

Population Pressure and Changing Pattern of Agricultural Production in Lower Brahmaputra Valley

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Abstract

The agricultural sector in Assam in general and lower Brahmaputra valley in particular has cultivable land which is highly limited because of the peculiar physisographic conditions.

The study proposes to examine the agricultural land use and productivity pattern in the lower Brahmaputra valley of Assam. There are numerous constraints in land use management. Due to limited land holdings by the individual farmers, a proper use or effective land use is not possible. The problem of land use management is basically with the indigenous farmers. The farmer does not take much interest in agricultural activities due to traditional and cultural system. Normally the indigenous farmers cultivate one crop in a year. But if we look at the farms owned by the migrants, the agricultural fields are cropped two to three times in an agricultural year. Accordingly the production pattern also shows a different picture, compared to those of the land owned by the local farmers where land is under utilized, therefore the productivity pattern is comparatively low.

The study aims to highlight the changing pattern of agricultural production process and population pressure on agricultural land.

Introduction

The agricultural sector of Assam is at the subsistence level. Although the study region, viz. Lower Brahmaputra Valley is one of the alluvial fertile soil regions of India, the average productivity of crops is much lower as compared to other regions. Assam is not self sufficient in food grain production, though more than 63 percent of work force is engaged in agriculture and allied activities and is the principal source of livelihood. But each year Assam imports food grains from other states to fulfil the states requirement.

A large variety of crops are grown in Lower Brahmaputra Valley in varied land and meteorological conditions in different

agricultural seasons. Food crops attain a prominent place in relation to its area and production. Its total cropped area was 78 percent to the total operated area but returns were only 53 percent to the total production in Lower Brahmaputra Valley in the year 1995-96. The study region could produce 29 percent of food grain to the total food crop production of the state, though it accounts for 35.74 percent of population. The average yield of food crop recorded 1,005 kg/ha against 1,288 kg/ha in Assam during 1995-96.

Agricultural Production in Assam

A large variety of crops are grown in Assam, essentially food crop dominates the

productivity pattern. Table 1 shows that 46 percent of total production comes from food crops, where rice alone contributes 44 percent of the total production in the year 1995-96.

Among others, 27 percent of production comes from miscellaneous crops, 14 percent from fruits, 11 percent from fibre crops and oilseeds, only 2 percent to the total production of Assam in the year 1995-96 (Table 1).

Agricultural Production in Lower Brahmaputra Valley

Food crops are the important crops in relation to its area as well as production in Lower Brahmaputra Valley. In the year 1995-96, the total cropped area occupied 78 percent and production was 53 percent only, where the demographic pressure is very high. Among the food crops rice is most important in Lower Brahmaputra Valley region.

Changing Pattern of Agricultural Production in Lower Brahmaputra Valley

Due to lack of data on all crops in Lower Brahmaputra Valley, only few crops have been taken into consideration to measure the magnitude of agricultural growth since 1971-72 to 1995-96. Rice production has shown maximum growth i.e. +205 percent, increased from 4,53,201 tonnes in 1971-72 to 9,29,486 tonnes in 1995-96, followed by rape and mustard increased from 24,123 tonnes to 48,137 tonnes with +199 percent over last twenty-five years. Since, 1971-72 to 1995-96, wheat production also increased from 33,223 tonnes to 60,227 tonnes with +181 percent and pulses from 16,366 tonnes to 28,878 tonnes with + 176 percent of growth (Table 2).

Table 1 Agricultural Production in Assam, 1995-96

Crop	(Production in tons)	
	Production	Percent
Winter Rice	2622667	33.68
Autumn Rice	516031	6.63
Summer Rice	251324	3.23
Total Rice	3390022	43.53
Wheat	95051	1.22
Maize	12966	0.17
Other Cereals & Millets	6002	0.08
Total Cereals	3504041	45.00
Tur (Arhar)	4381	0.06
Gram	1464	0.02
Other Rabi Pulses	51184	0.66
Total Pulses	57029	0.73
Total Food Grains	3561070	45.73
Rape & Mustard	143463	1.84
Sesamum	8409	0.11
Linseed	5107	0.07
Castor	695	0.01
Total Oil Seeds	157674	2.02
Jute	844221	10.84
Mesta	26623	0.34
Cotton	786	0.01
Total Fibre Crops	871630	11.19
Potato	504753	6.48
Sweet Potato	31238	0.40
Sugarcane	1490336	19.14
Tapioca	12141	0.16
Tobacco	797	0.01
Chillies	9355	0.12
Turmeric	6641	0.09
Onion	16247	0.21
Total Misc. Crops	2071508	26.60
Banana	564687	7.25
Areca nut	52390	0.67
Coconut	140263	1.80
Pine Apple	194915	2.50
Papaya	106610	1.37
Orange	66787	0.86
Total Fruits	1125652	14.45

Source: Directorate of Agriculture, Government of Assam, Guwahati, 1997.

