in developing countries, the units of operation are small sized farms, though large holdings are there, as the UNO Report (1951, pp. 68 and 69) notes:

It should be emphasized that there is no close parallel between the land reforms which are now taking place in Asia and those which have taken place in the past in Mexico and Europe. The land reforms in Asia are concerned primarily with the breaking up of great estates, which are large properties worked by small tenant cultivators and not large centrally managed enterprises as they are in Europe and Latin America.

According to Long (1961), land reform programmes or proposals usually have three basic objectives-mixed in different combinations depending upon political and historical circumstances. These are:

1. turning over ownership and management of the farms to those who actually “till the soil,”
2. dividing up large holdings into smaller, more evenly distributed holdings, and
3. combining small operational units into larger, group units, i.e. “cooperative farms,” “collective farms,”

Tuma (1963) says, “Land reforms have continuously been a major issue of national policy in one country or another ever since the French Revolution.” As per Mogens Boserup (1964), land reform is a “process in which the social structure of agriculture with regard to property, labour and types of enterprise, changes from feudal or other pre-capitalist forms to modern ones.”

Galbraith says, “In fact, a land reform is a revolutionary step. It passes power, property and status from one group in the community to another”, as quoted by Dorner (1973, p. 29). The feudal and pre-capitalist agrarian structures do not allow the development of productive forces in consonance with the scientific and technical progress. They are to be overthrown by a social revolution. About European feudalism, he said:

It was inconsistent with the requirements of making the great change from agrarian systems to an industrial society. Reforming these agrarian systems from the seventeenth through nineteenth centuries was part of the general social revolution that accompanied in Western and Central Europe” (Dorner, 1973, p. 34)

By and large, it is agreed that when the owner-operated small farms
are established, the productivity of land increases by (i) labour-intensification and (ii) scale-neutral seed-fertilizer technology, at least as a short-term goal. But by bourgeois-landlord land reforms, the equitable distribution of land is not possible, unless the peasantry consciously struggle. The tenancy problem is also solved on paper, by passing Acts. But in practice, the reduction in rents and security of tenure are not implemented properly. Sometimes both were intensified, by higher rents and high insecurity of tenure, by oral contracts on yearly basis.

2.2 Land Reforms in Countries Became Independent After the Second World War

Hung Chao Tai observed that the necessity of land reforms in the newly independent countries, in the post-Second World War era arose due to six conditions: (1) revolution of peasants, (2) rural unrest, (3) deterrence to communism by capitalist elite, (4) ideological commitment, (5) international climate and (6) population pressure (Tai, 1974, pp. 51-55). In initiating land reform any political elite is decisively influenced by the perceived need to gain political legitimacy, i.e. to strengthen popular support of a new political order or to safeguard an existing regime against threatened political changes. Land reform has political utilities as well as liabilities. The political elite do not care for liabilities, as its dominant concern is how its stand on reform will best serve its own interest, i.e. the right to continue rule.

Further, Tai (1968, pp. 68-69) proposes the resolution of agrarian question with formulation of a reform programme, in which political elites must resolve conflicts stemming from three kinds of problems. The first is a political problem: how to overcome the almost unanimous opposition of the entrenched landed class. The second relates to complex policy questions: the choice of gradual, selective versus immediate, comprehensive approaches; with criteria for financing formula; and the selection of beneficiaries. Finally there is the problem of selecting social justice or increased production as the primary objective of land reform. Political elites resolve these three sets of conflicts in two different ways.

(i) For separated elites, it appears, the task of conflict resolution is relatively easy. With the landlord class becoming powerless in the policy process or destroyed in revolution, these elites can freely formulate a programme on behalf of the inarticulate peasants. The experiences of Taiwan, Mexico, and the UAR substantiate these points.

(ii) For cooperative elites, the task of conflict resolution is understandably far more arduous. To overcome the opposition of land
reform, cooperative elites appear to have two alternatives. One is a gradualistic approach. The elites can persist in a continuous battle for reform within the legislative arena, helping enact a meaningful law. Thus, conciliatory cooperative elites introduced land reform in Colombia and the Philippines. An alternative to the gradualistic approach is assumed by dominating elites that lies in the emergence of a dynamic political leader, who excludes a recalcitrant parliament from the reform programme. The land reform laws in West Pakistan, Iran and to some extent in India were brought about by such political leaders.

