IMPACT OF LAND REFORMS IN NORTH-EAST INDIA

M. Dasgupta

A land reforms programme is an integrated set of measures designed to climinate obstacles to economic and social development arising out of defects in the agrarian structure. The content of a land reforms programme cannot be the same everywhere. Such a programme should have a favourable impact on current output, employment, technological progress in agriculture and social justice. The papers included in this volume cover a variety of issues connected with land reforms in north-east India dealing with prevailing land tenurial system, land reform measures introduced, their implementation and impact on the agrarian scene. Measures were also discussed in the papers to enhance the favourable impact of land reforms in the region. The papers in the volume bring out clearly the need for progressive land reforms in the interest of equity.

ISBN 81-7117-086-2

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Rs. 240

THE IMPACT OF LAND REFORMS

in North East India

Edited by :

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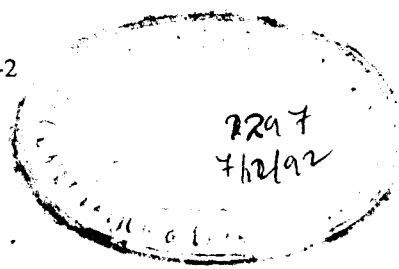
OMSONS PUBLICATIONS

Guwahati **New Delhi**

ISBN No. 81-7117-086-2



First Edition 1991

Published by :
R. Kumar
OMSONS PUBLICATIONS
T-7, Rajouri Garden,
New Delhi - 110027.

Laser Composed at :
Enen Grafiks
CB-178, Ring Road, Naraina,
New Delhi - 110028.

Printed by :
Efficient Offset Printers,
B-62/13, Nariana Ind Area
Phase II, New Delhi-28
Ph. 5704051

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STRUCTURAL CHANGES LAND REFORMS AND AGRICULTURAL TECHNOLOGY IN NORTH-EAST INDIA: AN ANALYSIS

INTRODUCTION

The north-eastern region of our country is mainly dependent on agriculture for the livelihood of its people. More than 80 per cent of the people in the region depend on agriculture for their income and employment. It is a well-known fact that most of the north-eastern states are deficient in foodgrain production and the productivity of land in these states is much lower than that of the other parts of the country. The economic development of this region depends mainly on the development of the agricultural sector as the region does not have any worthwhile industrial establishments. Hence, land, which is the basis of agriculture, should play the key role in the development of the region.

The north-eastern region is full of peculiarities in respect of its land and people. Barring Assam and Tripura, more than 90 per cent of the geographical area of this region has a hilly, undulating terrain with steep slopes. More than 60 per cent of the area of Tripura and more than 19 per cent of the area of Assam are completely hilly in nature. Except in Assam and Tripura more than 53 per cent of the people of the region are tribals with their own traditions and customary laws. Their main way of life is Jhuming which is a very primitive form of subsistance agricultural production evolved through centuries of practice under inhospitable environment, terrain and topography.

Quite naturally, this region, with its great diversities, presents

gigantic problems for the development planners, social scientists and agricultural scientists alike. There have been several attempts in the recent past in the direction of development of the region. Since land constitutes the basis of livelihood in the region, it is necessary to examine the changes that have occurred in the structure of the agrarian economy. It is also necessary to take a look at land reforms and land relations from the point of view of technological progress in the field of agriculture. The present paper in an attempt in this direction.

STRUCTURAL CHANGES IN OPERATIONAL HOLDINGS

The main objectives of land reforms legislation in the country are providing land to the actual tiller, ensuring security of tenure and thus helping in the socio-economic transformation of the rural society. In the absence of effective off-farm employment for the rural masses, the agriculture sector should be able to provide sufficient employment to generate incomes commensurate with the population growth in the region. In this context, an egalitarian structure of land holdings plays the key role in providing self-employment to the vast masses in the rural sector. Various farm management studies show that there is an inverse relationship between the size of the farm and its productivity. Even though controversy exists on this aspects, the avowed objective of land reforms of increasing the productivity of land by distributing excess land from large farmers to small and marginal farmers was based mainly on this consideration. Keeping this in view, we will analyze the structure of land holdings in the various states of the north-eastern region.

