Introduction

Agricultural development and social change is an interesting issue of the contemporary world. As agricultural development includes all aspects of farm (as a resource base), the farming (the practice of cultivation) and the farmers, who link the farm with farming to yield crops to feed millions of population, the changing social conditions of the farmers are highly significant because development of agriculture and social changes have two-way interactions with each other, creating an impact on the total economic development of the region. In an agrarian country like ours, thus, the relationship between agricultural development and social change is highly significant.

The nature of agricultural development initially depends on the available physical resource base of a given region. Human knowledge, intellect, innovative measures and devices, however, determine the degree of the development. Hence, the issue of social change is organically connected with the question of agricultural development. Nadia District (study region) in West Bengal, in India, is not an exception.

(MAP No.1)
Location of the study region in the perspectives of India and West Bengal

Figure No.1
Nadia District is a region, which is noted for its agricultural prosperity in West Bengal because of its favourable location. Geographically it lies between the latitudes of 22° 52' 30" North to 24° 05' 40" North and the longitudes of 88° 08' 10" East to 88° 48' 15" East. It covers an area of 390657 hectares. The river Bhagirathi-Hugli mostly surrounds the western boundary of this District. The Nadia District is bounded by the Murshidabad District on the north and north-west, Bangladesh on the east and north-east, North 24 Parganas District on the south and south-east, Hugli District on the south-west and Burdwan District on the west. The District is divided into four (4) Administrative Sub-Divisions, namely, Krishnagar, Ranaghat, Kalyani and Tehatta and sixteen (16) Police Stations. The Nadia District, though is further divided into seventeen (17) Administrative Blocks, divisions into Agricultural Blocks are sixteen (16) in number. Karimpur-I and Karimpur-II Blocks are treated as one Agricultural Block and the other units remain identical. (Map No.2)

Agriculture, in response to its favourable environmental conditions is always in the process of transformation towards development in the study area. The profitability and economic impact resulted there from brings in changes in the social lives of the farmers with changing values and attitudes towards life. The fertile soil, good
climatic conditions and profuse water availability have made agricultural development in the District of Nadia spontaneous together with the adoption of modern technologies. The widespread use of modern technologies has added a new dimension to the relationship between agricultural development and social change. Needless to mention that there is two-way interaction between agricultural development and social change. Social changes have its impact on the development process.

In the present study an attempt has been made to assess the nature and pattern of agricultural development together with the social changes among the farmers in the District Nadia.

**Objectives:**

The objective of the work is to highlight the nature and extent of agricultural development for a period of ten years and analyse the dimension of social change. This has become significant for the reason that the study area is located adjacent to the international border of Bangladesh and the existing porosity at the region has made the social status of the farmers complicated. Sometimes agricultural change is observed to bear little relation with social change.
Period of assessment:
For satisfying the objectives, it is important for the study to maintain a time gap to understand the change in the pattern of agriculture that reflects its development as well as the changing social scenarios. A time period of ten years, that is, from 1990-91 to 1999-2000 has been considered for this study. The time gap of ten years may invite some criticisms expressing that a decadal gap may not truly reflect the picture. But to obtain authentic data particularly the information regarding social change has almost been an impossible task, which compelled the study to remain within this time lag. Much of the changing pattern has been known from the old people in the region under study. Another reason to consider this study period is that the globalization has started to influence the socio-economic scenario of our country since this decade.

Scope and limitations:
The scope of the study is wide because it covers a diverse field, ranging from agricultural production, area, yield rate and the utilization patterns of technological inputs like high yielding varieties of seeds, chemical fertilizers, irrigation and pesticides covering all aspects of agricultural activity together with the parameters of social changes like food habits, dresses, household
amenities, extension of education, access to urban influence and mass media.

As has been already mentioned that the availability of data is not enough to highlight the theme and this forms a limitation to the study like this abstract one. Hence, a greater part has been carried on through an empirical survey, which is quite difficult for an individual researcher to perform. Nevertheless, all out efforts have been attempted to throw light on the issue to make it lucid and clear.

**Methodology:**

The methodology adopted for the study is simple. First, the data are collected from different secondary sources, secondly, some techniques are chosen to arrange them in such a way it fit and analyse the data properly and lastly, an empirical survey is conducted, based on a structured questionnaire, of sample villages as representative ones.

(a) **Collection of data:**

The necessary data and information regarding agricultural development and social change in Nadia District are collected from different secondary sources like -
Socio-Economic Evaluation Wing, Directorate of agriculture, Government of West Bengal;

Principal Agricultural Office, Krishnagar, Nadia District, Government of West Bengal;

State Institute of Panchayat and Rural Development, Kalyani, Nadia District, Government of West Bengal;

Soil Testing Laboratory, Berhampur, Murshidabad District, Government of West Bengal;

Agricultural Development Offices in Nadia District, Government of West Bengal;

Panchayat Offices in Nadia District, Government of West Bengal;

District Census Office, Krishnagar, Nadia District, Government of West Bengal and

Different libraries, premier research journals and the like.