(iii) Even when some land redistribution occurred, it is quite possible to keep the majority of small peasants with uneconomic holdings. This defect can be solved by cooperativization. When government incentives and subsidies, etc. are not available, cooperative farming cannot flourish. Even in socialist Poland, in 1956, when incentives were abolished, the collective farms were disintegrated and the number of collectives decreased from 10,510 in 1955 to 1,534 in 1956 (Venkateswarlu, 2000). As such, one cannot expect positive encouragement from the present ruling classes of developing countries, where bourgeois-landlord reforms are being carried out.

3. Changes in Agrarian Structures with Land Reforms

From the historical point of view, Ester Boserup’s contribution that technical progress (development of productive force) and property relations in land are determined by the population pressure is worth considering. She says, “The growth of population is a major determinant in agricultural development” (Boserup, 1965, p. 56). Regarding formation of private property in land, she says that population growth causes scarcity of land, the transformation being from general right to limited right. She deals with four forms of landed property (i) primitive common ownership, (ii) tribal-slave society, (iii) feudal society and (iv) capitalist society (peasant proprietorship). These are near comparables to Marx’s modes of production of pre-socialist social formations.

Cohen distinguishes agrarian structures on the basis of land ownership in the pre-modern societies. He deals with four types, though at present, the situation is a mixed one, with new forms of tenure of which the most widespread is modern capitalistic farm under ownership of various sizes (Cohen, 1978, p. 19). The four types were:

(i) African communal land ownership, wherein land is commonly owned, was prevalent in African tribal groups.
In general it can be understood that the transformation of agrarian structures from pre-capitalist or feudal or semi-feudal type to capitalist type have been taking place in the world for the last few centuries. Such transformation had been complete in Western Europe by the end of the 19th century. In the 20th century that process of transformation has undergone in other developed countries and has been undergoing in all developing countries. It is important to note the differences between the relations of production in pre-capitalist and capitalist agrarian structures as explained cogently by Rudra, as in Table 2.1.

**Table 2.1: Capitalist and Pre-Capitalist Relations**

<table>
<thead>
<tr>
<th>Capitalist Relation</th>
<th>Pre-Capitalist Relation</th>
</tr>
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<tbody>
<tr>
<td>1. Surplus extracted from free sellers of labour-power in a commodity exchange market</td>
<td>1. Surplus extracted through extra-economic coercion of unfree labour</td>
</tr>
<tr>
<td>2. Surplus realized through exchange in a commodity market.</td>
<td>2. Surplus appropriated directly without intervention of any market.</td>
</tr>
<tr>
<td>3. Surplus reinvested giving rise to continued process of accumulation of capital and even expanding reproduction.</td>
<td>3. Surplus dissipated in luxury consumption as well as in different unproductive investments, leaving the stock of productive capital unchanged and production in a cycle of simple reproduction.</td>
</tr>
<tr>
<td>4. Pursuit of profit leads to changes in the organic composition of capital and a continuous process of technological advancement</td>
<td>4. Technology remains unchanged.</td>
</tr>
</tbody>
</table>

Source: Rudra (1982), p. 404

Regarding paths of development to which capitalism in agriculture, corresponding to which agrarian structure transforms may be the two paths, as per Lenin (Patnaik, 1972b). One is the German Junker type of agrarian structure in which the ex-landlords themselves transform into agricultural capitalists on their estates. Here the land in enclosure movement is expropriated (from the peasants or tenants) in favour of the landlords. The other type of agrarian structure is of
peasant proprietorship or peasant capitalism. Here the estate lands are expropriated (from the landlords) in favour of the small peasants who actually till the land in a revolutionary way as in France. In this type, the peasants through differentiation polarize into different classes (viz. capitalist peasants, poor peasants, middle peasants and agricultural labourers). However these two paths are not in pure form in the real world, but near comparisons. Regarding these paths of development, Mogens Boserup says in the European context,

> Varying agrarian structures emerged from the social transformation of agriculture which took place broadly in the pre-take-off periods. The transformations or reforms followed a general pattern in what they abolished or tried to abolish: serfdom, communal rights, uncertainty of titles in land, rent in kind, and purely feudal dues” (Mogens Boserup, 1964, p. 215).