We have used the World Agricultural Census data for the years 1970-71 and 1980-81 for our analysis. In the absence of data for the year 1970-71 for Sikkim and Mizoram, we used the 1976-77 agricultural census data. Except Assam and Sikkim, all the states in the region are non-land record states. In Sikkim, 28 per cent of the panchayats formed the sample villages for data collection in the agricultural census. In Arunachal Pradesh, the 1970-71 agricultural census was conducted on a sample basis and that of 1980-81 was conducted on complete enumeration basis. While in Assam complete enumeration was the basis, in the remaining states, viz. Manipur, Meghalaya, Nagaland and Tripura census was conducted on a sample basis. The emphasis is on actual operational holdings and not on ownership holdings.

There are differences in the land reform measures taken in various states. In Assam, the land reforms laws were in operation since 1966 and there were a spate of enactments in the fifties and sixties till the latest act was passed in 1971. In Tripura and Manipur, Land Revenue and Land Reforms Acts were passed in 1960. In Sikkim a notification on land ceiling in 1974 and the Sikkim Cultivators (Protection) Act, 1975 were the legislations enacted in the direction of land reforms. The Jhum Land Regulations Act of 1970 was the only land legislation in Nagaland. Land relations in Meghalaya and Arunachal Pradesh are guided entirely by unwritten traditions and customary laws.

Concentration of Land

To measure the changes that have occurred in respect of concentration of land in various farm size groups, the Gini Coefficient, was computed for the various states in the region. The Gini Coefficient values which are worked out on the basis of 5 groups of farm sizes

Table 1-1

Gini Co-efficient Values* for North Eastern India : 1970-71 and 1980-81

State	1970-71	1980-81
Arunachal Pradesh	0.4387	0.4958
Assam	0.5292	0.5282
Manipur	0.3144	0.3512
Meghalaya	0.3372	0.4027
Mizoram	0.3169 **	0.2982
Nagaland	0.4800	0.4391
Sikkim	0.5175 **	0.4980
Tripura	0.4915	0.4382
N.E. Region	0.5576 ***	0.5603
All India	0.6168	0.6050

* See Appendix A for computational procedure followed.

** For the year 1976-77.

*** Excludes Mizoram and Sikkim.

viz., marginal (below 1 ha.), small (1 to 2 ha.), semi-medium (2 to 4 ha.), medium (4 to 10 ha.) and large (above 10 ha.) farms are presented in Table 1-1. It is evident from the table that while the concentration ratio at the all-India level exhibited a decline, the ratio for the north-eastern region as a whole is showing a slightly increasing trend. Out of the states where land legislations were implemented, there was a significant decrease in concentration of land holding in Tripura, a perceptible decline in Sikkim and Mizoram and a very slight decline in Assam. It is widely acknowledged that the Tripura Land Reform Act of 1960 was by far the most progressive land reform legislation enacted in India. Further, the political will on the part of the State Government decisively reversed the process of land concentration. In Manipur, another state where land reforms legislations were implemented, land concentration increased, pointing to the ineffective implementation of the legislation though the Act was modelled on Tripura's Act and was passed in the same year. Nagaland experienced considerable decline in the concentration of land whereas in Meghalaya and Arunachal Pradesh there is considerable increase in the concentration of land in the large farm size group.

Lorenz curves were drawn by plotting the cumulative percentage of area against the cumulative percentage of holdings in each farm size class for both the years 1970-71 and 1980-81 and the values of cumulative percent of operated area at specified cumulative per cent of holdings were interpolated from individual Lorenz curves of each state and are presented in Table 1-2. The Gini coefficient or ratio is the area between the Lorenz curve and the diagonal (which is the line of equality having a Gini Ratio of 0) as the percentage of the total area under the diagonal. If all the operating units were of equal size, the Gini ratio would be zero and it would reach a maximum if the bulk of land holdings were operated in a very few large units but there were many small holdings operating a very small area. Thus we can see from the table that in Assam which showed the highest concentration ratio in 1970-71, the lower 60 per cent of small holdings operated 20 per cent of area and upper 10 per cent large holdings operated 44 per cent area Likewise, in Mizoram which showed lowest Gini ratio in 1980-81, the lower 60 per cent of small holdings operated 38 per cent of area and the uppermost 10 per cent large holdings operated 25 per cent of area.

Table 1-2

Distribution of Operational Holdings in North Eastern India : 1970-71 and 1980-81.

