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Physical Resources And Environment (A Case Study of Patna Division)

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1. Introduction

The environment incorporates the interplay of many physical and chemical factors - a biotic factor - that different species respond to. A biotic factor can be categorized as conditions or resources conditions which include temperature (extremes of heat and cold, as well as average temperature), wind, (acidity), salinity and fire. Within aquatic systems for example, the key conditions are salinity (fresh water vs. salt water), temperature, the texture of the bottom (rocky vs. silt), the depth and turbidity (cloudiness) of the water and currents.

The degree to which each a biotic factors present (or absent) profoundly affects the ability of organisms to survive. However, each species may be affected differently by each factor. This difference in response to environmental factors determines which species may or may not occupy a given region or a particular area within a region. In turn, the organisms that do or do not survive determine the nature of a given ecosystem.

2. Area of study:

The South Gangetic Plain of Patna division is mainly an agricultural region where 80% population is engaged in primary occupation.A comparatively 70% population depends upon agriculture in Jharkhand state. As such some areas have recorded remarkable changes in geographical conditions influencing agricultural activities". Moreover the development of agricultural land for growing different food crops, commercial crops and related activities has brought some spatial variations especially in the high flood prone areas and flood affected areas. Agriculture contribution is not only food stuff but also raw material for industries. "Along with a powerful industry a flourishing, versatile and highly productive agriculture is an imperative condition for the building of communism."So, agriculture has been a life style of the study region.

3. Hypothesis

1. 1.Through endowed with good soil, adequate rainfall and good ground water availability.
2. The study region is full of the Natural resources potential.
3. To develop of Tourism hubs with Natural Resources with environmental sustainability.

4. Methodology

It incorporates the following stages of methods

1. Study and comparison of the area under study with that of the Topo-sheet.
2. Field — work -- intensive field-work have been done to procure relevant primary data and information.
3. On the basis of procured data and information and secondary data, a number of maps and diagrams have been drawn.
4. A few photo-graphs have also been snapped as photo-illustrations.

5. Geology and relief

Landforms and water bodies constitutes the earth's surface. Hilly areas and plains all necessitate difference in human activities in order that man may make the best use of his environment. The economic importance of all these landforms lies in so far as they determine man's habitation, occupation and the lines of movement.

The region appears to have been occupied by human settlements deep down during the pre-historic times. Fifteen thousand years ago, man in this region was in the Paleolithic age, with a nomadic way of life. Civilization based on rudimentary agriculture and cradle metal working dates back to about 10,000. Even as late as "3500-2500 B.C. man eked out a precarious existence, and there was hardly any trade in essential commodities. Indeed there was no surplus; man lived on the edge of the needs".

Magadh was then an impure non-Aryan region." Resourceful Magadh which was not filly aryanised even up to the Buddha and which became "one of the earliest homes of Buddhists and remained a centre of that faith until the Muslim conquest."

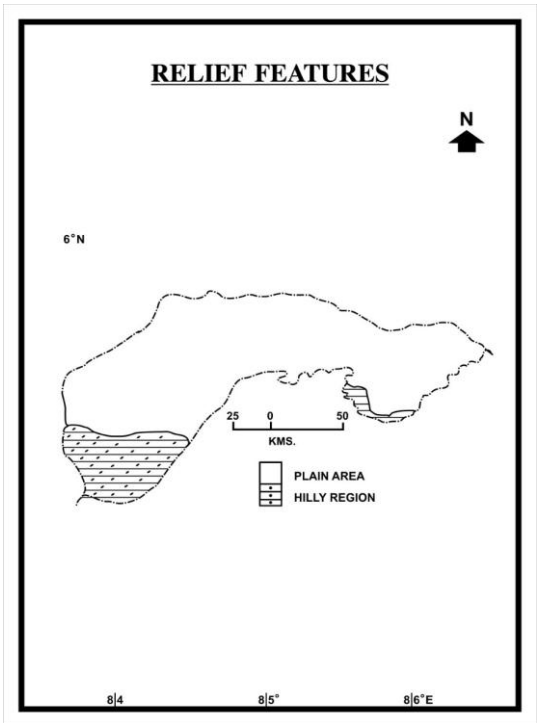

Fig. No. 1.1

Structurally the region is a segment of the great Indo-Gangetic trough. 'The relief east of the Karmanasa edge is relatively more regular, particularly in the Bhojpur Plain, while the general surface east of the Son is more or less even and is dotted with residual conical hillocks, sometimes forming elongations up to the bank of the Ganga. The lower Son valley is a physiographic unit in its o right, although the flood-plain is itself narrow. East of the Son in the Magadh Plain, there are a number of hills like the Banbar, the Rajgir-Jethian (446 meters in Rajgir). One rather peculiar feature is the extension of the low-lying area known as the TAL in Patna district, South of the levee of the Ganga, perhaps marking the old bed of the Sone.

