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LAND USE AND AGRICULTURE IN PATNA DISTRICT

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Abstract: Land is one of the most important resources which define the activities, habit and behaviour of mankind. It provides the space for human dwellings, factories, cultivation, forest, communication lines and other activities. In India, land use statistics are available in nine categories: (1) Forest (2) Land put to non-agricultural uses (3) Barren and uncultivable land (4) Pasture land (5) Orchards/ Tree crops (6) Cultivable waste (7) Fallow land (8) current Fallow land and (9) Net sown area. Agricultural importance of the study area is very significant. Production of Rice, pulses, vegetables and seasonal fruits are the most important agricultural products. The main objective of this paper to describe the land use and to analyse the salient features of agriculture of Patna district. The study is based on secondary sources of information. Secondary source of information will be collected will be collected from Books, Census Handbook, reports, journals Newspapers and websites etc. Flood prone areas are being used as wet land and here single crop is grown. All the villages have higher percentage of land in agricultural use. Suitable conditions of the land Use have influenced the net sown area of all the development blocks. Patna District is important for the development of production of rice, pulses vegetables and seasonal fruits. An agriculture condition of the Patna District is significant and favourable.

Keywords: Land use, Agriculture, Production.

I. INTRODUCTION

Land is one of the most important resources which define the activities, habit and behaviour of mankind. It provides the space for human dwellings, factories, cultivation, forest, communication lines and other activities. FAO, (1997) defined land use as “The arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it”. The land use pattern changes with the increasing pressure of populations and consequent demand for cereals, development activities and technology advancement (Sinha et al. 2013). In India, land use statistics are available in nine categories: (1) Forest (2) Land put to non-agricultural uses (3) Barren and uncultivable land (4) Pasture land (5) Orchards/ Tree crops (6) Cultivable waste (7) Fallow land (8) current Fallow land and (9) Net sown area (Natural resource census, 2007).

Land use of Patna District has been remarkably influenced by the development of irrigational facilities, transport networks and urbanisation and other agricultural infrastructures. Agriculture is also one of the categories of the land use. It includes the cultivation and breeding of animals, plants and fungi, for food, fibres, bio fuel, medicinal plants and other products used to sustain and enhance human life.

II. OBJECTIVES

The paper has been prepared with the following objectives:

- (i) To describe the Land Use in the Patna District.
- (ii) To analyse the salient features of Agriculture in Patna District.

