

Role of Non- Urban Factors in Changing Land Use Pattern of Koch Bihar District, West Bengal, India

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ABSTRACT

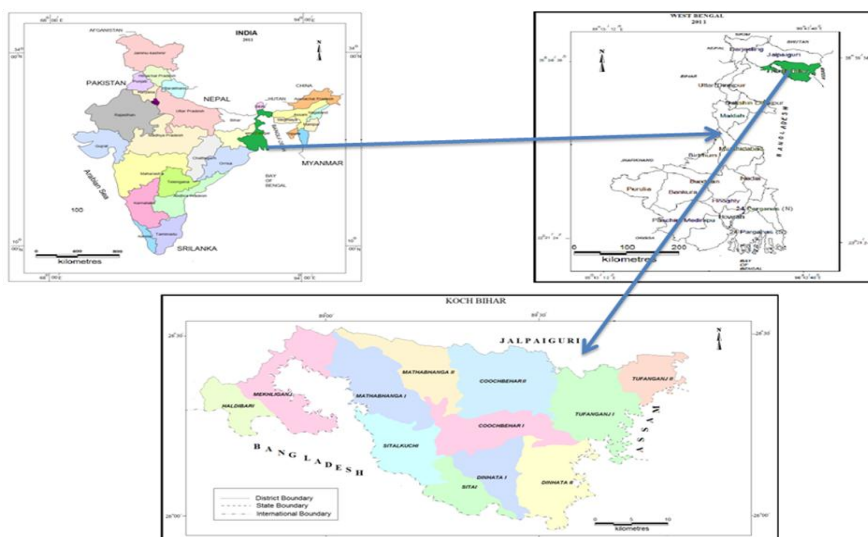
Land use change in Koch Bihar District processes great academic attention in the present age of food deficit. In recent time the major land use change that occurred in Koch Bihar district is conversion of paddy cultivated areas to cash crop producing areas. This is an attempt to analyze the status and changes in the net sown areas of Koch Bihar District in relation with changing land use. Paper brings the notion that the major reason for land use change in Koch Bihar District is not urbanization and population growth. This geographical analysis light up the socio-economic and political reason behind the changes in agricultural land use pattern. Major objective of the study is to identify the relationship between population growth and land-use changes and to analyses the agricultural land use pattern and its changes in Koch Bihar District. The present study has been based on mainly secondary sources of data. For this study various GIS and cartographic techniques including maps and diagrams will be used to depict the changing land use pattern.

1. Introduction

Land use change is an important issue that has been high on the research agenda for several years. Land use changes are clearly driven by human activities (Skole and Tucker, 1993). The common reason behind land use changes are considered as urbanization and population growth. The importance of land use change for the functioning of the earth makes studies that explore land use changes very relevant. In studies on land use change it is essential to link land use changes to their driving factors. These driving factors (e.g. population or development), mediated by the socio-economic setting (e.g. market economy, resource institutions) and influenced by the existing environmental conditions or context, lead to changes in land use through the manipulation of the biophysical conditions of the land (Turner et al., 1995). Land use change in Koch Bihar District processes great academic attention in the present age of food deficit. In recent time the major land use change that occurred in Koch Bihar district is conversion of paddy cultivated areas to cash crop producing areas. The relations between land

use and its driving factors are dependent on the scale of observation (Veldkamp and Fresco, 1996). Present study is an attempt to analyze the status and changes in the net sown areas of Koch Bihar District in relation with changing land use. However, the biophysical conditions of the land, such as soil characteristics, climate, topography and vegetation, determine to a large extent the spatial pattern of land use and land use change (Turner et al., 1993). The land use change in Koch Bihar was unparalleled in last few decades. In Koch Bihar district in the area of food grains is gradually decline, beside increase in cash crops cultivation. During the last few decades the agricultural sectors in Koch Bihar district are gradually changes in term of land ownership, cropping pattern, crop intensity, crop choice, productivity etc. In earlier time choice of cropping patten was depend on consumption needs of cultivator's family but present it is market oriented. This change mainly attributed to the shift in area from season/annual crops to high value yielding perennial cash crops having a long gestation period (Ratheeshmon and Lancelet, 2011).

2. Study Area



The district lies between 25°57'40" and 26°32'20" North latitude and between 88°47'40" and 89°54'35" East longitude. The district is surrounded by Jalpaiguri District in the North, Goalpara District of Assam and Rangpur district of Bangladesh in the East and International Boundary of Bangladesh in South & West.