State	Year	Gini Co-efficient	Cumulative % of farm area a cumulation % of holdings									
			10	20	30	40	50	60	70	80	90	100
Arunachal	1970-71	0.4387	1	3	7	11	17	25	35	48	62	100
	1980-81	0.4958	1	3	6	10	16	23	32	43	58	100
Assam	1970-71	0.5292	2	4	6	10	14	20	28	39	56	100
	1980-81	0.5282	2	4	6	10	14	20	27	39	56	100
Manipur	1970-71	0.3144	3	8	13	18	26	35	45	56	73	100
	1980-81	0.3512	2	6	10	16	22	32	43	55	70	100
Meghalaya	1970-71	0.3372	2	6	11	18	25	34	44	56	71	100
	1980-81	0.4027	2	5	8	14	21	28	39	52	68	100
Mizoram	1976-77	0.3169	3	7	13	19	27	36	45	57	73	100
	1980-81	0.2982	3	7	13	20	28	38	48	60	75	100
Nagaland	1970-71	0.4800	1	3	6	10	16	22	30	42	62	100
	1980-81	0.4391	1	2	5	8	13	21	34	51	73	100
Sikkim	1976-77	0.5175	1	2	5	7	13	21	31	42	58	100
	1980-81	0.4980	1	3	6	9	13	19	29	43	60	100
Tripura	1970-71	0.4915	1	3	6	9	14	20	28	40	57	100
	1980-81	0.4382	2	6	9	13	18	24	32	44	61	100
N.E. India *	1970-71	0.5576	1	3	5	9	13	18	26	37	53	100
	1980-81	0.5603	1	3	5	8	13	18	26	37	53	100
All India *	1970-71	0.6168	0	1	2	5	9	13	21	31	49	100
	1980-81	0.6050	0	1	3	5	7	14	21	31	49	100

* Excludes Mizoram & Sikkim.

Number of Holdings and Operated Area

Table 1-3 shows the changes that have occurred in the number of holdings and operated area. There was a decrease in both number and area in the case of Arunachal Pradesh and Mizoram, while Sikkim and Manipur experienced the maximum percentage increase in the number of holdings. In respect of area operated, the maximum percentage increase was noticed in Manipur and Nagaland and considerable increase was observed in Sikkim. Except in Assam and Sikkim the percentage increase in area was more compared to the percentage increase in the number of holdings.

Table 1-3

Changes in number of holdings and operated area in North Eastern India between 1970-71 and 1980-81.

State	No. of holdings			Operated area (ha.)		
	1970-71	1980-81	% Change	1970-71	1980-81	% Change
Arunachal	78990	78542	0.6	489011	335732	-31.3
Assam	1964376	2297600	17.0	2882575	3120500	8.3
Manipur	79923	13610	70.3	92341	169400	83.5
Meghalaya	149600	170300	13.8	253346	296000	16.8
Mizoram	* 49679	46602	-6.2	* 74372	69298	-6.8
Nagaland	92263	116000	25.7	503736	859500	70.6
Sikkim	* 311100	56200	80.7	* 79500	109100	37.2
Tripura	250134	307700	24.8	254077	330100	29.9
N.E. India	**2696065	3209044	19.0	**4628956	5289630	13.3

* For the year 1976-77.

** 1976-77 figures were used for Mizoram and Sikkim.

To have a closer look at the farm size group changes, the size-wise number of holdings and area operated are given in Table 1-4. It can be noted that in Arunachal Pradesh the number of marginal holdings increased at a very rapid rate but the area operated by them did not increase commensurately and in the case of large holdings, the number of holdings fell but without commensurate decrease in the area operated by them. In Assam, there was a significant decrease in the number of large holdings but the area operated by them actually increased. The number of medium,

Table 1-4

Percentage changes according to farm size groups in 1980-81 over 1970-71 in North Eastern States.