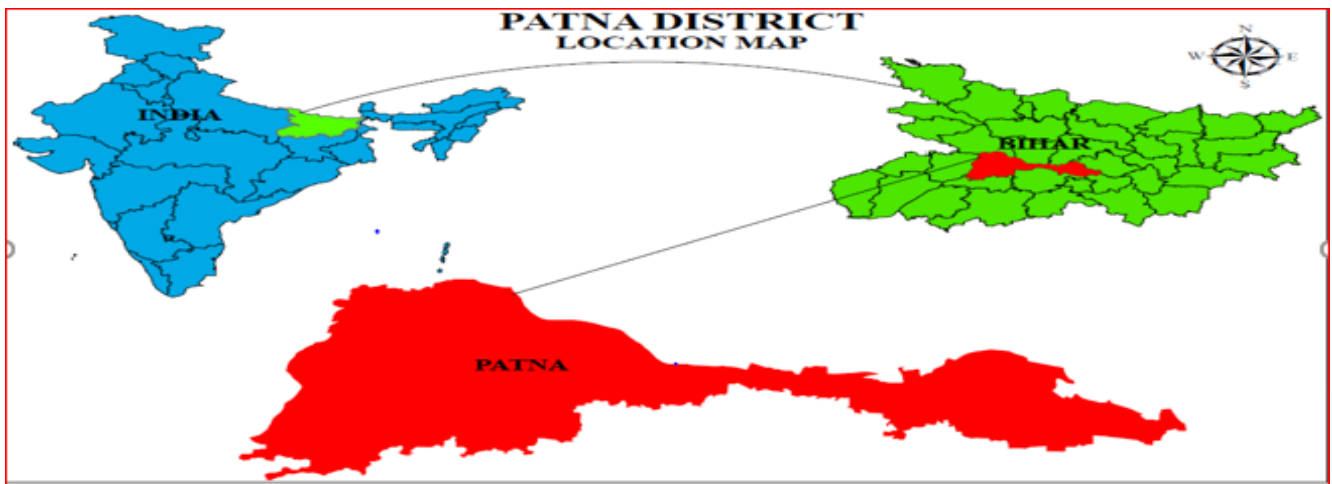
III. METHODOLOGY

The paper is based on secondary sources of information related to land use and agriculture. This information has been obtained from District Census Handbook, reports, journals etc. Some information has been collected from the websites.

3.1 STUDY AREA

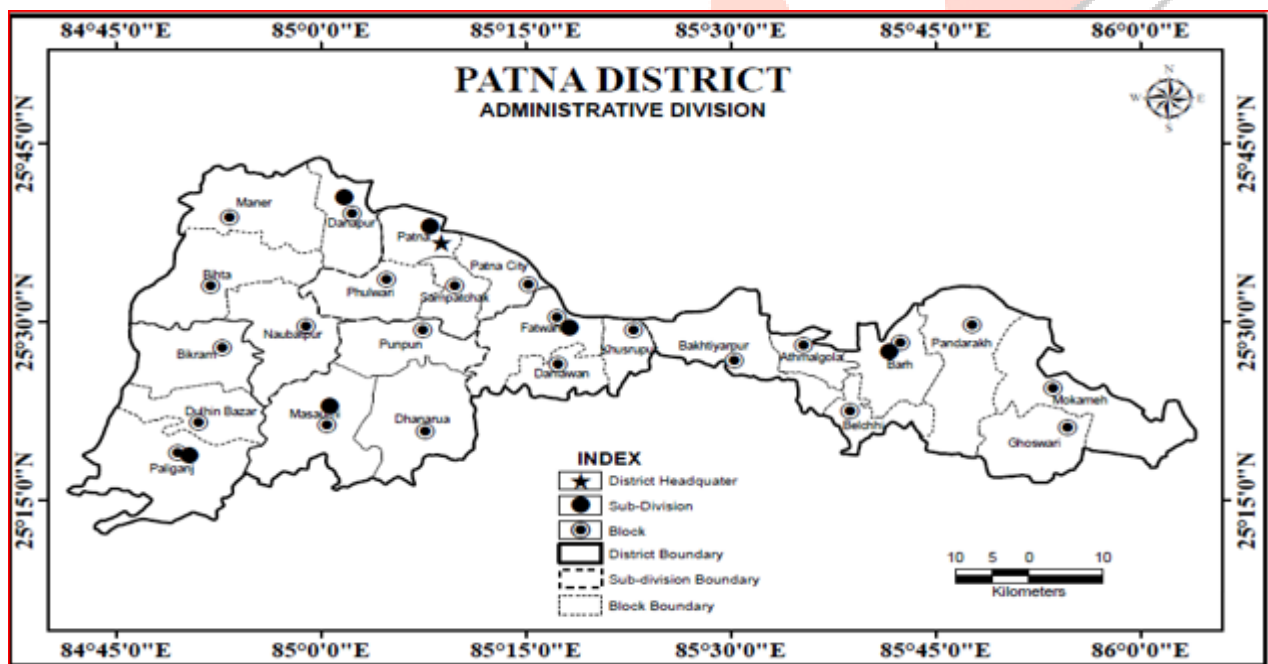
Patna District lies virtually in the heart of South Bihar Plain. The district is bounded in the north by river Ganga. Lakhisarai and Begusarai district in the east, Jahanabad and Nalanda in the south, Bhojpur district in the west. Patna District extends between $25^{\circ}13'$ and $25^{\circ}45'N$ latitude and $84^{\circ}43'$ and $85^{\circ}44'$ E longitude.

