IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

CHANGING PATTERN OF LAND UTILISATION IN BIHAR

Dr. Anamika Kumari
+2 Raj High School, Darbhanga
Pin:- 846004, Bihar

Abstract

Bihar's physical condition is overwhelmingly suitable for better management of physical resources – land available with us is the gift of Nature. The state is fortunate enough that it is endowed with a vast, well drained and almost isotropic land with one of the richest soil covers in the world.

Undoubtedly land resources form the most important natural wealth of a country and its proper utilization is a matter of utmost concern to the people of Bihar.

The Utilization of the land according to its use capability ensures that this resource is utilised to the best advantage. Its improper use leads to wastage and leads to progressive deterioration and loss of productivity of this vital resources.

Land under trees and groves have also witnessed positive growth rate, this may be the other reason for decline in net sown area in the state. Motivating farmers to increase productivity to protect growing population and serving their demand for food and nutritional security, we have to make such kind of strategies which may lead to enhance the income of the cultivators as well as fulfil the food demand of growing population, keeping in mind the fast changing climatic conditions all over the world and protecting wasteful and careless use of natural resources for betterment of future generation.

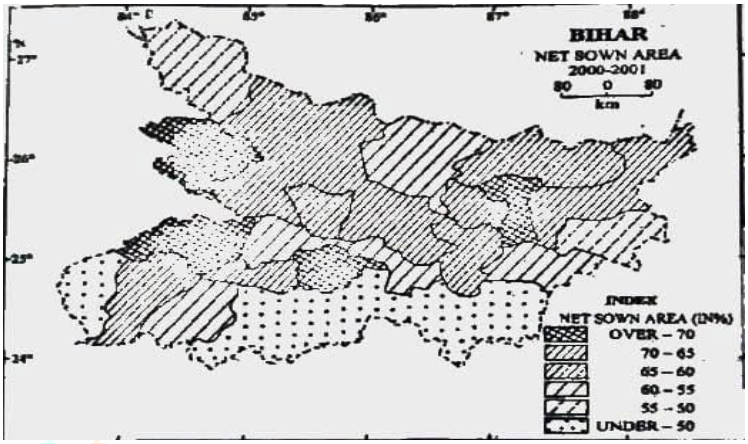
Key words

Land use pattern, Net sown area, Agro climatic zone, Compound Growth Rate (CGR)

INTRODUCTION

Land is one of the most important natural resources on which all of man's activities are depended upon, and a thorough knowledge of it, which includes the land use / land cover is very much essential for a number of planning and management activities. The term "land use" (LU) relates to the human activity or economic function associated with a specific piece of land, whereas the term "land cover" (LC) relates to the type of feature present on the surface of the earth. However both the term 'land use' and 'land cover' are synonymous in the scientific community.
The land use / land cover is the result of permanent adjustment between the constraining properties of land and the socio economic attributes whereas the land utilization type defines the technical details about cultivation / form details. Therefore, in order to understand man and his interaction over the land the present chapter deals with the land use/ land cover and the associated properties of land utilization of the study area. The Land Use / Land Cover of Tuticorin coast has been brought out in the present chapter. The study is based purely on remotely sensed data and

field checks.The spatial land uses were classified based on NRSA (National Remote Sensing Agency, 2003) guidelines with slight modifications and derived 19 land use classes (Level III), suitable to the local condition. They are **Built-up lands** (Urban, Rural, and Industrial) **Agricultural lands** (Crop land: Kharif, Rabi and Double Cropped area, Fallow land, Energy/Commercial/Shelter Plantations), **Forests** (Scrub forest, Forest blanks), **Wastelands** (Land with Scrub, Land without Scrub, Salt affected land, Sandy area, Tidal flat, Swampy / Marshy and Reef area), **Water bodies** (Rivers/ Streams/Tanks) and **Others** (Saltpan, Roads and Railways) in the Tuticorin coastal zone.



Methodology

The study is based on secondary data collected from various published sources like various issues of Bihar through Figures, Statistical Handbook of a Agriculture, Bihar Economic Survey and also various online resources like websites of Agriculture Department and Horticulture Mission of Government of Bihar for the period under reference , i.e., 2003-2013.

