

**AGRARIAN SOCIAL STRUCTURE AND TECHNOLOGICAL
INNOVATIONS: AN ANALYSIS IMPLICATION OF TECHNOLOGICAL
ADVANCEMENT IN RURAL INDIA**

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ABSTRACT

Agrarian social structure is central to any discussion of economic and social development in India. The improvement of village life necessarily depends on the development of agriculture along the lives of modernity. After independence, the government have initiated various technological advancement programmes through various five- year plans yet the result is not satisfactory. The present paper attempts to evaluate the implications of technological change on agrarian social structure especially in terms of social – economic life. The paper also tries to understand the new trends in agrarian society due to modern forces of changes.

Keywords: Agrarian social structure, Green Revolution, Technological Change, Rural India

INTRODUCTION

The agrarian social structure has different characteristics in different regions of India. There is a lack of a clear perception of the characteristics of the agrarian social structure in each region. In contemporary India, we can see that agrarian system and agrarian relations are influenced by larger changes in the socio-economic system. Beteille (1974) regards agrarian social structure as the study of peasant societies and cultures. The latter refers to land ownership and control, power structure, land tenure and related social dimensions. Thorner (1976) uses the terms ‘agrarian social structure’ to refer to the network of relations among the various groups of persons who draw their livelihood from the soil. According to Pandey (1984) the agrarian social structure operates at various levels. The institutional framework of the pattern of agrarian structure determines the pattern of landownership, the pattern of combining the scarce source materials with the productive process, the adaptation of various agricultural developmental measures and in turn the pattern of distribution of produce.

Technological changes are one of the most important forces which have altered the structure of the agricultural production process. According to Schultz (1964) “Technological change are particular (new) factors of production that are adopted and employed because it is profitable for farms to do so”. Another scholar defines Technological change as a change in the parameter of a production function resulting directly from the use of knowledge. (Stout and Rutfon: 1958) Technological innovation or technological change in agriculture generally, refer to the use and adoption of new and improved factors, techniques, methods and know-how for more agricultural production, new technological changes in agriculture include use of high yielding varieties of seeds, chemical fertilizers, improved means and methods of irrigation, improved tools and implements, insecticides, pesticides, improved methods and practices of cultivation. Technological change is defined by Pause and Singh (1966) as technological change in agriculture consists of adoption of farming techniques developed through research and is calculated to bring about diversification and increase of production and greater economic returns to the farmers. Use of fertilizer, pesticides, improved seeds, improved implements and contour bounding for conservation of moisture and soil are examples of such techniques. Salim (1986) says that the new agricultural technology refers to change in practices with the adoption of improved farm techniques and innovations over traditional farming.

Technological changes emphasize change in the method of farming and introduction of yield raising technology. The facility like extension of irrigation, creation of marketing credit, transports etc. are included in technological infrastructure sources. Technological innovations play a double role. It benefits the farmers in terms of increased production and the consumer in terms of reduced prices for the same quality of products of same price for a better quality product. The other things remaining Same, new and improved farm technology invariably results in enhanced output, reduced cost lower prices farm technology plays an equality important role in effecting the farm income. Initially a marginal rise in cost of production results in substantial gains in farm income owing to adoption of new technology. Green revolution has provided a new hope for prosperity and economic development. Singh (1991) says that due to green revolution certain socio-economic problem has emerged, but responsible for these problems has due to wrong planning and lack of follow up measures taken by.

The present research paper, attempts to evaluate the changing agrarian social structure especially due to technological innovations in rural society and its impact on socio-economic aspect. The paper thus tries to understand the emergence of new trends in agrarian society due to technological advancement especially on the landownership, agrarian relation, machinery of agriculture, jajmani relations, occupational mobility, migration, rural-urban interactions and others.

DYNAMICS OF AGRARIAN SOCIAL STRUCTURE IN RURAL INDIA:

Agrarian social structure and change have been always fluid areas of research by Sociologists and Anthropologists. The specific components of agrarian social structure in rural India have been identified as family relation, caste, class, jajmani system, landownership, agrarian relations, division of labour, power structure etc. Agrarian structure in the British rulers established two main types of land system in the country, viz the. Zamindari and the Raiyatwari, under the zamindari tenure the right of property in land were conferred upon the native tax-gatheres who had so far never taken any interest in actual cultivation of the soil. As a result of this step millions of persons who had been proprietors as well as cultivators of their lands from time immemorial were reduced to the position of mere tenants at will on their own fields, under the raiyatwari system, no intermediary proprietors were recognized and the actual tillers of the soil were vested with a heritable and transferable right of property in their lands. (Joshi:1978) according to Mukharjee (1978) the association between the social hierarchy and the economic structure which emerged under British rule, a interesting features in society.