Sugarcane has shown a decline in production from 21,638 tonnes to 7,177 tonnes with negative growth of -33 percent. Table 2 shows that fibre crops also decreased from 5,33,367 tonnes to 2,86,038 tonnes with -54 percent during 1971-72 to 1995-96. The food crops show better performance, production pattern became almost double in the last twenty-five years in Lower Brahmaputra Valley. It could be because of growing population pressure on land, demands for more food; therefore farmers are compelled to produce maximum level to satisfy its requirements. The production pattern never provides a complete picture until and unless one compares the yield patterns in the field of agriculture.

Changing Pattern of Agricultural Productivity in Lower Brahmaputra Valley

The agricultural productivity pattern is almost similar in Lower Brahmaputra Valley like in Assam. It is evident from the Table 3 that the yield of rice has increased from 802 kg/ha during 1971-72 to 1,029 kg/ha in 1995-96. Pulses also increased from 444 kg/ha to 543 kg/ha within the same period. Rape and mustard too increased the productivity from 416 kg/ha to 467 kg/ha.

Sugarcane also increased the productivity from 3,547 kg/ha during 1971-72 to 4,147 kg/ha in 1995-96. Contrary to it, the yield decreased in wheat from 1,208 kg/ha in 1971-72 to 1,169 kg/ha in 1995-96 (Table 3). Fibre crop also decreased from 7,267 kg/ha to 1,376 kg/ha over the same period. The productivity of fibre crops is decreasing over the years due to the market price, which has gone down at a faster rate.

Table 2 Production of Principal Crops in Lower Brahmaputra Valley 1971-72 and 1995-96

(Production in tonnes)			
Crop	Production 1971-72	Production 1995-96	Growth Rate
Rice	453201	929486	+205
Rape & Mustard	24123	48137	+199
Wheat	33223	60227	+181
Pulses	16366	28878	+176
Fibre Crop	533367	286038	-54
Sugar Cane	21638	7177	-33

Source: Agricultural Census, 1971, Directorate of Agriculture, Government of Assam, Guwahati, 1997

Population Pressure

Population in the region is increasing at an exponential rate, due to the explosive growth of population causing excess pressure upon the agricultural sector. The tradition bound people have historically old attitudes of apathy and neglect towards the peasant lives. This stand poses a big hurdle in the way of progressive agriculture. The agricultural sector accounts for the largest economic sector, where the percentage of working population is much higher. This is because of the low industrial growth and more unemployed people are engaged in agricultural sector, ultimately causing severe wastage of valuable manpower in the region.

The total population of the Lower Brahmaputra Valley was 80.11 lakhs, which was 35.74 percent to the total population of Assam according to 1991 census. The decadal growth rate of population in the region was +42.51 percent between 1961-71 period against +58.59 percent in 1971-91 period. It is evident that the growth rate of

Table 3 Productivity of Principal Crops in Lower Brahmaputra Valley 1971-72 and 1995-96

Crop	(Yield in Kg/ha)	
	1971-72	1995-96
Rice	802	1029
Wheat	1208	1169
Pulses	444	543
Rape & Mustard	416	467
Fibre Crop	7267	1376
Sugar Cane	3547	4149

Source: *Agricultural Census, 1971, Directorate of Agriculture, Government of Assam, Guwahati, 1997.*

population in the valley is much more than the state's average of +52.44 percent.

The Lower Brahmaputra Valley is thickly populated, where average density was recorded 397 persons against 284 persons per km² in Assam according to 1991 census. The density of population in Lower Brahmaputra Valley was 252 persons against 186 persons per km² in Assam during 1971, which is much higher as compared to the state average. But it increased to 397 persons, with an excess of 145 persons per km² in relation to 1971 census over the last twenty years.

The population pressure on land is quite high, as is evident from Table 4 the density of population is the highest recorded in Dhuburi with 470 persons per km², followed by Kamrup with 460, Nalbari with 450, Barpeta with 366, Bongaigaon with 322 and the lowest population density is recorded in Kokrajhar district with 256 persons per km² during 1991.