The primary data have been collected through empirical survey of selected villages as case study.

The data collected from the empirical survey are-

(i) regarding the existing physical resources of the representative villages in the context of agricultural development,

(ii) regarding the analysis of the agricultural profile during the study period (1990-91 to 1999-2000),

(iii) regarding the utilization pattern of technological inputs, as,
(a) the high yielding varieties of seeds of different crops;
(b) the irrigated water;
(c) the chemical fertilizers (Nitrogen, Phosphorus and Potassium);
(d) the crop protection measures and
(e) the improved implements;
and (iv). regarding the evaluation of social changes, through education, household amenities, mass media contact, extension contact via different types of conveyance, dresses, food habits and income.

(b) **Choice of techniques:**
The techniques, employed for the analysis, are simple. To fulfill the objective of the study some quantitative techniques have been attempted which are of much significance. To assess agricultural development, cropping intensity, crop diversity and overall yield are calculated. Regression analyses have also been employed. On the basis of composite index of selected indicators of agricultural development, three agricultural development zones have been identified, namely, highly developed zone, moderately developed zone and less developed zone. To evaluate social changes, composite index has been prepared on the basis of the selected social indicators.
(c) Selection of the sample villages as representative ones:

As has been already mentioned that a greater part of the work has been done through an empirical survey on the basis of interrogations of the sample farmers, both cultivators and labourers. The sampling of villages for the survey has been undertaken as follows,

(1) First, six villages are selected for the case study, considering two villages from each development zone. These two villages are representing each particular zone. The selected units are from those villages, which have more than sixty percent (60%) farming population out of the total population of the village.

(2) No village, selected in the study, is located close to each other. They have their own characteristic features. The selected villages are from interior parts of the study region and also from the areas accessible in terms of transport and communication.

(3) In one of the selected villages there are deep tube wells or lift irrigation facilities while in the other village there are no such facilities.

(4) In case of physical resources, as, soil fertility, nearness to water bodies and climatic conditions, the selected villages represent much diversity. In short, marked differences are conspicuous among the selected villages.
Outline of the Chapters:

As has been already mentioned that the large part of the work depended on primary survey and data collected there from have been appropriately analysed in detail to provide a clear concept of the work. The basis of the study, background and findings are presented in four chapters ending with a conclusion.

In the first chapter an attempt has been made to provide a description of the physical layout of the region in relation to agriculture, which justifies the growth pattern and development.

The second chapter depicts the profile of agriculture in detail, which enables to understand the existing pattern and how much development has been achieved during the study period.

The third chapter deals with a detailed account of agricultural development through different indicators.

The fourth chapter deals with the social conditions of the region. The case study of six villages has been attempted to find out the exact degree of social change of the study region.

The conclusion at the end highlights the findings of the work.

An appendix has been provided at the end of the chapter.
Review of Literature:


2. ‘Alternatives in Agricultural Development’ (1980), a project sponsored by the Indian Council of Social Science Research, New Delhi and published from Allied Publishers Private Limited, New Delhi, India explains the objectives of agricultural development, evaluates the performance of the several alternatives in development strategy and emphasizes the necessity of adopting the appropriate strategy for the proper agricultural development.


Publishers Pvt. Ltd., New Delhi, India, highlighted the agricultural output, the spatial pattern of levels and growth in food grains, oil seeds and non-food grains. They clearly stated that the interaction among the institutional, technological and environmental factors determines the levels of agricultural output and growth. They opined that the high productivity regions lie in the areas of high rainfall and favourable irrigation system.

5. Bhalla, G.S. and Singh, G. (1997) in their article ‘Recent development in Indian agriculture: A state level analysis’ clearly opined that the involvement of small and marginal farmers is essential in the process of crop diversification. They stated that the policy makers should adopt appropriate institutional strategies that can help the small and marginal farmers to get benefits from increasing growth, agricultural diversification and exports. It was published in Economic and Political Weekly, Vol. XXXII, No.13, March 29- April-4, 1997, PP.A2-A18.

6. On behalf of IIT, Kharagpur, Zilla Parisad Midnapore District Planning Committee, Midnapore Planning & Development Society, Bose, A.N. (1986) published ‘The Rural People Of Midnapore District’ where the focus was laid down on the socio-economic conditions of the people in Midnapore District at the village level.
Besides, the focus on an outline of methodology regarding the village-based District planning process is highly significant.