Bihar has been divided into three agro- climate zones such as Zone-I, Zone – II and Zone – III based on soil, land use, topography and other such natural parameter. Zone- I and Zone – II are located north of river Ganga and are named and north western and north eastern. Alluvial Plains Zone,

Respectively are characterized as flood prone compared to Zone-III, which falls under south of river Ganga and are called as south Bihar Alluvial Plain Zone.

Result and discussion

Table-I reveals the change in land use pattern during the periods between TE-2003 and TE-2013, showing change in depressed activities over the periods. The higher the proportion of net shown area to the total geographical area higher the agricultural production (Malik-2012). It is observed that the net shown area for the state as a whole has markedly reduced from 63.73% during TE-2003 to nearly 57.19% during the year TE-2013, the compound growth rate for the same was also found to be negative

(- 1.29%) rise in the area under non-agricultural uses, land under trees and groves as well as area under current follow may also be the one of the reasons for decline in net shown area. The area put to non-agricultural uses has sharply ascended from 17.53% to 18.20%, the area under this category increased at 0.20% per annum.

TABLE: 1 LAND UTILIZATION PATTERN IN BIHAR (AREA IN '000 HA')

S.I . No.	Particulars	TE – 2003	TE – 2013	CGR (2003-2013)
1.	Geographical area	9359.57 (100.00)	9359.57 (100.00)	-
2.	Forests	619.91 (6.62)	621.64 (6.64)	0.00
3.	Barren and uncultivable Land	436.46 (4.66)	431.71 (4.61)	-0.06
4.	Land put to non agricultural use	1641.05 (17.53)	1703.50 (18.20)	0.20
(a)	Land area	1278.98 (13.66)	1346.77 (14.39)	0.27
(b)	Permanent water area	207.39 (2.22)	207.39 (2.22)	0.00
(c)	Temporary water area	154.68 (1.65)	149.02 (1.59)	-0.18
5.	Cultivable waste Land	46.22 (0.49)	45.15 (0.48)	0.09
6.	Permanent pasture	17.77 (0.19)	15.67 (0.17)	-0.66
7.	Land under trees and groves	234.21 (2.50)	245.10 (2.62)	0.16
8.	Follow Land other than current fallow	134.21 (1.43)	121.59 (1.30)	-0.43
9.	Current fallow	545.86 (5.83)	822.72 (8.79)	2.21
10.	Total uncultivable land (2 to 8)	3675.70 (33.99)	4007.08 (35.77)	0.41
11.	Net area shown	5683.87 (60.63)	5352.49 (57.19)	-0.29

Agro-climatic zone-wise land use pattern in Bihar

Land use pattern in agro-climatic zone-I (Table -II) reveals that the net shown area has declined from 66.01 to 64.23% during the period TE-2003 and TE-2013, per annum decline in it (growth rate) was estimated as negative (-0.10%). The area under another activity such as agricultural uses has been recorded as to escalate at 0.13% compound growth rate.

TABLE: 2 LAND USE PATTERN IN AGRO-CLIMATE ZONE-I OF BIHAR (AREA IN '000' HA)

S.I. No.	Particulars	TE – 2003	TE – 2013	CGR (2003-2013)
1.	Geographical area	3449.10 (100.00)	3449.10 (100.00)	-
2.	Forests	91.86 (2.66)	91.86 (2.66)	0.00
3.	Barren and uncultivable Land	101.37 (2.94)	100.00 (2.90)	-0.08
4.	Land put to non agricultural use	685.05 (19.86)	703.28 (20.39)	0.13
(a)	Land area	526.64 (15.27)	547.33 (15.87)	0.20
(b)	Permanent water area	88.85 (2.58)	88.85 (2.58)	0.00
(c)	Temporary water area	69.57 (2.02)	66.95 (1.94)	-0.22
5.	Cultivable waste Land	5.47 (0.16)	5.11 (0.15)	0.30
6.	Permanent pasture	5.84 (0.17)	5.35 (0.16)	-0.41
7.	Land under trees and groves	144.64 (4.19)	150.48 (4.36)	0.16
8.	Follow Land other than current fallow	25.37 (0.74)	23.14 (0.67)	-0.42
9.	Current fallow	112.87 (3.27)	154.43 (4.48)	0.98
10.	Total uncultivable land (2 to 8)	1172.47 (33.99)	1233.66 (35.77)	0.19
11.	Net area shown	2276.63 (66.01)	2215.44 (64.23)	-0.10