Figure No. - 1: Location Map of Patna District



Source: census of India, 2011

Figure No. - 2: Administrative Division of Patna District



Source: census of India, 2011

IV. LAND USE PATTERNS IN THE DISTRICT

The history of land use in the study area is supposed to be very old. Land of this region must have been utilised as per the conditions of different historical periods. In the present context, the land use of this region is influenced by the development of irrigation facilities, other agricultural infrastructures, transport networks and urbanisation.

Western part of the study area is influenced by the Son canal irrigation system, which has the great impact on the land utilisation. Similarly, the flood prone areas of the Tal region of Magadh Plain is being used as wet land and it is suitable for the single crop. Shifting course of the river in Diara region makes it waste land. Percentage of non –

agricultural use of land increases in the fringe of urban centres. Agricultural use of land in the study area is very important. Almost all the villages have a very high percentage of land under cultivation. The land use pattern of the State and District may be viewed from the table 1.

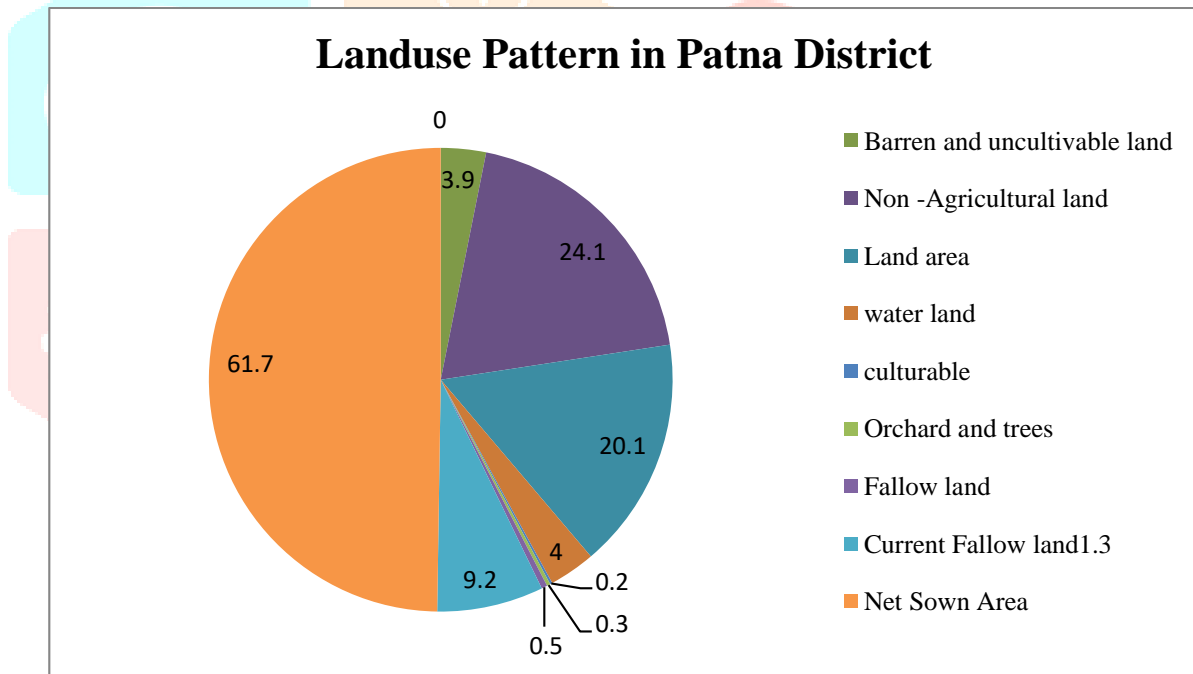
Table No. – 1

Land Use Patterns in the Patna District, 2008-09

Sl. No.	Land Use	Bihar Area (in %)	Patna Area (in %)
1	Forest	6.6	0.0
2	Barren and uncultivable Land	4.6	3.9
3	Non-Agricultural land	17.8	24.1
4	Land Area	14.0	20.1
5	Water land	3.8	4.0
6	Culturable waste	0.5	0.2
7	Pasture land	0.2	0.0
8	Orchard and Trees	2.6	0.3
9	Fallow land	1.3	0.5
10	Current fallow land	7.0	9.2
11	Net sown Area	59.4	61.7
Total	Geographical Area	9359.57(in '000 hectares)	317236(in hectares)