Further, Mogens Boserup distinguished four types of agrarian structure on the basis of (i) the particular fate of the actual tiller and (ii) the role of entrepreneurship.

1. The British type, wherein the cultivator had been (or was being) evicted and reintegrated as a wage labourer and where the entrepreneur was the capitalist tenant.
2. The Eastern type, where the cultivator had become a serf and the entrepreneur was identical with seigneur.
3. The French type, where the peasant owner predominated, i.e. where the functions of cultivator and entrepreneur were not separated.
4. The Mediterranean type, where the cultivator is a sharecropper and where there really is no person who can reasonably be described as an entrepreneur” (Mogens Boserup, 1964, p. 209).

Interestingly enough, the second and third types of Boserup are identically equal with the paths of development Lenin exposed. Then the first and fourth types are the variants of the other two types.

### 4. Second Generation Land Reforms After the Collapse of East European Socialism

Prosterman and Hanstad (2006) divide the land reforms that were carried out in the world:

In some of these land reforms, nearly all land reform beneficiaries ended up with individual family farms, held in ownership or owner-like tenure. These included land reforms in Finland, Poland, Yugoslavia, Mexico, Bolivia, Japan, Taiwan, and South Korea, as well as the populous Indian states of West Bengal and Kerala. In other land reforms, the great majority
of land reform beneficiaries ended up in large state or collective farms that nearly always proved to be inefficient and authoritarian. These included land reforms in the countries of the former Soviet Union, Eastern Europe (other than Poland and the former Yugoslavia), Cuba, Nicaragua, Ethiopia, China, Vietnam, and North Korea.

After the collapse of East European socialism, second generation land reforms are talked about, which meant to reverse earlier communist-era land reforms. Prosterman and Hanstad (2006) claimed that roughly 130 million rural households (about 580 million people) who resided in the communist or formerly communist countries comprised the category of families that could benefit from land reform measures. After 1989, most of these countries have transitioned away from command economies toward market-oriented systems (the most prominent exceptions being Cuba and North Korea). In these transitional economies, the “second generation” land-reform challenge is to give the remaining roughly 130 million households who had been on state or collective farms the right and the wherewithal to farm as individual families with stable, long-term and transferable rights to their land.

Kumar and Kumar (2013) also brings out the need for “second generation” land reforms, because they believed that the comprehensive 20th century land reforms that were carried out without collectivization played a major role in fostering development and stability. Land reforms that led to collectivization proved almost universally to be failures. Many countries that previously conducted collectivized land reforms had to undertake “second generation” reforms aimed at reorganizing state and collective farms into family-size units and introducing market-oriented land systems. Second generation land reforms emphasized universal or near-universal coverage of the potential beneficiaries. Universality can be achieved in two ways. First, all members of the state farm or collective farm, including pensioners, should be given a right to receive land individually. The second factor was to consider in achieving universality to include all or nearly all state farm and collective farm land in the redistribution. Further, as per Kumar and Kumar (2013):

Important principles of gender, equality, participatory administration, programme monitoring, and sensitive treatment of customary law also apply to “second generation” reforms. Women should receive at least equal rights to distributed land, programmes should be administered by local, beneficiary-dominated committees, programme progress and impacts should be carefully and regularly monitored, and customary law regimes should be treated sensitively and not summarily replaced.

However, Scaria (2016, p. 158) turns the second generation land reforms
in another direction in somewhat positive way, by recognizing the fact that there was an urgent need for second generation of land reforms, in countries like India also, since it was necessary to seriously take the issue of land rights for the marginalized including Dalits, tribals and women, since land constituted a major source of livelihood for them.