The hierarchy in agrarian system leading the emergence of Zamindari came into being with the advent of British rule, under which the Zamindar held more than one village under his control. They belonged to the upper caste groups (mainly Rajputs and Brahmins). The agricultural labourers were placed in a position of bondsmen and hereditarily attached labourers. They belonged to the lower caste groups (mainly Sc). These tenants were also exploited in a number of ways to landowners. Lower castes worked on high caste land and get to nominal wage and some time get to a little piece of land for cultivation. High caste fully exploit and beaten of his during the work. His right and control over land extended not only over people connected with its cultivation, but also a social and political authority over the people living on such land. The artisans were divided into two major caste groups: the clean caste artisans like Lohar, Badhaai, Sonar, Kumhar etc. and the unclean caste artisans like as Julaha, Mochi, Bhar, Pasi, Dom, Dhanuk etc. The division between two caste groups was based on the theory of pollution and purity, and economically these were integrated into a system of relationship of reciprocity through the Jajmani system. (Pandey: 1984) According to Karanth (1994) the relationship has change to be market oriented, commercial and impersonal. The artisans caste had also engaged in agricultural work but they have small landholding and working only for own subsistence. Xaxa (2012) says that the agrarian population not have constituted a homogeneous category. They differed from one another not only in size of landholding but also in the nature of their right. Mohanty (2012) point out that the post independence, Indian agriculture has experienced rapid transformation through large scale irrigation, mechanization, land reforms, expansion of credit network and other associated modernizing measures.

After land reform land undertaken from big landlord and the distributed among marginal and landless people gradually, resulted into the change of land ownership pattern. Shah (1978) point out the ownership of land becomes a major determinant of the socio-economic status of an individual in the agrarian society. The owner cultivator and the owner-cum-tenant cultivator are the only two classes who own some land. its belong to high caste and the labourers belong entirely to the lower caste. Joshi (1978) says that the significance of land reform as an instrument of removal of economic disparities between different classes and the social upliftment of traditionally under- privileged sections of the rural society cannot be over- estimated. Gadgil (1978) suggested the land reform and co-operative development was largely programme. The programmes of co-operative development in relation finance, marketing and processing have made some headway in states where already. According to Sahay (2012) the ownership of land is highly unequal, Some household own most of forces of production and there are many households which own none of the forces of production. As Beteille (1974) pointed out, the land reforms have been bring about some uniformity in tenurial conditions but the distinction between landowners and the landless continues to be important everywhere. After 1960 government had started green revolution programme. It's helpful for encourage for commercial farming, Use of HYV seeds and fertilizers resultant increased production and their economic statues, Sahay (2012) says that the ownership of modern agricultural machinery such as the pump set, thresher, tractors and harvester, there is inequality among various castes. Ploughing, sowing, harvesting and threshing are now done largely by machines. These have brought about important changes in the mode of farming. Those have no own modern agricultural machinery, hire them for use.

The trend of increasing use of mechanical appliances has reduced the demand for labour service those people have unskilled they moving to city for employment. These circumstances make profitable to lower caste improved your positions. Gradually OBCs and SCs caste people parched land from high castes and getting to power, the processes of change have resulted in modifications in various social, economic and political institutions in a society. Singh (1973) writes that the phenomenon of contemporary transformation in rural India. Change in structure is due to rise of new middle class of power, massive use of science and technology in yield or agriculture, substantial change in traditional values and beliefs, green revolution, various development programs runs by government for rural development and increasing social mobility due to advance transportations etc. Dhanagare (1987) pointed out the Green Revolution has been be understood more as broader ideology of rural transformation, future he says green revolution was a package of large scale application of science and technology to agriculture. Another aspect several scholar have point out The agricultural modernization like farm machinery, new cropping pattern, water management system and labour relations has increased the numbers of disputes and conflicts among the peasants in the village and creating disparity between different groups. (Jodhka: 2009; Mohanty: 2012) After 1990 started the process of globalization and liberalization

in agriculture sector. Government was started given security of their production of cultivators like getting minimum supported prices, subsidy on irrigation, seeds, fertilizer, low interest at loan etc and encourage for commercial cropping. It's more helpful for small and marginal cultivators their production and income increased results was gradually engaged a bitter economic and social strife which affects not only their natural social relations but also their economic fortunes, standards of living and social welfare.