Farm size group *	Arunachal	Assam	Manipur	Meghalaya	Mizoram **	Nagaland	Sikkim **	Tripura	N.E.India ***
				----------Number of holdings----------					
Marginal	114.3	19.9	99.2	7.5	- 6.2	30.8	138.3	21.4	23.9
Small	72.5	12.1	38.9	- 0.7	- 0.7	22.6	67.9	2.3	15.2
Semi-medium	7.9	13.9	71.9	24.7	- 10.4	- 39.8	47.3	- 12.5	13.5
Medium	- 23.2	- 2.0	187.5	112.3	- 17.1	12.0	34.9	25.9	2.8
Large	- 63.3	- 24.8	–	300.0	- 74.3	192.6	0.0	33.3	37.9
Total	- 0.6	17.0	70.3	13.8	- 6.2	- 25.7	80.7	24.8	19.0
				----------Area operated----------					
Marginal	104.1	14.4	104.0	- 16.5	- 3.8	- 19.1	122.2	45.4	19.1
Small	72.1	13.1	60.0	- 13.7	5.3	30.3	66.4	40.6	16.6
Semi-medium	6.1	13.6	82.8	16.9	- 11.6	40.1	45.2	34.1	13.0
Medium	- 23.1	- 6.4	221.7	92.5	- 20.4	15.1	32.9	- 5.5	0.2
Large	- 53.8	1.9	5.8	316.0	- 63.6	150.6	- 13.9	- 5.0	24.5
Total	- 31.8	8.3	83.5	16.8	- 6.8	70.6	37.2	29.9	14.3

* Farm size groups : Marginal (less than 1 ha.), Small 1 to 2 ha.), Semi-medium (2 to 4 ha.), Medium (4 to 10 ha.) and Large (above 10 ha.)

** Changes represent from 1976-77 to 1980-81.

*** 1976-77 figures were used for Sikkim and mizoram in the absence of 1970-71 data.

marginal and semi-medium farms increased considerably with commensurate increase in the area operated by them in Manipur. In Meghalaya there was a more than three-fold increase in their number, but there was decrease in area operated by marginal farmers while their number increased. The small holdings decreased in number while increasing the area operated by them in Mizoram. In Nagaland both the number and area operated by the large farms rose while for the marginal farms, the number of holdings increased but the area operated by them decreased. The number of marginal holdings increased with less than commensurate increase in the area operated by them in Sikkim while the area operated by large holdings decreased with no change in the number of holdings. Significant increase was noticed in the area operated by the small holdings over the number of small holdings, but in the case of medium and large-sized holdings, the significant decrease in the number of holdings was followed by an insignificant decrease in the area operated by them in Tripura, thus pointing to the loopholes existing even in state where most progressive land reforms were implemented.

Average Farm Size

All these changes have been reflected in the average size of different farm size groups as brought out in Table 1-5. While the combined average size of all groups decreased significantly in Arunachal Pradesh and marginally in Assam and Mizoram, there was a significant increase in the average farm size in respect of Nagaland and in other states the increase was less than 11 per cent. In respect of marginal holdings, there was significant increase in their average size in Tripura, but it declined significantly in Meghalaya and Nagaland and the remaining states experienced marginal changes. In the large farm size group, there was decline in the average size in Nagaland and Sikkim, while there was an increase in Tripura, Assam, Arunachal and Meghalaya, the increase in Tripura and Assam being most notable, indicating that there is still much scope for effective implementation of land reforms. It is interesting to note that large holdings in Assam, Mizoram and Arunachal Pradesh increased their average size at the expense of the other groups. Further, the average size of large holdings in Assam and Tripura is higher by more than 100 to 200 per cent than the average size of the large holdings in the entire north-eastern region.

Table 1-5

Changes in average size of fare by size groups in N.E. India between 1970-71 and 1980-81.

State	Marginal		Small		Semi-medium		Medium		Large		All-groups	
	1970-71	1980-81	1970-71	1980-81	1970-71	1980-81	1970-71	1980-81	1970-71	1980-81	1970-71	1980-81
Arunachal	0.57	0.59 (3.6)	1.44	1.43 (–0.7)	2.78	2.75 (–1.8)	5.95	5.96 (0.2)	17.11	22.15 (29.5)	6.19	4.27 (–31.0)
Assam	0.45	0.43 (–4.4)	1.45	1.43 (–1.4)	2.75	2.74 (0.4)	5.54	5.29 (–4.5)	57.31	77.60 (35.4)	1.47	1.36 (–7.5)
Manipur	0.53	0.55 (3.7)	1.19	1.36 (14.3)	2.44	2.59 (6.1)	4.79	5.36 (11.9)	21.0	– (–)	1.12	1.24 (10.7)
Meghalaya	0.69	0.53 (–23.2)	1.52	1.32 (13.2)	2.72	2.55 (–6.3)	5.74	4.97 (–13.4)	12.79	13.30 (4.0)	1.69	1.74 (3.0)
Mizoram *	0.67	0.68 (1.5)	1.27	1.37 (7.9)	2.43	2.40 (–1.2)	5.04	4.84 (–4.0)	15.20	21.50 (41.4)	1.50	1.49 (–0.7)
Nagaland	0.73	0.45 (–38.4)	1.23	1.31 (6.5)	2.67	2.67 (0.0)	5.95	6.14 (3.2)	18.40	15.76 (–14.4)	5.46	7.41 (13.7)
Sikkim *	0.50	0.47 (–6.0)	1.45	1.44 (–0.7)	2.84	2.80 (–1.4)	5.86	5.78 (–1.4)	18.44	15.89 (–13.8)	2.56	1.94 (24.2)
Tripura	0.40	0.49 (22.5)	1.41	1.52 (7.8)	2.69	2.79 (3.7)	5.53	5.58 (0.9)	35.53	52.75 (48.5)	1.02	1.08 (5.9)
N.E. India **	0.46	0.45 (–2.2)	1.40	1.42 (1.4)	2.72	2.71 (–0.4)	5.68	5.53 (–2.6)	26.24	23.68 (–9.8)	1.72	1.65 (–4.1)