3. Objectives

The broad objective of the study is to assess the role of non-urban factors in changing land use pattern of Koch Bihar district in the State of West Bengal and to identify the relationship between population growth and land use change in Koch Bihar and to find out the factors behind agricultural land use pattern change in Koch Bihar district of West Bengal.

4. Data Base and Methodology

Present study is mainly based on secondary sources of data which are collected from census report and various other departments like Cooch Behar District Statistical Hand Book, Bureau of Applied Economics and Statistics, Government of West Bengal. In this paper mainly two analyses are measures, first is relation between population growth and net sown area and second is agricultural land use pattern change in Koch

Bihar District. Data have been analyzed into simple percentage base.

Land Use Change in Koch Bihar District

Table No.1.5.1 Decadal Population Growth and Agricultural Land Use in Koch Bihar District, West Bengal

Year	Total Population	Net Sown Area (in Hectares)
1981	17,71,643	263280
1991	21,71,145	259287
2001	24,79,155	252489
2011	28,22,780	250610

Source: Cooch Behar District Statistical Hand Book 1981- 2011, Bureau of Applied Economics and Statistics, Government of West Bengal.

Population growth is one of the most important factors for land use change of land holdings. Table No. 1.5.1 shows that population is gradually increasing in 1981 it was 17, 71,643 and in 2011 it was 28, 22,780. Figure 1 shows that the trend of population growth and scenario of net sown area of the Koch Bihar district in last four decades, here population is continuously increased and stagnation in the net sown area. From above scenario it is clear that population growth in the district has a little role in the transformation of agricultural land to urban or built up land use.

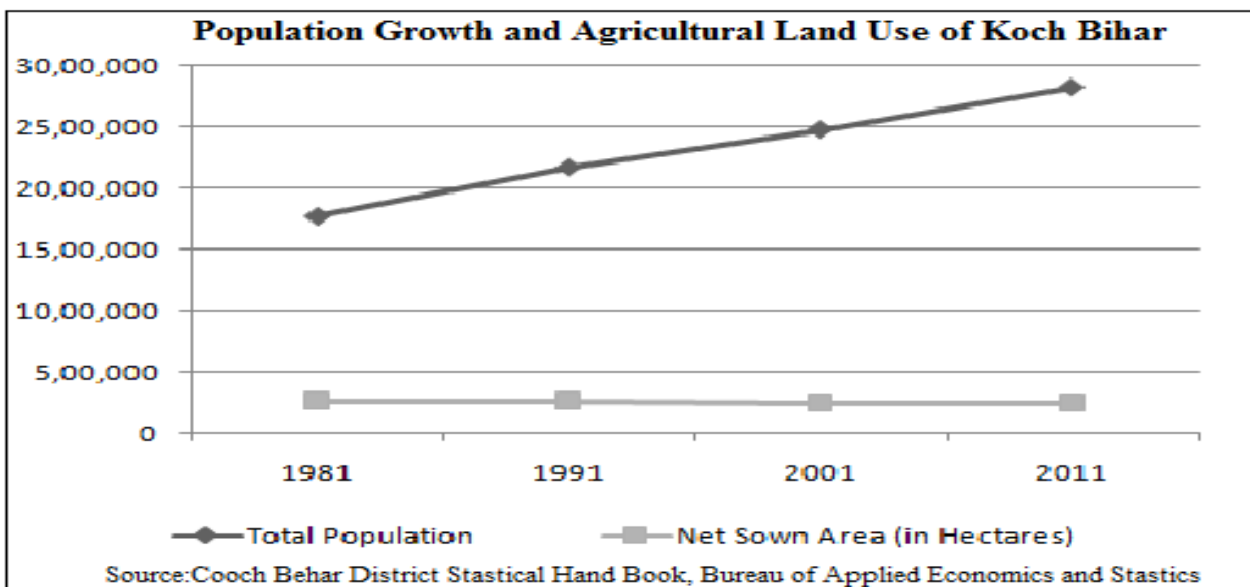


Figure: 1

Table No. 1.5.2 Decadal Change of Agricultural Land Use in Koch Bihar District, West Bengal (Area in Hectors)