IMPLICATIONS OF TECHNOLOGICAL INNOVATIONS ON AGRARIAN SOCIETY: AN OVERVIEW

Adoption of agricultural innovation depends upon various factors. The decision making is a main part of Adoption in agriculture. The decision making not only depend on the economic but also the social setting in which he is placed. Many scholars have discussed the factor of technological innovation in different dimension with various factors. The socio-economic factors are vitally connected with innovation likes education, caste, size of family, occupation, and landholding. Many socio-economic factor are play major role in technological innovations through new agricultural innovations has comes many changes in socio-economic life of farmers and also playing major role of technical adoption in socio-economic factors (Singh: 1975, Salim :1986, Mohammad:1992) six element of agricultural innovation likes irrigated area, fertilizers, high yielding varieties of seed, tractors, electric pumps and oil engines. The size and ownership of operational holdings determine the use of inputs and efficiency of farms. (Jain: 1992) education, irrigation and size of land holding is play important role of adoption of technology. (Chadney: 1984) Farmer's personal and family characteristics such as like age, education, family type joint, family size, family members working outside of village to be related to innovations. (Ramachandra: 1992) The technological determinants, irrigation, mechanization and high yielding varieties have been found to be more responsible for determining the levels of agricultural development. (Rajpati: 1979) The package of innovation in agricultural practices in included double crop, seeds fertilizers, pesticides, credit, implements of proper soil and water management. (Sachchidananda: 1972)

Many scholars are discussed in his study, the impact of technological innovations on social institutions. In the traditional system, high castes have more land ownership and resources, this position favourable to adopt in the new technology quickly. The upper caste have larger holding and the caste system was functional and in a majority of cases, the people of various caste were following their caste-occupations. But after land consolidation and green revolution programme middle caste as well as lower caste purchased land from high caste, outside income played a crucial role in this process. (Singh: 1975; Salim: 1986; Diwakar:2007) We can say the process of new adoption is much more evident among the high caste and big landholders, small farmers are

gradually picking up new agricultural techniques. Land ownership is a most important factor of technological adoption. In the traditional system ownership was Zamindari system, the land was mainly in the hands of certain caste this system has been altered after independence but the ownership of land still remains in the hands of certain castes. We can say high caste people more benefited to technological innovation because they have more own land. Gill and Saini (1991) says that Family disputes social and cultural life of the rural people was reported to be changed under the influence of green revolution. Modern technology and mechanization of agriculture has led to individualism. Joint family system is breaking, young married couples try to separate and follow their own destiny. The young generation argue and challenged elders authority.

According to Mohammad (1992) says that the low caste people are less adopted to new technology as compared to high caste people. Futures he says the young farmers and educated farmers are more innovative and adoptive. Gupta (2005) says that the resultant of technological innovations in rural society, the joint family is disappearing, the rural caste hierarchy is losing its tenacity, and the much romanticized of village life. Ram Subs (1984) says that the villagers artisans cant not used your knowledge and skill because they cannot do heavy invest in machinery and to adopt advanced technology so they leave your traditional occupation, result increase migration to outside the village. According to Singh (1992) says that labour –farmer relation have changed from jajmani relations to financial relations on the contractual basis. SC and marginal landholders are favour to the abolition of jajmani relation though high caste and big landholder want to continue traditional system. (Salim:1986)

Chadney (1984) says that green revolution increases disparity in the big landholder and small landholders, however there is no significant change in marginal and labour income and condition. Government supported facilities or programme are not sufficient to reduce this issues . Gill and Saini (1991) says that green revolution have been pocketed mainly by big farmers and the disparity between the rich and poor has further increased. Pai (1986) suggested that the use of new farm technology are more favorable and beneficial to those farmers who own and operate large size holdings. The farmers have marketable surplus has increased, which has resulted in investment in the farm and also on things to better the living standards. J. Singh (1991) says that the impact of agricultural technology on inter- regional income disparities depended upon the type of technological change, the availability of resources especially land use and the price structure of different farm products. To Rao (2001), the results of green revolution in emerging disparities between different regions were more conspicuous than the disparities between different classes of farmers within regions experiencing technological change.