* For Mizoram and Sikkim 1976-77 data were used in Column 1970-71

** Includes 1976-77 data of Mizoram and Sikkim

Figures in brackets indicate 2 change.

LAND REFORMS AND AGRICULTURAL TECHNOLOGY

For various historical and geographical reasons the tribal communities in the north-eastern region of the country have been practising primitive agriculture with communal ownership of land. Adoption of agricultural innovations has been very slow in this region. There are many institutional factors responsible for the slow growth of agriculture and the slow adoption of agricultural innovations.

Communal Ownership of Land and Privatization

One of the most important factors inhibiting agricultural development in the region is communal ownership of land. Under this type of ownership, there is no individual initiative in the direction of development and no incentive for the upkeep of the soil fertility and land development. Of late, because of the inherent contradictions in the communal ownership of land, privatization is gradually emerging as the main form of ownership of land.

Of the various land ownership patterns in the region, we can distinguish three main categories. Valley lands and terraced lands with continuous cultivation have come under private ownership (for example, in Meghalaya these lands are called *Ri-kynti* meaning privately-owned lands). Homestead lands surrounding the residential houses have also come to be recognised as private lands in most parts of the region. Further, the lands under shifting cultivation can be distinguished into two types : (1) lands where cultivation is practiced for one or two years followed by two to four years of fallow period. These may be called short fallow lands. Here mostly closed burning system is followed. This type of land mainly exists where commercial crops like potato, ginger and vegetable crops are grown. (2) Lands where 2 to 3 years of cultivation are followed by 6 to 8 years of fallow period. This type of land may be called as long fallow land. Of these two types, in most places short fallow lands have also become private lands for all practical purposes and the latter type, the long fallow lands are still under communal ownership of land (in Meghalaya these lands are called *Ri-raid* meaning community lands). It is generally observed that the productivity of land under private ownership is more than in the two types of land under shifting cultivation. And further, the lands under short fallow agriculture are more productive than the lands under long fallow agriculture. These differences may partly be attributable to the type of ownership of land mentioned above and the differences in the technology adopted in different categories of land.

Improved Agricultural Technology and Land Relations

Another impediment in the way of adoption of improved technology in traditional agriculture in this region is the system of dividing land disregarding the natural principles of watershed management. Under this system foothill portion is allotted to one farmer, the middle portions and top hill portions are allotted to other farmers. Research conducted at the ICAR Research Complex for N.E.H. Region for the last decade has proved the superiority of hill hand use system (3-tier system) wherein bottom one-third portion is utilised for annual crops, middle one-third portion for growing horticultural crops and the top one-third for forestry (Borthakur et. al., 1983).

From the point of view of preventing spoil erosion, environmental degradation and for better soil and water conservation and water harvesting, the present type of ownership of land is inhibiting the progress of adoption of improved agricultural technology. Studies conducted at the ICAR on watershed based farming systems which can also be practiced at individual land users level in hill areas reveal the feasibility of retaining over 90 per cent of the annual rainfall even in steep hill slopes which in turn helps in recharging ground water and streams besides minimising the risk of soil erosion (Singh, 1987). This means that while allotting land, care should be exercised to ensure as far as possible that top-to-bottom portion is allotted to one individual farmer to enable him to adopt micro watershed management technology and also the 3-tier system of land use. Allotment of land to meet the food, fodder, fuel, shelter and natural soil fertility replenishment needs of each individual farmer is another consideration to be taken into account. All these imply measuring land through cadastral survey, delineation of shifting cultivation zones, conferment of ownership rights on private lands and a well-thought out and well-implemented scientific land reform and land use policy on the part of the various State Governments in the region to further agricultural development.

