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An Economic Analysis of Net Sown Area in different Agro-climatic Zones of Bihar

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ABSTRACT

The present study aims at analyzing the status of net sown area in divided Bihar. There are four agro-climatic zones comprising North-West, North-East, South-East and South-west alluvial plains. Bihar is endowed with adequate ground water resources which are unevenly distributed and it has not been exploited to the maximum advantage. The net sown area indicated gradually declined during study period in all the agro-climatic zones of Bihar except Zone-III a. Hence, attempts are being made to protect our land area from erosion and other environmental degradation, to increase the net sown area, and adopt modern techniques of agricultural production in the context of exploding population.

Keywords: *Agro-climatic zones, Physical features, net sown area, Bihar.*

INTRODUCTION

With the partition of the country in 1947, India had the massive problem of achieving self-sufficiency in food. The various "Grow more food" programmes since then aimed at increasing the net sown area in the country. Till the beginning of the 1960's, increase in agricultural production was more the result of expansion of cropped area. This was done by turning grazing lands forest lands into crop lands, bringing cultivable wastelands under the plough, shifting the cropping pattern in such a way as to divert land under fodder crops to other crops, and so on.[1] But now, the net sown area gradually decline, with the relentless growth of population and growing urbanization land is fast disappearing under concrete buildings and tar roads and also good agricultural land is being destroyed to produce bricks.

Much of the country's fate is linked with the state of agricultural production. It is because it influences in a substantial manner such vital aspects of the people's life as food supplies, raw materials, prices, exports and most importantly the livelihood of a large majority of populations. Agricultural production is directly linked with the net sown area and this area also declined in the state of Bihar from 63.6 per cent to 59.6 per cent of total land area during study period (1975-2005). Hence, this paper attempts to investigate into the changes in net sown area in the state (Zone- wise analysis) because Bihar after division on Nov. 14-15, 2000 has emerged as the most potential frontline agricultural state but with least or marginal production spectrum in major food crops in the map of India.

We discuss first the trends of net sown area and then taken up the causes and the remedies of the unsatisfactory production profile of agriculture.

PHYSICAL FEATURES OF BIHAR: Bihar lies between 24° 15' to 27° 31' N latitudes and 83° 20' to 88° 19' E longitudes with an average length of 483 (E-W) and width of 385 km (N-S). The state has subtropical sub humid monsoonal climate with moderate cold winter followed by hot dry and humid summer. It is bounded by Nepal from North, Jharkhand from South, Uttar Pradesh from West and West Bengal and Bangladesh from East. At present there are 38 districts in divided Bihar which is sowed in Fig-1

Agro-climatic Zones of divided Bihar: Bihar is broadly divided into two natural halves by the river Ganga i.e. North Bihar and South Bihar, where a series of other rivers southward and northward meet the Ganga. The North Bihar is divided into two distinct agro-climatic NARP zones (zone-I and zone-II) whereas south Bihar as a whole represents only zone-III. Based on significant differences in agro-ecological parameters zone-III has been subdivided into zone-IIIa and zone-IIIb. The name of Districts and important features of different agro-climatic zones are given in **Table-1** & geographical area in percentage terms also sowed in **Fig.-2**.

Fig. 1: **Map of Bihar**

MATERIALS AND METHODS

The study is intended to analyze the structural changes in the Net sown Area of Bihar over a period of 30 years. The district-wise secondary data were compiled from the various publications of the Directorate of Statistics and Evaluation, Government of Bihar[4] over the six periods of time from 1975 to 2005 and these information were analyzed for Zoned basis. For the purpose of gaining meaningful insights into the net Sown area, the study period was divided into six sub-periods, five years each from 1975 to 2005. Average area of five years (quinquennial) has been computed along with their proportion to respective geographical area.

Table 1: **Important features of different agro-climatic Zones of Bihar.**

Name of the Zones	Geographical area (in 000 ha)	Percentage Area	Districts
Zone-I North-West Alluvial plains	3449.09	36.85	E/W Champaran, Saran,Siwan, Gopalganj, Siwhar,Muzaffarpur, Vaishali,Darbhanga, Samastipur,Begusarai, Madhubani,Sitamarahi.
Zone-II North-East Alluvial plains	1798.11	19.25	Purnea, Katihar, Khagaria, Saharsa, Supaul, Araria,Madhepura, Kishanganj.
Zone-IIIa South Bihar Alluvial plains (East)	1194.51	12.76	Munger, Shekhpura, Jumui, Banka, Lakhisarai, Bhagalpur
Zone-IIIb South Bihar Alluvial plains (West)	2917.84	31.17	Patna, Gaya, Jehanabad, Nawada, Nalanda, Rohtas,Bhojpur, Aurangabad, Buxar, Bhabhua, Arwal.
Bihar	9359.56	100.00	--