Technological innovation have made possible to better transportation facilities, its provided link between cultivator to market. (Prashad: 1979) Presently Motor cycles, Scooter and tractor is becoming a common feature of rural life. The production can easily move to mandi by tractor, trollies. Due to road and transportation system, continue connected to each other people from village to city. He is gradually adopting new urban life style in his daily life like dress, eating habitués, communication pattern etc.

After green revolution increase in agriculture production has been recorded, therefore it creating inter and intra regional economic imbalance and causes social tensions amongst various strata of the country. Those areas which are benefited there living condition have also more improved. After technological innovations cost of production as gone up, the small and marginal farmers have little to save. Few scholar like Dhindsa and Sharma (2001) talk about that the modern technology favours to large-size holding farmers as they have capacity to afford the use of mechanical power. The changes have come in the cropping pattern, also these in the issues of makes profit through the use of seeds, fertilizer, pesticides and others mechanism. Government encourage for agriculture development through market connectivity, minimum support prices, storage, transport, communication and other facilities.

The new technology has led to the displacement of labour from his work. Mostly farmers are now using tractor, threshers and watering from pumping set, which requires lesser demand of human labours. Cultivator used machinery on rent and pay a certain amount, if requirement in these they takes help through hired labours otherwise completed work with family members. But before introduction of technological intervention more labour were needed for these works. Farm machinery has made easy agricultural practices. Singh (1976) says that modernised farms have started using machinery such as tractors, threshers and other. It results in increasing use of farm machinery thereby reducing per acre use of human and bullock labour in the long run. Another scholar Singh (1991) talks about the problem of small land holders in agrarian society, Small holding cannot give work to all the members of the family in the village. Those farmers having small holding have to leave farming and to shift to other occupations. Another scholar Gill and Saini (1991) says that after green revolution the labour force coming from other states has created a problem for the local labour. In certain cases, the local labour has started moving to the cities in search of work. Gill and Dhaliwal (1991) point out the mechanisations of farm operations have not replaced the labour. The wage of labours has improved over a period of time. Some other scholar focusing on the infrastructure, He says, the cultivation of fruits and vegetables need to be encouraged by improving marketing and processing infrastructure in the state. Singh (1975) says that the off-farm income and size of farm are the most important of all the factors determining the level of modernisation.

Salim (1986) point out the new agriculture technology has change the pattern and conditions of work in agricultural techniques but adoption of innovations in agriculture is a gradual process and much influenced by the socio-economic conditions of the farmer. Sachchidananda (1972) says that the economic situation play a major role in technological adoption those farmers combine with service and other side they have extra resources because he secured salary or extra income, that supported to take risk and interventions. Himanshu and Nicholas Stern (2016) point out the importance of seed store and cooperative bank. In the village they were important institutions and played a significant role in the green revolution up to the 1970s. According to Radhey and others (1994) since 1982, the NGOs have been playing an important role in the process of development and technological transfer. They are the link between people and government on overhand and people and scientists on the other.

CONCLUSION

Technological innovations in India have changed the traditional subsistence farming system to market oriented production system. It has resulted in diversified socio-economic change in agrarian social structure; if has resulted in change of farm machinery and agricultural practise, social institutions, economic structure etc. Farm machinery includes HYV seeds, fertilizers; pumping set and credit sources have make very favourable agricultural practises. Social institutions include caste stratification, jajmani relationship, gender role etc. Economic structure includes land ownership, cropping pattern, unemployment, increased disparity etc. The cultivator are encouraged to adopt new agricultural tool and techniques, here development agencies and mass media of communication are playing significant roles in the process of diffusion of new agricultural technology. It results into increasing production, saving time and low labour force. Though farm machinery are demanding high cost investment, so many studies find it fit for large land holders and economically well people only. On the context favourable for small and marginal cultivators so its creates income and class disparity. Since agricultural advancement has brought economic prosperity, farmers have invested a lot in improving their social life education, living condition, awareness. The traditional Jajmani relationship have shifted towards commercial need based relations. After two decades their occupational is shift among the people, who are now engaged in trade, working outside the village, running shop, fast-food centre etc. It has resulted in crisis of labour and skilled workers are rural society. A technological innovation is bringing change in the socio-economic as well as cultural aspect of agrarian social structure and agricultural practices. In recent years, new farm technology has played an important role in enhancing global food production and to cater to the rising food requirements of the wider society.

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