Equity Considerations and Agricultural Productivity

Though there is a growing realisation among the various State Government of the need to implement effective land reforms in their states, they were successful only in Tripura, Assam and Manipur to some extent in the region. Most of the states are yet to enact land

legislations. If necessary steps are not taken in time to promulgate and implement scientific land reform legislation, rural tensions are bound to intensify in the region. Non-promulgation of land reform legislations and ineffective implementation of the existing land reform legislation is leading to land concentration in the hands of a few upper-class farmers and consequent land alienation among the small and marginal farmers, swelling the number of agricultural labourers resulting in greater immiserisation of the vast masses of the rural poor. Census figures of economic classification of workers in the region give ample evidence in this direction as can be seen in tables Appendix B and C. Whereas at the all-India level the number of cultivators increased at a faster rate than the number of agricultural labourers, the reverse is happening in the north-eastern region with a 60.5 per cent increase in the agricultural labour population compared to a 20.4 per cent increase in the cultivator population from 1971 to 1981. The proportion of these two segments in the total population also indicates the same trend. While at the all-India level, the proportion of both cultivators and agricultural labourers decreased, in the north-eastern region, the proportion of cultivators declined and that of agricultural labourers increased.

These developments amply justify the need for an equitable distribution of land. Apart from ensuring an equitable distribution of land, land reforms are also widely justified on the ground of raising productivity of land. A study conducted jointly by FAO and the Indian Institute of Management, Ahmedabad, revealed that there is a strong negative relationship between the Gini concentration ratio and productivity of land in respect of rice and aggregate agricultural output (Vyas, 1979). After studying land reforms in various Asian countries, the Asian Development Bank came to the conclusion that agricultural development can be achieved with a relatively even distribution of holdings of very small size and these equity measures had tended to accelerate rather than impede economic growth (ADB, 1977).

A similar attempt to find out if there is any relationship between productivity per hectare (in kgs) of the total foodgrains (Y) and Gini co-efficient (X1) and average farm size (X2) by fitting linear regression equation for the data of the various states in the region gave interesting results (Table 1-6). These results suggest that there is a strong negative relationship between the dependent variable (Y) and both the independent variables (X1 and X2). All the 't' values and 'f' values are significant at 5% level of probability. The co-efficient of determination (R2) for the regression equations for the years 1970-71

and 1980-81 is sufficiently large explaining 80 percent variation in per hectare productivity of foodgrains in the north-eastern region of the country. These results also suggest the land reforms in the direction of equitable distribution of land will greatly help in raising the productivity of land thus accelerating the economic development of the region.

Table 1-6

Results of Regression Equations for North Eastern India*

Year	Constant	Co-efficients for		R2	d.f.
		Gini ratio (XI)	Average farm size (X2)		
1970–71	1305.49	-549.60** (-2.45)	-31.67** (-3.31)	0.82**	6
1980–81	2074.85	-1848.74** (-3.12)	-47.02** (-2.56)	0.80	6
Combined	1588.61	-982.84** (-2.38)	-39.30** (-2.58)	0.54**	13

* The data for Arunachal, Assam, Manipur, Meghalaya, Nagaland, Tripura and combined data for these states were used in the analysis.

** Significant at 5% level of probability. Figures in brackets are 't' values.

CONCLUSION

In the foregoing paragraphs, we have discussed the structural changes that have taken place in respect of the number of operational holdings, the area operated by them and the average size of farms in the north-eastern region. Effective implementation of land reforms in states where such legislation exists and the promulgation and speedy implementation of land legislations is necessary in other states in the interest of raising the productivity of land to prevent further concentration of land in the large size groups and to reverse the trend of the growing number of agricultural labourers. Special care needs to be taken in the hilly region to ensure that land reforms help farmers in adopting improved agricultural technology like the 3-tier system of land use, micro watershed management, boosting individual initiative in the upkeep of soil fertility and land development. Land reforms in the direction of a more equitable distribution of land and scientific and use coupled with adequate infrastructural and institutional measures will greatly help in accelerating the pace of economic development of the north-eastern region.

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