Source: NARP report, R.A.U., Bihar

FINDING AND DISCUSSION

A perusal of **Table-2** revealed that there was gradual decline in area under this category in Zone-I from first period (2452.29 thousand ha) to the present situation (2255.78 thousand ha). On the other hand, the area under this category of land showed mixed trend during the

period under study in Zone-II but as compared to the first period there was a decline at the present situation, i.e. 1146.91 thousand ha to 1125.21 thousand ha. The percentage of net sown area to the total area of Zone-II also varied considerably during different periods of time in the Kosi region (Zone-II), depending mainly upon the surface conditions including the soils and degree of immunity from the Kosi river. In Zone-III (a) the area of net sown continuously increased from 455.71 thousand ha (38.15%) in first period to 518.21 thousand ha (43.38%) in the third period, after the third period there was uneven trend till the present situation but when compared to first period the area under this category of land in this zone increased in the present situation which is also sowed in **Fig-3**. This was probably due to extensive stretch of Ganga-levee upland tract which is well known for the exceptional fertility of its loamy soil. Loamy nature of the soil facilitates its adaptation to the variety of crops.[2]

In case of Zone-III (b) the area under this category of land continuously decreased from 1898.24 thousand ha (65.05%) in first period to 1695.58 thousand ha (58.11%) in the present situation, except in the fourth period where area under net sown increased from previous period. The decreasing trend of this category in Zone-III (b) was probably due to shifts of agricultural land to non-agricultural use.

As discussed earlier, net area town also declined in Bihar from first period (63.60%) to the present situation (59.64%). The possible reason attributed to such observation may be the shift of agricultural land to non-agricultural uses, especially for development of housing colonies in and around cities and district towns in the state. Also, there is growing awareness among farmers to divert their farm lands into horticultural and agro-forestry development which have become more remunerative on a long run perspective.

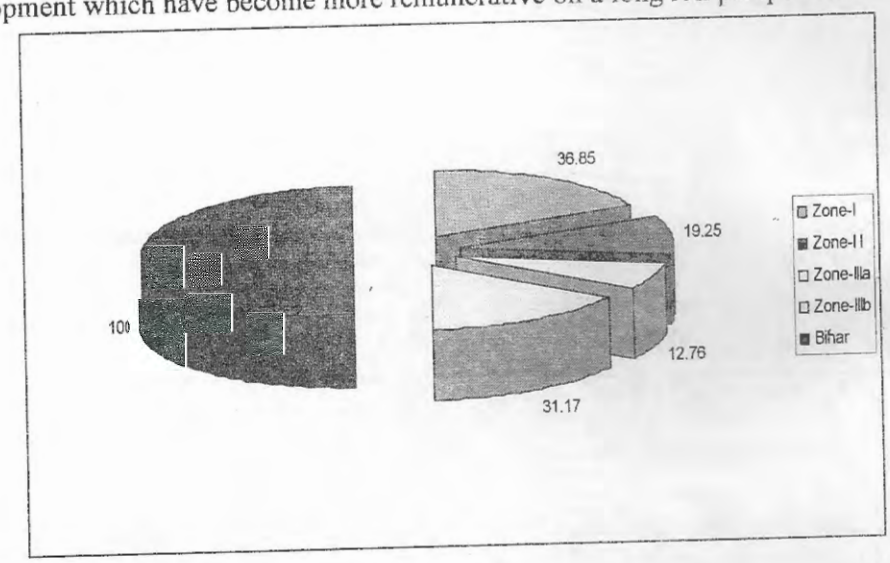

Fig. 2: **Zone-wise Geographical Area (%) of Bihar**

Table 2: **To examine the regional variation in net sown area in different zones of Bihar**

Zone	1975-76 to 1979-80	1980-81 to 1984-85	1985-86 to 1989-90	1990-91 to 1994-95	1995-96 to 1999-2000	2000-2001 to 2004-2005
	1st Period	2nd Period	3rd Period	4th Period	5th Period	Present Situation
Zone-I	2452.29 (71.09)	2423.10 (70.25)	2316.09 (67.15)	2267.87 (65.75)	2247.11 (65.15)	2255.78 (65.40)
Zone-II	1146.91 (63.78)	1213.79 (67.50)	1117.00 (62.12)	1068.81 (59.44)	1094.45 (60.86)	1125.21 (62.57)
Zone-III a	455.71 (38.15)	470.18 (39.36)	518.21 (43.38)	509.83 (42.68)	519.86 (43.52)	505.99 (42.35)
Zone-III b	1898.24 (65.05)	1772.84 (60.75)	1694.34 (58.06)	1750.13 (59.98)	1711.35 (58.65)	1695.58 (58.11)
Bihar	5953.16 (63.60)	5879.92 (62.82)	5645.60 (60.31)	5596.65 (59.79)	5572.78 (59.54)	5582.57 (59.64)