Source: Directorate of Economic and Statistics, Government of Bihar, Patna 2008-09

Figure No. - 3: Land Use Pattern in Patna District



Source: Self computed on the basis of Table -1

Table: 1 shows an approx. Land use pattern in the study area. Patna district is devoid of area under forests. Net shown area in the district is 61.7% whereas 24.1% land is under non – Agricultural use.

Table No. – 2
Block Wise Land Use of the District

Block wise Land Use Pattern of Patna District, 2007 (in percentage)							
Sl. No.	Name of Blocks	Area (Ha)	Net Shown Area	Area Under Non-Agricultural Uses	Land Under Miscellaneous Plantation Covered Area	Fallow Land	Others
1	Patna Sadar	14498	18.5	53.2	1.8	12.2	14.3
2	Phulwari	10648	44.2	25.8	0.53	24.2	5.27
3	Fatwah	12636	74.31	24.07	0	0.03	1.59
4	Masaurhi	20243	80.2	19.28	0	0.52	0
5	Punpun	12875	63.38	15.54	0	20.17	0.91
6	Dhanarua	18555	69.38	22.5	0	8.1	0.02
7	Barh	10960	68.51	17.36	0	9.7	4.43
8	Bakhtiarapur	19639	70.12	16.5	0	12.31	1.07
9	Pandarak	20490	49.2	35.99	0.67	12.58	1.56
10	Mokameh	18161	55.5	19.13	0	11.41	13.96
11	Dinapur-Cum-Khagaul	12450	23.63	45.21	0	1.91	29.25
12	Maner	17070	58.08	39.56	0.19	2.16	0.01
13	Bihta	19392	64.37	21.83	0.15	5.13	8.52
14	Naubatpur	16794	83.89	14.63	0	0.48	1
15	Bikram	14815	77.21	21.72	0.3	0.01	0.76
16	Paliganj	23776	79.01	19.88	0.25	0.16	0.7
17	Dulhin Bazar	10168	79.31	16.34	0.3	1.58	2.47
18	Sampatchak	6535	78.35	19.93	0.53	0.31	0.88
19	Daniawan	6510	79.12	19.12	0	1.56	0.2
20	Khushrupur	6139	79.21	16.33	0.25	1.88	2.33
21	Athmalgola	4042	76.81	21.51	0	1.36	0.32
22	Belchhi	6857	72.31	21.31	0.39	2.31	3.68
23	Ghoswari	13983	64.31	19.21	0	8.21	8.27

Source: District Statistical Handbook, 2007, Bureau of Applied Statistics and Economics, Government of Bihar

The people of this region have put most of the land into agricultural use because of the pressure of man on land and increasing demand of food crops and other agricultural products. Most of the development blocks have very high percentage of net sown areas because of suitability of land for agriculture. The highest percentage of net sown area has been noted in the development block of Naubatpur (83.89 %). Other development blocks having net sown areas above (75 %) include Masaurhi, Dulhin Bazar, Paliganj, Bikram, Daniawan, Sampatchak, Khushrupur, Bakhtiarapur and Athmalgola. Urban areas have comparatively lower percentage of the net sown area, especially in Patna sadar (18.5%) and Dinapur cum khagaul (23.63%). The current fallow land includes the land which remain uncultivated at one time of reporting year which was caused by unprecedented menace of floods, failure of monsoon, and non -availability of agricultural inputs. Patna District has large portion of lands (9.2%) under this category i.e. area under current fallow land. Phulwari Block (24.2%) has the highest percentage of area under fallow land followed by Punpun, Pandarak, Patna Sadar, Bakhtiarapur, and Mokameh. Other use of land is higher in Danapur- cum- khagaul (29.25%) and Patna Sadar (14.3%) block. It is important to note that almost all development blocks have some area under non-agricultural use which is primarily used for settlements, roads, panchayat bhawan, schools, religious places etc. The areas having urban settlements have more land under non-agricultural use. The non – agricultural use of land is higher in the Patna sadar (53.2%), Danapur – cum –khagaul (45.21%) and Maner (35.9%).