Year	Forest Area	Area under Non-agricultural use	Barren & uncultivable land	Permanent pastures & other grazing land	Land under misc. tree	Cultivable waste land	Fallow land	Net area sown
1981-82	5.7	49.39	2.61	0.41	8.6	2.75	1.83	260.28
%	1.72	15.99	0.79	0.12	2.59	0.83	0.55	77.40
2001-02	5.4	62.01	1.82	0.27	6.7	1.49	1.04	252.49
%	1.63	18.72	0.55	0.08	2.02	0.45	0.31	76.23
2010-11	4.26	69.43	0.26	0.01	5.8	0.29	0.92	250.61
%	1.28	20.94	0.08	0.01	1.75	0.09	0.28	75.58

Source: Cooch Behar District Statistical Hand Book 1981- 2011, Bureau of Applied Economics and Statistics, Government of West Bengal.

Table 1.5.2 depicts that decadal change of agricultural land use in study area. Where area under non-agricultural use is constantly increased in 1981-82 which was 15.99 percent but in 2011 it was 20.94 percent. Permanent pastures & other grazing

land, Land under misc. tree, Cultivable waste land and Fallow land are continuously decreasing on the other hand net sown area is more and less moribund.

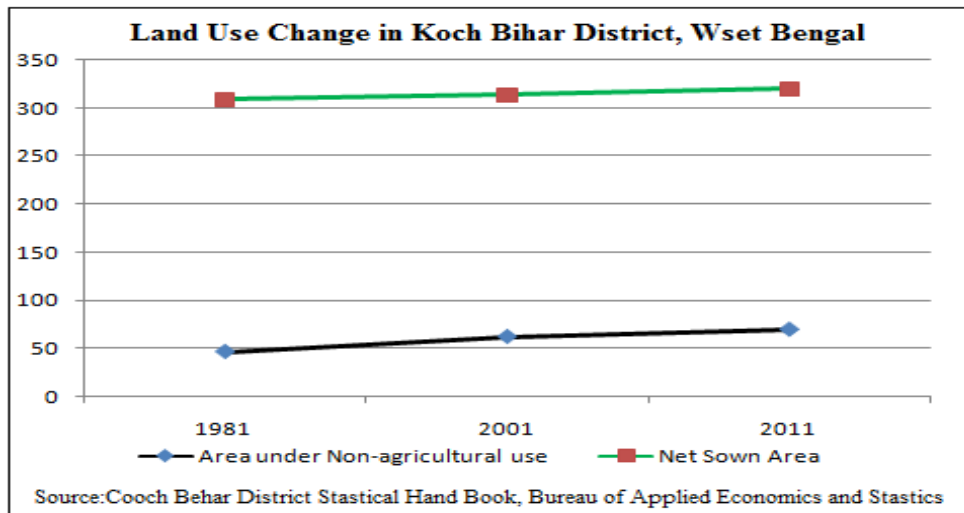


Figure 2

Figure 2 focused land use change in Koch Bihar district, in this graph land put on non-agricultural land uses shows a gradual increase from 1981 to present. On the other hand net sown area also shows more or less stable condition. If the non-agricultural land use has a great influence on the agricultural land use there should be a proportionate inverse change in both land use. In this land is continuously utilized for non-agricultural

land uses at the same time substantial area is converted to agricultural use which sustain the total cropped area of the district more or less same. This result proved that net sown area is not affected by urbanization or non-agricultural land use in Koch Bihar district but it is important to discuss in the land use studies is land use change within the agricultural land use.

Table 1.5.3 Decadal Change of Agricultural Area under Major Crops in Koch Bihar District, West Bengal (Area in thousand hectares)

Years	1981	1991	2001	2011
Rice	294.50	314.40	291.90	275.3
Wheat	8.00	13.50	25.10	10.60
Pulses	6.50	9.70	10.50	5.60
Oil Seeds	9.90	11.80	12.60	14.5
Fibber	58.20	91.10	87.30	75.4

Source: Cooch Behar District Statistical Hand Book 1981- 2011, Bureau of Applied Economics and Statistics, Government of West Bengal.