5. Political Intervention for Change in Agricultural Technology

As mankind are the only beings who gained absolute control over the production of food on earth according to Morgan, quoted by Engels (1977a, p. 23), it appears that technological development assumed somewhat autonomous progress, at least in the early stages of human history. The technology depends on the socio-economic and political development of the society and is influenced by those institutions in the respective socio-economic formations, i.e. primitive, slave, feudal, capitalist and socialist societies. Particularly, in the developed society, the technology is controlled by the dominant classes as Byres (1982, p. 25) says, “Technology does not fall from heaven and neither does it exist in a social and political vacuum. It is appropriated by specific classes used to further class interests.” In this connection, Cleaver (1982, p. 263) says, “Politically there is no more neutrality in science than there is in its application: technological development. Technology and science exist only as moments of the political fabric.” Yet, the technology is not passive and has conditioned the social institutions.

5.1 Agricultural Technology

It was already stated that man’s supremacy over other beings was established by the production of food. That is, the agricultural sector was the main sector in the economy of the primitive society. Agricultural technology has a long history. Its process of development was initiated as a struggle against nature. In the pre-industrial world, agricultural technology evolved itself through several phases. As per Ester Boserup, in the most primitive cultivation, it was connected with digging stick, while the type of farming was forest fallow system. Later, bush fallow and short fallow were the types related with hoe and plough. Her main thesis is that the population pressure determined the agricultural technology, which was responsible for the shortening of the fallow (Ester Boserup, 1965, p. 28). Thus, pre-industrial cultivation was connected with the plough. After the advent of the Industrial Revolution, based on the invention of steam engine agricultural technology also acquired new dimensions and inter-disciplinary complexities.

The modern agricultural technology may be divided, as per
Political Economy of Agricultural Development in India

Shigemochi (1978, pp. 5-6) into four categories: (i) hydrological technology, (ii) mechanical technology, (iii) bio-chemical technology, and (iv) managerial technology. If we include hydrological technology as part of mechanical technology and managerial technology as part of human capital formation, possessed by labour, we have only two categories of modern technologies, viz. mechanical technology and bio-chemical technology. Mechanical technology, contributed by physics and engineering sciences, is concerned with the instruments of production, both motive and stationary. Generally this is biased to scale, cost-reducing and capital-intensive. It requires higher doses of fixed capital. Biological-chemical technology provides the contributions of chemistry and biology. The chemical technology gives chemical fertilizers, pesticides, weedicides, herbicides, i.e. which help replenish the lost fertility of the soil and protects plants from diseases and pests. Biological technology works on the genetics and physiognomy of the plant, ultimately giving higher yield. The bio-chemical technology is labour-absorbing, land-saving and scale-neutral.

Mechanical technology, though treated as capital-intensive may also be land-saving and labour absorbing as timely field crop operations lead to multiple cropping in a single year. In the same way, the bio-chemical technology, which is labour-absorbing, may also be labour-saving as is possible by using herbicides and weedicides (Gotch, 1972). However, as per Hayami and Ruttan (1971, p. 45), “Yet, historically, the dominant factor for saving labour has been the progress of mechanization; and the dominant factor for saving land has been the biological innovations.”

5.2 Role of Agricultural Technology: Internal and External Stimuli

In the pre-industrial world, the technical change was initiated summarily in the agricultural sector alone. Generation of agricultural surplus was the main driving force behind human civilization. Agricultural surpluses came largely through expanding food production due, in part, to improvements in agricultural technology and in part to man’s continuing ingenuity, ever since the early stages of human history. Even more important is the role of agricultural surplus, whose generation was caused by the development of agricultural technology, in capital accumulation for industrial revolution. Historically, agricultural revolution preceded the Industrial Revolution in the developed countries of Europe and England. This was accomplished by increased land and labour-productivity in agriculture. Just as Marx, Kaldor (1967, p. 55) aptly says:
The growth of secondary and tertiary sectors is dependent on the growth of the ‘agricultural surplus’, that is, the excess of food production over the food consumption of the food producers themselves. This aspect of development was first emphasized by Adam Smith.