The highest population growth was recorded in Kokrajhar with +76.78 percent, followed by Kamrup, second highest, with

Table 4 District Wise Distribution of Population in Lower Brahmaputra Valley, 1971 and 1991

District	(Population in number)					
	Population by 1991		Density		Growth Rate	
	Persons	1971	1991	1971	1991	1991
Dhuburi	1332475	300	470	+40.51	+56.67	
Kokrajhar	800659	N.A.	256	+54.53	+76.78	
Bongaigaon	807523	N.A.	322	+40.29	+64.64	
Goalpara	668138	N.A.	366	+45.88	+54.12	
Barpeta	1385659	299	427	+35.81	+43.02	
Nalbari	1016390	302	450	+42.02	+49.27	
Kamrup	2000071	278	460	+38.80	+65.72	
L.B.V. Total	8010915	252	397	+42.50	+58.59	
Assam	22414322	186	286	+34.95	+53.26	

Source: *Calculated from Census of Assam, 1971 and 1991.*

the growth rate +65.72 percent. The lowest population growth is evident in Barpeta with 43.02 percent within a span of twenty years.

Conclusion

- (i) The small farmers in the study region are almost untouched by the modern and advanced methods of agriculture. Consequently, these farmers are worse affected by various natural calamities. The entire region is a chronically flood affected area, as heavy loss of life and property as well as extensive damage of standing crop is caused by floods every year. Drought is also another significant calamity, as the irrigation facilities in the valley region are highly insignificant, farmers are highly dependent upon monsoon. Basically summer drought affects agriculture very seriously, as more than 75 percent of rain is concentrated in the kharif crop season.

- (ii) Agriculture is also affected by insects, weeds, domestic and wild animals as well as diseases. The humid tropical climate with high relative humidity provides the ideal growth of insects, weeds and diseases. The domestic as well as wild animals also affect the standing crops, as the agricultural fields are not having fencing around it. Further, it is a difficult task to raise fencing in the small fragmented and scattered agricultural fields and also because of the poor economic condition of the farmers. Besides these, birds and wild elephants too cause severe damage to standing crop, as the study area is having numerous residual hills and is surrounded by the foothills of the neighbouring areas.
- (iii) The tremendous population pressure on arable land is a constraint for agricultural development in the study region. The region is endowed with a variety of natural resources but is industrially backward, causing a low-level development in the secondary and tertiary sectors. The increasing population is absorbed in the agricultural sector, causing under utilization of manpower.
- (iv) The unhealthy living conditions of the farmers as well as the food intake of the people is inadequate and inferior, so they easily fall victims to various diseases. Further, the medical facilities provided by the government are not sufficient and most of them are localised in the city areas. Moreover, the poor health of the draft cattle affects the agricultural sector very badly. The grazing land in the study region is scarce in comparison to the number of the drought animals and farmers take little care in feeding. During the winter season the drought animals hardly get sufficient food, as the grazing lands get dry. As a result animals are ill-fed and under-fed they are less restraint to epidemics and diseases making the farmer economically vulnerable.
- (v) Farmers in the study region fully depend upon agriculture. They hardly have any cash saving and whenever they are in need of money for various purposes, either for the agricultural inputs or educating the children or social and religious celebrations or to repair their houses, they generally go to the traders or moneylenders. Moneylenders compel them to dispose off their agricultural products after harvest with maximum interest and hardly give them reasonable price for it.
- (vi) The law of inheritance ensures equal distribution of land among the sons, leading to excessive fragmentation of land holding. Further, the farmers are greatly affected by the rituals and ceremonies prohibiting ploughing and other agricultural operations minimising the total working days even in the peak season.
- (vii) In the absence of modern and advanced technology, the ultimate utilisation of the potentialities of soil cannot be achieved, as the farmers practice the agricultural operations with the help of man and animal power using the traditional methods. The consumption of fertilisers in the study region is also very low. The rabi as well as multiple cropping system is almost absent due to the lack of controlled source of water. Further, the introduction of HYV seeds in

agricultural operations too is very low, which can bring a better results if water is provided at the required time.

- (viii) Infrastructure is the most essential element for modernisation of agriculture through technological innovation, but the economic condition of the farmers acts as a barrier for the adoption of these innovations
- (ix) The marketing system in the study region is primarily free market; the marketable surplus is operated through middleman after harvest which fetches for the farmers hardly any fair price.
- (x) The agricultural credit system in the lower Brahmaputra valley region is neither adequate nor encouraging though various government agencies offer credit. Even if the farmer receives financial assistance from any source; generally it is spend on other than agricultural investment.

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