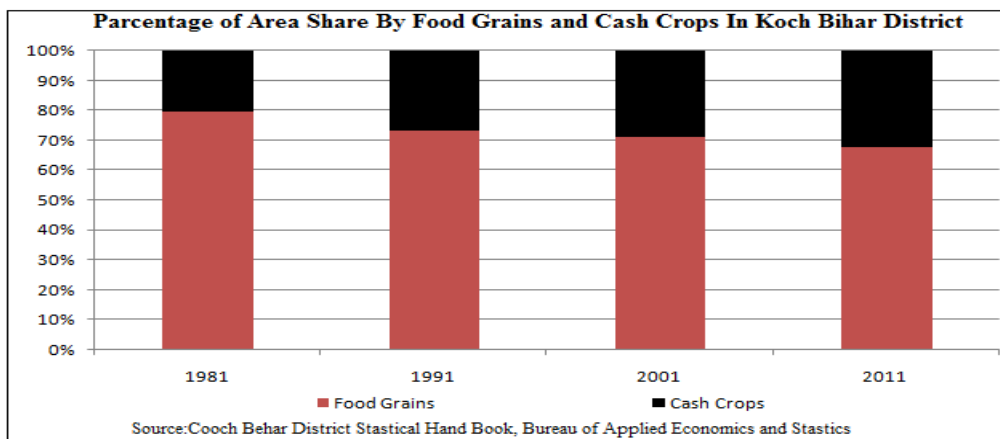


Figure 3

Table 1.5.3 shows that the decadal change of agricultural areas are under major crops in study area. Crops are mainly

divided into two categories, one is food grains (cereals and pulses) and the other is cash crops (Oilseeds, Fibber and

Miscellaneous crops). Area under rice cultivation is decreased from the year of 1991 to 2011 it was 314.40 in 1991 to 275.30 in 2011 on the other hand area under Miscellaneous crops and Oil seeds are increasing. The graph presents that the percentage of area shares by food grains and cash crops (Figure 3). Where the percentage of area shares by food grains are gradually decreased and cash crops are increased. In the year of 1981 the percentage of area share by food grains and cash crops was near about 80 and 20 percent respectively. In the year of 1991 it was 72 and 28 percent respectively, in 2001 it was 70 and 30 percent respectively and in 2011, 67 and 33 percent respectively.

Urbanization is a process which has led to a marked increase of non-agricultural land in Koch Bihar district. Generally the agricultural land throughout the district is being converted to the build-up area, road, rail line, commercial center, institute, recreation center etc which reduced the area under cultivation. Urbanization is a major cause for reduction of area under cultivation but in the district of Koch Bihar it is more or less same by transformation of permanent pastures & other grazing land, Land under misc. tree, Cultivable waste land, Fallow land and cultivated land. That common threatened was a transition from a rural subsistence enterprise, to an inclusive market-oriented enterprise responding to demand from urban centers. Once inclusive market-oriented development is triggered for staple food crops, the stage is set to expand it into additional high-value cash crops, because the basic experiences and channels for input supply and output marketing have been established.

5. Major Factors Affecting Agricultural Land Use Change in Koch Bihar District

Agricultural land uses are influenced by a variety of factors operating on more than one spatial and temporal level and acting in isolation but in intricate web of place and time specific relationship. Present day agricultural practice shifted from family

needed to market oriented mainly tendency of earning money. These major factors are

1. Liberalization Policy
2. Money oriented crop cultivation and Production
3. Lack of Agricultural Labour
4. Low Profit
5. Labour Migration
6. High Demand and increasing cost of fertilizers
7. Lack of Irrigation Facility

Above the factors are made adverse effects on agricultural land use shifting from the area under food grains to area under cash crops in Koch Bihar district. Due to lack of agricultural labour the farmers convert their cultivated agricultural lands from the high labour intensive food crops to commercial or market oriented crops, for which per hectare labour requirements are relatively lesser. Large scale of rural people migration to neighbouring states also reduces the availability of agricultural labour in this study area. In this district profitability of the cultivation of food crops like paddy, wheat and pulses are relatively lower than profitability of the cash crops like potato, tea, tobacco etc. On the other hand the changing economic situations are resulted from many processes of globalization that amplify the driving force of the changing of land use.

From the above discussion it is clear that population growth, build up area, urbanization and other economic factors like poverty not often provide a satisfactory understanding of the land use change. Relatively, individual, cultural and social responses to changing economic conditions, mediated by institutional factors are the actual motivating force of land use change in Koch Bihar district of West Bengal. The changing of land use pattern is directly or indirectly related with the marketing demand, economic policy, trade and commerce. The socio-economic, cultural and political factors are revealed by the proper understanding of the land use changes.

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