Figures in parentheses shows percentage to respective geographical area

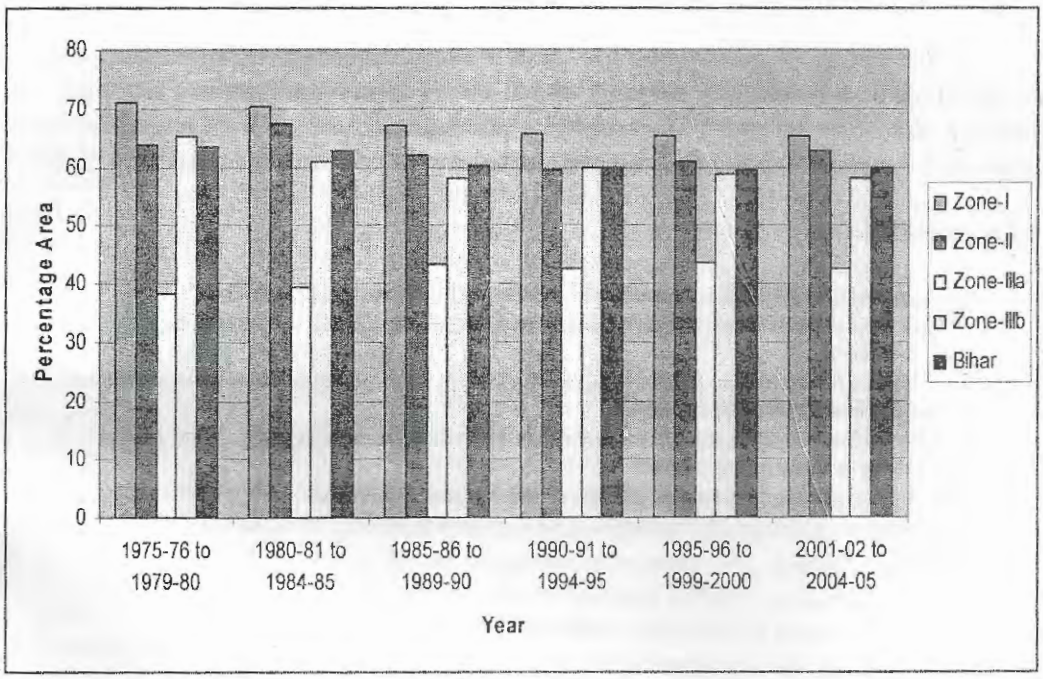

Fig 3: **Net Sown Area (%) in different Zones of Bihar**

CONCLUSIONS

It emerges from the above discussion that there is divergent situation observed across the zones with respect to cultivable area. Major reasons for leaving the fallow land in Bihar are lack of irrigation, problem of soils, environmental degradation, water stagnation (Flood), lack of link roads, agricultural land shifts into the non-agricultural uses, menace of wild animals, legal disputes and financial problems.[3] Hence, a generalized approach may not help achieving full utilization of land. Many of these reasons can be effectively resolved within the framework of the existing policies and programmes. For instance, the policies of price support and input subsidies can effectively ensure remunerativeness of crop production even under dry land conditions. Some states have already declared a premium over centrally announced support prices, which can be extended to cover un-remunerative crops in respective region. Hence, the area specific characteristics and the determinants of under-utilized land need to be identified for developing strategies for their full utilization.

So far, the government has paid attention only to 60 per cent of the land area characterised as cultivated land. It has grossly neglected the other 40 per cent of land area which is uncultivated and probably uncultivable or remains underutilized i.e. un-irrigated, single cropped and low yielding. The possibility of increasing the irrigated area is very vast in Bihar. So, increased production has been possible through multiple cropping through intensive cultivation with good quality of seeds.

The present policy of emphasis on agriculture and increased farm production without equal emphasis on forestry and grazing land is indeed counter-productive. Thus, the real challenge to the Government is to formulate a development strategy for on integrated land use plan with equal emphasis on the proper management of forest, grazing & crop lands.

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