Further, the land under tree crops and groves has also grown up at 0.16% per annum growth rate. The barren and uncultivable land includes land in mountains and heel slops, desert plateau, rocky area and extremely degraded lands. These lands cannot be brought under cultivation unless at very high input cost with possible low returns. So it is not beneficial to bring these lands under cultivation because it demands a very high input cost with possible low returns (Malik, 2012). It is observed that the areas under barren land uncultivable land have reduced marginally over the period under study.

Land use pattern in agro-climatic zone-II of the state has been presented in table 3. A perusal of the figures presented in the table indicates that net sown area continued to declined as its growth rate declined at the rate of (-) 0.03% per annum.

TABLE: 3 LAND USE PATTERN IN AGRO-CLIMATE ZONE-II OF BIHAR (AREA IN '000' HA)

S.I . No.	Particulars	TE – 2003	TE – 2013	CGR (2003-2013)
1.	Geographical area	1798.12 (100.00)	1798.12 (100.00)	-
2.	Forests	3.09 (0.17)	3.09 (0.17)	0.00
3.	Barren and uncultivable Land	100.13 (5.57)	99.16 (5.51)	-0.06
4.	Land put to non agricultural use	323.64 (18.00)	335.28 (18.65)	0.18
(a)	Land area	241.30 (13.42)	252.97 (14.07)	0.24
(b)	Permanent water area	58.81 (3.27)	58.81 (3.27)	0.00
(c)	Temporary water area	23.53 (1.31)	23.48 (1.31)	0.01
5.	Cultivable waste Land	6.56 (0.36)	6.01 (0.33)	-0.42
6.	Permanent pasture	2.90 (0.16)	2.45 (0.14)	-0.86
7.	Land under trees and groves	59.84 (3.33)	61.79 (3.44)	0.11
8.	Follow Land other than current fallow	33.90 (1.89)	33.41 (1.86)	0.28
9.	Current fallow	100.39 (5.58)	122.40 (6.81)	1.19
10.	Total land (2 to 8)	630.46 (35.06)	663.59 (36.90)	0.07
11.	Net area shown	1167.66 (64.94)	1134.53 (63.10)	-0.03

Following in the same trend in zone-I, the area put to non agricultural use and the land under tree and crops and groves in zone-II also showed an increasing trend which recorded to have CGR 0.18% and 0.11%, respectively. The reasons for decline in the net sown area and rise in the land under tree crops and groves may probably be the same has been explained earlier. The interesting point to note is that in zone-II, area concerning fallow land other than current fallow has registered increasing trend, revealing the CGR at 0.28%.

The growth in current fallow area was recorded comparatively larger (1.19%). Since, zone-II is more flood prone area, thus the fallow lands of both categories in this zone may have increased due to the reasons that the farmers may have kept their land as fallow on account of recurring devastating flood.

Table 4 consist of land use pattern of agro-climatic zone-III of the state revealed the extent of chains accrued so far in different activity, included in the table over the period under study.