V. AGRICULTURE

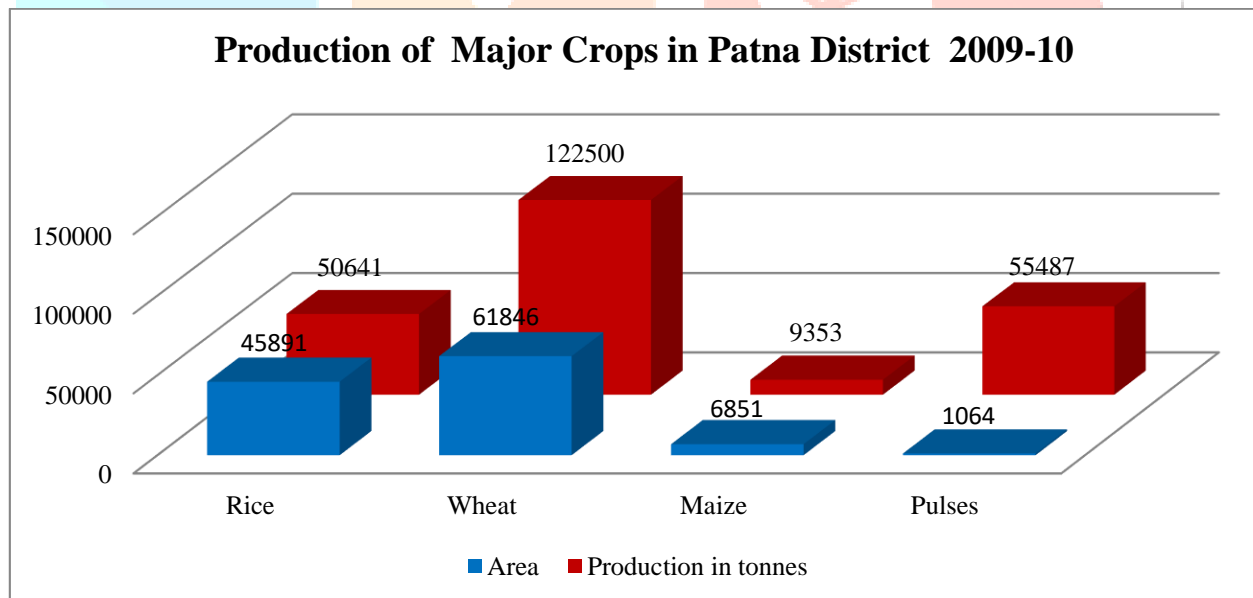
Agricultural importance of the study area is very significant. Patna District has been important in the state of Bihar for the production of rice, pulses and vegetables like potato, onion and often green vegetables. Kewal soil of this region has favoured the production of rice, pulses and potato. This region has remained important for the production of red potato. Onion has also remained an important crop, because people of Bangladesh prefer onion of this region more than the onion of other areas. The urban growth of Patna motivated farmers to grow cash crops or such crops which enable them to earn more money. Production of cereals has been considerably affected by the importance of market-oriented crops. Production of green vegetables and seasonal fruits has remarkably increased because of the urban demand. In true sense the production of cereals has been considerably affected by the importance of market-oriented crops.

