

Modernization and Change: Impact of Changing Agricultural Techniques on Farmers

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ABSTRACT The paper attempts to evaluate the impact of modern techniques in the field of agriculture. Modernization implies change, not necessarily positive. It is observed that the side effects of implementing modern techniques is not taken care of and therefore the impact of it in the traditional agricultural areas (TAA) is not encouraging. The data is taken from Gujarat.

Change is not always positive. Many a time when an attempt is made to develop any area in one direction, it results in a top sided development. Agriculture is one of the important economic activities of man. An agriculture fulfils the basic needs of people, a lot of emphasis has been given to develop and increase agricultural production. An effort has been made to modernize agriculture through the introduction of high yielding variety seeds, chemical fertilizers, pesticides and mechanization. These components were introduced without taking their side effects into account. Agricultural planners have made it their only aim to increase production. While on the one hand modern agriculture increases the yield, on the other damages the environment and increase inequality in the society.

Surprisingly, even in traditional agricultural areas, natural resources are deteriorating. Interference of outsiders and increasing population cause intense exploitation of resources. Increasing population and fragmentation of agricultural land compel farmers to encroach upon forest and grazing lands for cultivation. Cultivation on slopes without proper buiding, and over use of forest and grazing lands have made land infertile. Construction of irrigation dams also disturbs the land use pattern. The

land which comes under submergence is not always barren land. It may be agricultural, forest or grazing lands. The objective of the paper is to study: (1) Impact of changing agricultural environment (1967-'68 to 1987-'88) through introduction of modern techniques of agriculture (use of irrigation, chemical fertilizer, chemical pesticide, high yielding variety seeds, and tractors) on socio-economic condition of farmers (2) Impact of changing land use pattern (1967-'68 to 1987-'88) through degradation of forest and shrinkage of grazing land on socio-economic condition of people in the TAA.

The study of large and small farmers is being done here in the rich and advanced CAA (Commerical Agricultural Areas) of South Gujarat where sugarcane in Surat, and Central Gujarat, and tobacco in Kheda are cultivated as commercial crops. And in the poor TAA, (Traditional Agricultural Areas) where Banas-kanta is semi-arid zone of north Gujarat and Panchmahals is hilly zone of eastern Gujarat. In these areas mainly coarse grains are produced.

When monocropping replaced the multi-cropping system, manpower requirement has fallen down in the CAA. Manpower requirements in Surat and Kheda have come down

by almost half in 1987-88 from the 1967-68 levels. Mechanization of agriculture has reduced requirement of animal power also, which leads to further reduction in requirement of manpower. traditionally, farmers used to keep cow in order to get bullocks for drought power. Use of tractor does not require bullocks. This has led to reduction in cattle keeping, which provide additional employment to a significant number of people.

Commercialization of agriculture has reduced economic activities of women. Earlier women from farmers families were engaged in cattle rearing, supervision of crops, harvesting, processing and partially marketing of crops. Cultivation of one crop (monocrop system) is now done on a large scale where labour assistance needed is far less, displaced the women for work.

In the TAA, every working person is engaged in agricultural activities. If a person is not able to do any physical work, he/she does supervision. In the TAA such a large number of people working on small agricultural fields are actually not required. In the language of economists there is a disguised employment in the TAA. On an average about 110 mandays work is required on one hectare of unirrigated land in the TAA. It means that about 3-4 persons are enough to work during an agricultural season. But in actual practice 6-7 family members keep themselves occupied on the farm of one hectare for the whole season. However farmers do not have gainful work during the remaining part of the year.

As commercialization of agriculture took place, use of tractors has increased in the CAA. The number of tractors have increased five to six times between 1967-68 and 1987-88. In CAA majority of large farmers possess assets such as tractors and pumps.

In the TAA not many farmers possess a tractor. Looking at the physical and economic condition of the area it is difficult to use a tractor. Farmers continue to use age old plough for farming. All large farmers in the TAA own

ploughs, while about 45 per cent small farmers have plough. In 1967-68 none of the farmers of the TAA had irrigation pump, while in 1987-88 about one per cent of farmers owned irrigation pumps. The major reason for possession of pumps even in such a small number by farmers in the TAA is availability of subsidy to backward classes. It is surprising that though irrigation pumps are available on subsidy to backward classes, still not many farmers own it. The major reasons are, firstly most of the farmers do not have information about subsidies given by the Government, and secondly even if farmers of the TAA get pump they do not know how to use it, where to get it repaired if it breaks down.