TABLE: 4 LAND USE PATTERN IN AGRO-CLIMATE ZONE-III OF BIHAR (AREA IN '000' HA)

S.I . No.	Particulars	TE – 2003	TE – 2013	CGR (2003-2013)
1.	Geographical area	4112.36 (100.00)	4112.36 (100.00)	100
2.	Forests	524.95 (12.77)	526.68 (12.81)	0.00
3.	Barren and uncultivable Land	234.96 (5.71)	232.55 (5.65)	-0.06
4.	Land put to non agricultural use	632.36 (15.38)	664.94 (16.17)	0.27
(a)	Land area	511.04 (12.43)	546.47 (13.29)	0.35
(b)	Permanent water area	59.73 (1.45)	59.73 (1.45)	0.00
(c)	Temporary water area	61.58 (1.50)	58.59 (1.42)	-0.22
5.	Cultivable waste Land	34.19 (0.83)	34.03 (0.83)	0.00
6.	Permanent pasture	9.04 (0.22)	7.87 (0.19)	-0.76
7.	Land under trees and groves	29.73 (0.72)	32.84 (0.80)	0.23
8.	Follow Land other than current fallow	74.94 (1.82)	65.04 (1.58)	-0.77
9.	Current fallow	332.60 (8.09)	545.88 (13.27)	2.84
10.	Total Uncultivable land (2 to 8)	1872.77 (45.54)	2109.83 (51.30)	0.66
11.	Net area shown	2239.59 (54.46)	2002.52 (48.69)	-0.62

So far as the net sown area is concern, the compound growth rate was estimated negative (-0.62%), indicating thereby declined in net sown area over the periods TE-2003 to TE-2013. There has been a rapid increase in the area put to non agricultural uses as it was upheld by the comparatively larger compound growth rate (0.27%). Larger growth in this category of land may be assigned to the fact that the pace of urbanisation, zone being the centre capital of the state, was comparatively high in this zone.

The other reason may be concentration of industries, fast pace of expansion of infrastructure in this zone. The land covered under trees ad groves has also gone up to 0.23% compound growth rate, because cultivators of this zone are leaving their lands under this category due to scarcity of irrigation water sharpened by declining water table in the area. On the other hand, the current fallow land has been found at 2 .84% per annum growth rate, this may probably be also on account of scarcity of irrigation water arising from declining water table in the zone, farmers are putting their land as current fallow.

Conclusion

It is quite apparent from agro climatic zone wise analysis above, hat net sown area has reduced sharply in zone-III as compared to zone-I and zone-II. Further, net sown area for the state as whole has also shown a declining trend which might be due to increase ion the following categories land such as area under non-agricultural uses, area put to trees and groves and areas under current follows in the state. The pressure of arising population on land has led shift of cropped land towards the categories of non-agricultural uses. The scarcity of irrigation water , labour etc. may be the probable cause for shift of land to trees crops current fallows. Other studies have also found that declined in net sown area is mainly due to unabated and massive conversion of agricultural land for building houses and construction of infrastructure. Similarly, increase in current fallows might be due to erratic rainfall, peak time scarcity of labour, unreliable and costly irrigation and tiny unviable farm holdings in Bihar. Policy makers are not realizing the

challenge posed to agriculture due to decline in net area sown area and increasing fallow and in the state which warrants their immediate attention (Singh et al. 2014.

On account of rapid change in climate world over, water table in the state has also gone down leading to rising cost of irrigation. Future, due to shortage of electricity the state largely uses diesel pumps for irrigation this along with declining water table puts the small and marginal farmers of the state under tremendous pressure as to how rise the productivity income from per unit decreasing crop land. Contemplating for going discussion, it may be suggested that timely supply of quality seeds, fertilizers larger use of electrical and solar devices for abstraction of irrigation water, distillation of canals and also linking different canals as well as proper marketing of agricultural produces will certainly encourage the farmers for not putting their land as current fallow and also help in harvesting garnering more income.

Reference

1. National resources planning Board, USA land classification in united states, 1941 P.1
2. Census of India reports for 1951,vol. I.P. 8
3. Statesman year book, 2004
4. Economic survey, 1971-1972, P.76
5. Satellite, Imagery report, Hyderabad, 2004
6. Department of agriculture, Gov. of Bihar, http://krishi.bih.nic.in/
7. Gov. of Bihar, Annual Report, Department of Agriculture, Gov. of Bihar (various issues)
8. Gov. of Bihar, Economic survey, Department of Finance (various issue)
9. Gov. of Bihar, Statistical handbook (various issues)
10. http://www.fao.org.docrep/x5310e/x5310e03.html.