From the foregoing discussion, it is clear that agriculture did not get any outside stimuli; rather it acted upon its own internal impulses in improving technology to produce surplus, as Kaldor (1967, p. 56) says, “Agricultural production has an autonomous momentum which mainly dependent on the progress of land-saving, as distinct from labour-saving innovations.” Further, the agricultural technology so adopted could release surplus labour from agriculture. As a result, the agricultural sector could provide supplies of foodgrains and labour to the industrial sector. The industrial sector could exploit the agricultural sector by unequal exchange between the two sectors. In the current economic literature, this process is referred as ‘terms of trade.’ From this process of grabbing surplus from agriculture, the industrial sector gets impulses from agricultural sector for further industrialisation by more of capital accumulation. This process is essentially important in the developing countries of the Third World, that did not have an opportunity of obtaining ‘primitive capitalist accumulation’, which was achieved by the Western European developed countries through colonial plunder and war indemnification. Thus in the Third World, it has to be supported in the spirit of ‘primitive socialist accumulation’ thesis of Preobrazhensky in the Soviet debate, as portrayed in Mitra (1979) and Dandekar (1981).

Though in the early stages of industrialization, agriculture was governed by internal impulses and industry by external stimuli originating in agriculture; in the past two centuries or so, agriculture has been crucially dependent on external stimuli, as the new agricultural technology has had a lot to receive from industrial development. This has resulted in the process of tapping the potentialities of agricultural technology. In the post-industrial revolution period, the increasing population, both in relative and absolute terms, had created doubts in the efficacy of agricultural technology. As the supply of land was limited, the sustaining of population was thought to be difficult. Malthus expressed pessimism due to population growth, which was in geometric progression, as against food production growth being in arithmetic progression. Added to this, Recardo’s law of diminishing returns was also propagated, in support of this theory of population. In reaction to this law, while discussing capitalist agricultural development, Lenin (1976, p. 10) says:
The ‘Law of Diminishing Returns’ does not at all apply to cases in which technology is progressing and methods of production are changing; it has only an extremely relative and restricted application to conditions in which technology remains unchanged.

Further, Engels (1977b, p. 188), sharply disagreeing with Malthus, has the following to say:

The extent of land is limited. All right! The labour-power to be employed on this land-surface increases with population. Even if we assume that the increase in yield due to increase in labour does not always rise in proportion to the labour, there still remains a third element which, admittedly, never means anything to the economists—Science—whose progress is as unlimited and at least as rapid as that of population... Science increases at least as much as population . . . and thus under the most ordinary conditions also in a geometrical progression (originally in 1843).

However, Engels was not dogmatic in understanding the population problem. When Karl Kautsky brought to the notice of Engels, about the rapid growth of European population by 1881, in his reply of February 1, 1881, Engels also recognized the problem in relative terms at a particular historical juncture and replied to Kautsky in a convincing manner that human reproduction can be controlled in socialism, just as material production is regulated (Meek, 1956, p. 97).

Engels’s optimism expressed as far back as 1843 has turned true largely due to progress in science and technology. After certain stage of industrial development, agricultural sector had to depend on industry for the development of improved technology, so as to bring out agricultural technology, so as to bring out agriculture from the confines of pure natural processes. Thus, agricultural technology requires external impulses from the industrial sector in getting supplies of technological inputs. On the other hand, agricultural development is conditioned by the demand of the industrial sector for (i) agricultural raw materials and (ii) food needs of urban and non-agricultural population. In this connection, Francks (1984, p. 17) says, “The forces which stimulate and sustain growth and technical change in agriculture originate outside the agricultural sector.”

Kautsky also noted this aspect by 1899, as summarized by Banaji (1976a, p. 46), as “Industry forms the motor force not only of its own development, but also of the development of agriculture.” Shiela Bhalla (1983) also expresses similar view, in an article prepared for Marx’s death centenary celebrations that agriculture has to depend on external impulses while industry depends on internal impulses.
6. Population Pressure as a Condition for Technological Change in Agriculture

Ester Boserup (1965) propounded her thesis of population pressure leading to changes in agricultural technology. This new approach to agricultural development which has signaled by the concept of frequency of cropping draws the attention to the effects upon agricultural technology which are likely to result from population changes. This is in sharp contrast to the usual approach which takes agricultural technology as a largely autonomous factor in relation to population changes.