In the CAA because of high rate of tractor owning farmers, use of bullocks and plough has been abandoned. For transportation, automotive vehicles are used. Even the number of milch animals has come down in these areas. In Surat due to the need for more labour and an inherent fodder problem due to selection of crops farmers do not want to keep animals. But in Kheda after introduction of milk cooperatives, farmers do like to have good quality animals though in a smaller number.

The reason for reduction in live stock in the TAA may be constant drought since 1985 to 1987 and non-availability of fodder. But here livestock still is a major source of energy for agricultural operations, as compared to the CAA.

There is a remarkable change in the possession of luxury items by farmers in the CAA. Production of sugarcane and tobacco have given these farmers very high profits. Almost all urban facilities are available in these villages. All large farmers in the CAA possess items like radio, tape recorder, television, video and refrigerator. A significant number of small farmers in the CAA have acquired items like radio, tape recorder and black and white television sets. In the TAA there is a considerable rise in the possession of radios. Radio

is becoming popular in the villages for listening to film music not for acquiring information.

The effect of commercialization can be measured by food consumption habits and level of education. Actual data for comparing food consumption are not available. Therefore an estimate has been made on the basis of personal interview during two periods of time. In the CAA among small farmers consumption of fine grains has increased. There is a remarkable reduction in consumption of coarse grains. However total consumption of grains has come down. Introduction of irrigation has increased production of rice in the area and decreased production of coarse grains.

It is important to notice that the price of fine grains is higher than that of the coarse grains, but the nutritive value of coarse grains is higher than that of the fine grains. So farmers of the CAA pay higher price for lower nutritive value food items. Earlier coarse grains were grown and were readily available to the farmers. Now the farmers have to buy coarse grains from the market. Many times coarse grains are not available in the market. There is also reduction in the consumption of pulses, groundnut, milk, buttermilk, fruits and vegetables in the CAA. Earlier these items were produced locally, now farmers have to buy them, which cost them more.

As far as food intake is concerned large farmers in the CAA have not been much affected. They can afford to buy all kinds of food. Among large farmers consumption of fine grains has increased. It is observed that in the CAA consumption of bakery items like bread, biscuits and cake has increased. Consumption of tea and liquor has increased among the male members of large and small farmers.

There has not much change taken place in food consumption pattern in the TAA, except reduction in the intake of fruits and vegetables. Traditionally farmers of these areas used to collect fruits and vegetables from the forest during the slack agricultural season. But now forest have deteriorated and it has become dif-

ficult to get edible nuts and fruits from forests. During drought years in the TAA, production decreased and therefore consumption also went down.

The changes that have taken place between 1967-68 and 1987-88 are studied and it is found that large farmers in the CAA have received all the benefits of improved conditions. Whereas small farmers have continued to be by and large at the same levels. They might have acquired certain luxury items or have taken to liquor or other drinks, but their social status has not improved. Their over all intake of food as well as nutritional intake has decreased. Commercialization of agriculture has done away with the diversity in food crops. This has led to lowering of nutrition and natural defences and increasing incidences of chronic diseases. Apart from abandoning the diversity in food grain production, even the available food grains produced with chemical fertilizers are not as nutritive as the natural ones. It is reported that excessive use of nitrogen fertilizer reduces vitamin 'C' in some leafy greens by upto 50 per cent.

The issue is that, whether the process of development of agriculture is improving the living conditions of farmers or distorting their health and environment.

It is important to educate farmers, so that they may develop proper decision making capacity as regarding priorities in consumer items. Their preference should be for health, sanitation and nutrition rather than buying luxury items. In this direction they should be able to decide which cropping pattern will be more beneficial to their family, community and environment. In rich and advanced agricultural areas farmers should be encouraged to adopt appropriate cropping pattern and implement crop rotation. Government should take initiative to allocate the appropriate land under each crop. There is a need to control use of chemical fertilizer, instead of this, organic fertilizer produced from city garbage, farm and rural house hold waste, can be utilized. Use of city

garbage will help to keep urban areas clean and provide rich organic manure for agriculture.

Farmers of poor hilly region can be encouraged to use hilly slopes for tree plantation instead of cultivation. This will reduce the soil erosion and provide livelihood in terms of fruits, nuts, roots, tuber and timber to the farmers. In this area, upper slopes should be used for tree plantation and lower slopes for cultivation. Farmers of semi-arid zones should be encouraged to convert atleast one third of their agricultural land for fodder production. Live stock, goat and sheep rearing can be adopted as major occupation in these areas.

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