7. Boyce, J.K. (1987) in his writing entitled 'Agrarian Impasse In Bengal: Agricultural Growth In Bangladesh And West Bengal 1949-1980', published from Oxford University Press, Oxford, conducted a probe into the scarcity and hunger in West Bengal and Bangladesh besides being more fertile land there. He held up the agricultural performance of this area in between 1949 and 1980. But his argument on it was that the anomalies in agrarian structure were substantially incongruous.


9. Grigg, D. (1984) in his book 'An Introduction to Agricultural Geography' focused on the reasons for the variations of the agricultural practices from one place to another and he also highlighted the influence of physical, economic, social, political and cultural environment on agriculture. It is published from Hutchinson & Co. (publishers) Ltd., London.


11. Mandal, G.C. (1991) in ‘Role of Aggregate Productivity in Farm Technologies in Economic Development’, gave weightage on the high rate of aggregate productivity in agriculture in comparison with the higher yield rates of individual crops in a less developed economy. He opined that the low level of technology with insufficient fixed capital content can generate employment but is unable to remove poverty. His article published in Economic and Political Weekly, Vol.XXVI, No.52, December 28, 1991, PP.A157-A-158.

12. Several aspects of rural poverty like incidence of rural poverty, the relation between rural poverty and food prices etc. are discussed in Mellor, J.W. and Desai, G.M.’s article (1986) ‘Agricultural Change and Rural Poverty: A Synthesis’ was published in ‘Agricultural Change and Rural Poverty’, edited by the authors themselves, Oxford University Press, Delhi, India, PP.192-210. For the development of the financially backward sections of the society,
the authors focused on the availability of the institutional and infrastructural facilities, on the employment generation through the recognition of the social disparity in the distribution of assets and power, on the increase of non-agricultural employment opportunities by checking the rapid growth of agricultural population, on socio-economic research aimed at the effective policy defining for them and on disseminating the benefit of technological changes in all the sectors of the country.


14. Pasricha, N.S. (2001) in ‘Growth in Irrigation Development and Fertiliser Use in India -Impact on Food Production’, opined that the development of science and technology will help to solve to problems of providing food for the growing population. He decides that the production of more food from limited land, water and energy
demands a synthesis of the modern technological inputs and the gifts of traditional wisdoms. This article got published in Agricultural Situation In India, Directorate Of Economics And Statistics, Department Of Agriculture And Co-operation Ministry Of Agriculture, Government Of India, Krishi Bhawan, New Delhi, India, Vol.LVIII, No.2, PP. 45-49.


17. Saha, A. and Swaminathan, M. (1994) in their article ‘Agricultural Growth in West Bengal in the 1980s: A Disaggregation by Districts and Crops’ pointed out the hallmark progress in the production performance in West Bengal during the 1980s. They clearly explained that this better performance in the agricultural
production is the result of the landmark programme of land reforms and the positive role of the new democratic Panchayat institutions in the field of agriculture. This article was published in Economic and Political Weekly, Vol.XXIX, No.13, March 26, 1994, PP.A2-A11.

18. Saha, B.K. (1997) in his book ‘Agrarian Structure and Productivity in Bangladesh and West Bengal – A Study in Comparative Perspective’, published from the University Press Limited, Dhaka, Bangladesh, attempted to present comparative analysis of agrarian change between Bangladesh and West Bengal. The book deals with the results of the interaction between agrarian structure and technology adoption to measure the production, productivity and growth performance in Bangladesh and West Bengal.

19. Sarkar, G.K. (1995) in his book ‘Agriculture and Rural Transformation in India’, published from Oxford University Press, Delhi, India, presented a critical socio-economic review of the primal concern concerning India’s rural growth and poverty. He also discussed the major influences and equity impact of important public policies regarding agriculture-rural sector with a special emphasis on institutional reforms.

grains, non-food grains and all crops put together at the all India level. They also focused on the aggregate performance of state wise agricultural sectors and the output growth in food grains and major non-food grains at the state level. They gave emphasis on the increase of public investment for the proper development of technology and infrastructure that can be effective for better agricultural growth. The title of this article is ‘Agricultural Growth across Crops and Regions: Emerging Trends and Patterns’, published in Economic and Political Weekly, Vol. XXX, No.12, March-25, 1995, PP. A2- A13.


22. Sharma, P.S. (1973) in his book ‘Agricultural Regionalisation of India’, published from New Heights Publishers & Distributors, Delhi, India, described the different aspects of agricultural regionalisation in India. He discussed the review of developments of
agricultural regionalisation, fundamentals of regionalisation, technique of resources and productivity indices, agricultural regions and the state wise relation between resources and productivity.