She says that the intensity of land utilisation varied widely throughout the world. In the primitive community ‘fallow’ system was practised. Historically the fallow period has been decreasing as the population goes on increasing. Depending on the fallow period, there are five systems of land use. (i) forest fallow cultivation, (ii) bush fallow cultivation, (iii) short-fallow cultivation, (iv) annual cropping, and (v) multi-cropping. From the first system to fifth system is a transition to more intensive system of land use that took place in response to the increase of population within given area. Chief tools of cultivation and techniques of fertilization also depended on the system of land use: tools of technology changed from digging stick to the hoe to the plough. Later on, modern mechanization came in (Boserup, 1965, p. 25).

Further she deals with technical progression and regression depending on the density of population, as she (ibid., p. 56) says “the growth of population is major determinant of technological change in agricultural development.” Sparsely settled population does not go in search of techniques, unless population pressure works. Technical regression is also seen in respect of those who go from densely populated to sparsely populated areas. Sometimes the people may not go for technical improvement, as diminishing return to labour act as technical inertia (ibid. pp. 68 and 69).

Primitive/tribal stage to developed capitalist stage, population pressure led to changing frequency of cropping, led to changes in technical and economic factors on one hand, and changes in land tenure on the other. She also deals with property right in the landed property. In the primitive communities, there was a general right to the land being cultivated by the whole families. As population goes on increasing, the limited land in each area becomes scarce. Then land becomes private property, limiting the right to certain cultivators. But in this process landed property gives scope for the tenural system.
Political Economy of Agricultural Development in India

The general right of primitive communities for land is of primitive communist society. Later when the fallow period was being shortened and population increased the societies transformed to slave, feudal and capitalist forms.

7. Technological Change and Technological Choices

Joshi (1979) brought out the conditions under which technological transformation of agriculture had occurred in Europe and Japan in very different models. It was also suggested that developing countries like India, where labour abundance exists, were supposed to adopt the Japanese model.

Industrial technology is far more transferable from one country to another and even from one region to another within the same country. But agricultural technology being region-specific is far less transferable from one country to another and even from one region to another within the same country. So for technology transfer in agricultural sector requires an inherent compulsion for technological innovation. This implies that industrial growth is a necessary, but not a sufficient, condition for agricultural growth. The cost of ignorance of agriculture as a region-bound system is very high in agriculture, because region-bound agriculture has several differences in climate, weather, soils, plants and animals, social structure and value systems achieved over a long period.

Technological transformation of agriculture in various parts of Europe underwent three main phases; the first phase showing an increase in population dependent on agriculture, the second showing relative stability of numbers in agriculture, and the third of decline in the agricultural population. Agrarian overpopulation in the first two phases determined the main form and direction of technological change which continued to be labour-intensive during these phases (Joshi, 1979).

In the first stage, technological change was related to reorganisation of the agrarian system and shifts in agricultural practices rather than replacement of existing tools, i.e. not through mechanical technology. The second stage resulted in the introduction of new implements to be drawn or driven by power (mechanical technology) and with techniques of drainage, fertilizing, feeding, rotating and mechanizing. The third stage of technological change is marked by major reliance on scientific research as the source of technological breakthrough in the form of biological chemical technology of the third stage as contrasted with mechanical technology of the second stage. Institutional framework has to develop with the support of the state.
for (i) the supply of inputs and credit, (ii) marketing, (iii) irrigation management, and (iv) price regulation. It was distinguished from the 19th century agricultural expansion which occurred under laissez faire capitalism, the expansion in the third stage is brought about by the interventionist, welfare state. It conforms, therefore, to the model of induced technical and institutional change.

In third stage, there occurs a fourfold differentiation in the institutional framework of agriculture. This framework now comprises (Joshi, 1979): (a) the scientific research stations generating new technical knowledge; (b) industrial system transforming this knowledge into new technical inputs and innovations; (c) the public or private institutions making these inputs, innovations and price support available to the agricultural producers; and (d) the associations of agricultural producers themselves internalizing and putting them to productive use.