Table No. - 3

Production of Major Crops in Patna District 2009-10

Major Crops	Crops Area 2009-10(Area in '000 hectares)	% of crops to Net sown Area	Production in tonnes
Rice	45891	23.44	50641
Wheat	61846	31.59	122500
Maize	6851	3.50	9353
Pulses	1064	9.2	55487

Figure No. - 4: Production of Major Crops in Patna District during 2009-10



Source: Self computed on the basis of Table -2

Area lying near the rail routes or National Highway has recorded more changes in agricultural production, but areas lying in the interior are still important for the production of food crops. The change in the production of food crops has been influenced by the development of agricultural infrastructures like means of irrigation, availability of chemical fertilisers and high yield seeds, marketing system, banking facilities etc. The western part of the Patna District has relatively better condition for production of crops due to canal irrigation facilities. People of this region grow rice, wheat and pulses. Seasonal vegetables and fruits are grown in the central and eastern part of the district. In some area multiple crops are produced because people have developed irrigation facilities by installing their own tube well. It is important to point out that the district of Patna has more areas suitable for growing several crops in a year. Certain flood affected areas, like Tal or Diara which are low laying jalla areas

remain suitable for growing only one crop like Rabi crops but some people try to grow variety of maize before the rainy season starts. People of this area also try to grow some vegetables after harvesting of the Rabi crops. The flood areas having irrigation facilities remain suitable for growing Aghani, Rabi and Garma crops. Area close to the urban centres having irrigation facilities even try to grow more than three to four crops specifically vegetables for marketing purposes.

There are four seasonal crops in Patna District i.e. Bhadaï, Aghani, Rabi and Garma. The importance of Bhadaï crops has been noted in the blocks having Diaraland and highly flood prone Tal area. The highest percentage of Bhadaï crop area is found in the Maner block. People of this block prefer to grow maize, watermelon, cucumber and other vegetables before the arrival of flood water. Other blocks having Bhadaï cropped area more than district's average are Ghoshwari, Mokameh, Pandarak, Khushrupur, Bakhtiarapur, and Athmalgola. Out of these blocks Ghoshwari, Mokameh and Pandarak have more Tal area.

Aghani crop is important into almost all areas except Diara and Tal areas. The highest percentage of Aghani cropped area has been found in the Patna block. Naubatpur, Belchhi, Dulhin Bazar, Paligang, Dhanarua, Daniawan, Punpun, Bikram, Barhet are other important Aghani crop producing blocks in district.

Rabi crops have become more important during recent years because people prefer for wheat and costly pulses. Diara and highly flood prone areas are specialised in different Rabi crops. Patna District is famous for the production of masoor and mustard. The highest percentage of Rabi cropped area has been noted in the Ghoshwari block followed by Pandark, Mokameh, Maner, Athmolgola, Bihta, Sampatchak, Phulwari.

On account of increasing demand of vegetables Garma crops areas are also significant in the Patna District People grow vegetables like gourd, onions, ladies-finger, bitter-gourd etc for supplying to Patna and other urban centres. The highest percentage of Garma cropped area has been noted in the Danapur – cum – khagaul (15.84%) block. Other blocks having Garma cropped area more than the district's average (4.41%) followed by Ghoshwari, Mokameh, Maner, Barh, Bakhtiarapur, Phulwari, Patna Sadar etc.

VI. CONCLUSIONS

Above study shows that the land use pattern and agricultural production of the Patna District is not uniform. Land nearer to the urban growth is used for the non-agricultural purposes. Development of irrigation facilities, other agricultural infrastructures, transport networks and urbanisation has influenced the land Use of the District. Flood prone areas are being used as wet land and here single crop is grown. All the villages have higher percentage of land in agricultural use. Suitable conditions of the land Use have influenced the net sown area of all the development blocks. Patna District is important for the development of production of rice, pulses vegetables and seasonal fruits. An agriculture condition of the Patna District is significant and favourable.

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