The third stage thus marked the transition of agriculture fully into the scientific age when the form, pace, and direction of technological progress in agriculture could be consciously planned and directed from above by man-made agencies as never before in human history. In social formations prior to socialism, there was spontaneity as per Marx (Lange, 1963), without the human agency for plan; but even in capitalism some planning was adopted for agricultural development.

Instead of Europe, it is Japan’s experience which is more relevant for Asian countries. There are five features of Japan’s agricultural technology adoption experience useful for India (Joshi, 1979): 1. Adapting technology suitable to local conditions based on local scientific and technical personnel, without inviting foreign experts. 2. Having a good coordination between local scientific and technical experts and the dynamic landlord including the peasant farmers. 3. Following leading input concept in technological change: irrigation to improved seeds and then to chemical fertilizers and finally input package. 4. Combining local resource mobilization with assistance from central funds for technological development. 5. Providing primary education to peasants, to understand agricultural skills and technology.

7.1 Agents of Technological Change: Large Farmers vs Small Farmers

Models of agricultural development of many Asian countries, including India, drew not so much upon the relevant components of the Japanese experience but upon the not-so-relevant components of the Euro-American experience.

Instead of reproducing the relevant features of the first phase
of the European experience (e.g. land reclamation, changes in land system, improvement of crops, improvement of land utilisation practices, and labour-intensive types of agricultural improvements), they reproduced a combination of capital-intensive of the second phase and HYV-Fertilizer-Water technology of the third phase of the European Revolution. Directly adopting the third type, advanced technology transfer, could only serve the interests of the large-farmer sector as distinguished from those of the small-farm sector.

While the rural economy as a whole has been characterized by scarcity of land and surplus of labour, the large-farm sector considered it to be land-surplus and labour-scarcity. The large farmers disinclined to follow the path of intensification of labour input by drawing on the labour surplus as was done by agricultural entrepreneurs in Western Europe and by enlightened landlords of Japan. The reasons are:

(i) The easy availability of mechanical technology with state support and subsidy is seized upon by large farmers both for status reasons and for economic reasons.

(ii) There is the pressure of rising wage rates brought about by growing unionisation and legislative enactment of the minimum agricultural wages.

(iii) Farm mechanization is induced by the rise in prices of agricultural commodities as a result of rapid growth of population and failure of public investment in inputs like irrigation to match the growing demand for agricultural commodities.

In India, the growing demand of foodgrains necessitated large farmers to adopt more and more modern mechanical technology, due to the increasing cost of biological sources of energy due to rise in the demand for labour outstripping the supply in pockets of high agricultural growth, as in the parts of the Punjab and Haryana states in India by the early 1970s (Rao, 1972).
1. Agricultural Policies of the British Rule in India in General

The English conquest of India brought many drastic changes in the Indian land system. The most fundamental of the changes was the disintegration of the older structure of the village community, partly as a result of the new land system introduced by the British, during 1793-1850; and partly as a result of the spread of commercial agriculture in the late 19th and the early 20th centuries, i.e. during 1850-1947.

1.1 Introduction of the New Land System (1793-1850)

(i) The East India Company’s Political Sway Over India—Foundation Laid with the Battle of Plassey

The British East India Company (BEIC) was formed in 1600 AD; and in 1608 AD, the East India Company sent Captain William Hawkins to the court of the Mughal emperor Jahangir to secure royal patronage. He succeeded in getting the royal permit for the Company to establish its factories at various places on the Western coast of India. In 1615 AD, Sir Thomas Roe, who was sent by Emperor James I of England to Jahangir’s court to get more concessions for the Company, successfully secured a royal charter giving the Company freedom to trade in the entire Mughal territory. Along with trade, the British EIC was engaged in securing political and economic power over the parts of territories of the empire. Even before the Battle of Plassey in 1757, the British East India Company got engaged in acquiring rights over some Zamindari areas as far back as 1697.

First an attempt is made here to grapple with the political economy of the Company in bringing about the changes in land relations, before the permanent settlement system was introduced in 1793 and thereafter. In this context, the process of the changing land system in India is undertaken.