Climatic Features:

The climate of a region is a description of the avenge temperature and precipitation — the weather — that may be expected on each day throughout the entire year. These elements may vary greatly. Precipitation may be evenly distributed throughout the year or concentrated in certain months, dividing the year into wet and dry seasons. Different temperature and rainfall conditions may occur in almost any combination yielding a wide variety of climate In turn, a great climate will support only those species that find the temperature and precipitation levels optimal or at least within their ranges of tolerance. A species will be excluded from a region (or local areas) where any condition is beyond its Limit of tolerance.

According to Or, Julius Hann, Climate is the sum — total of the meteorological phenomena that characterize the average condition of the atmosphere at any place on the earth's surface. Weather is only one phase in the succession of phenomena whose complete cycle, recurring with greater or lesser uniformity every year, constitutes the climate of any Locality.[i]

Certain climatic elements have the greatest controlling effect upon agriculture and other economic activities performed by the man. The amount of rainfall and reliability of rainfall, the incidence of drought, flood and front playa a decisive role in the sphere of agriculture and agro-based industries.[ii]

Climate is a factor of the environment which makes it felt through the primitive wants of food and shelter at every step. Climate is an invaluable natural resource. It has innumerable application to every human activity. Climate is the most fundamental factor in the development of man on the face of the earth.[iii]

Climate provides an important influence on Health. According to Sample "Climate enters fundamentally into all consideration of geographic influences, either by implication or explicitly. It s a factor in most physiological and psychological effects of environment."[iv]

The span of the, Patna Division lie between the Himalaya on the north and the Peninsula foreland in the South, and Jack of physical undulations to check the sweeping winds and air-currents from the east and west, conspire to make the region only transitional in character between the relatively drier upper and per humid lower Gangs Plains on its west and east respectively.[v]

The climatic features of the division can be better understood with reference to the three seasons the region experiences. The period of a year is popularity divided into three broad seasons:

(1). Cold. Weather season (November to Mid-March)
(2). Hot-weather season (Mid-March to Mid June) and
(3). Season of general rains (Mid-June to September)

The month of October is a sticky transitional month between rainy season and cold season.

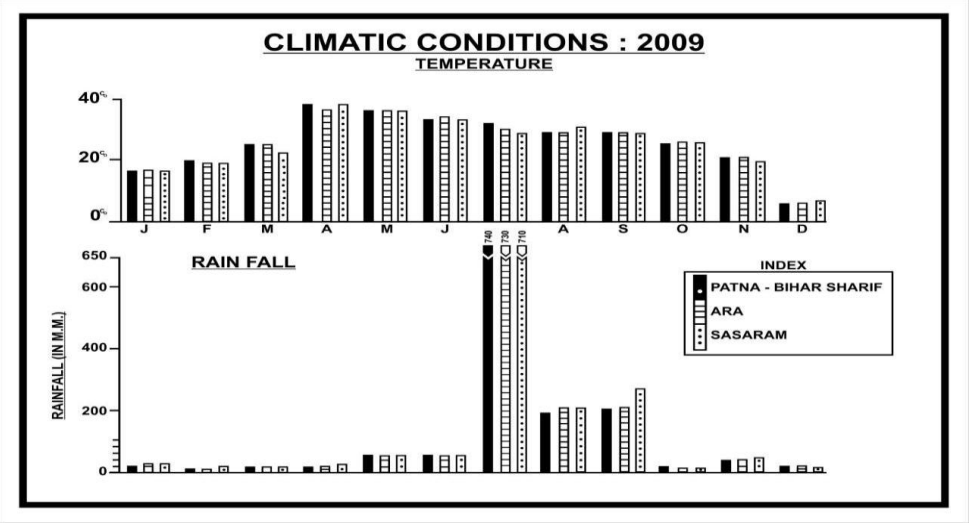

Fig. No. 1.2

6. Natural Vegetation (Forests Resources) :

Plants -Plants play very dominant role in the biosphere because these are primary production in the biosphere and provide directly or indirectly food to all terrestrial and aquatic animals including math On the basis of importance and dominant role of plants in the biosphere the study of plants is given more significance. The study of plants has been developed as an important branch of geography which is called as Plant Geography which comprises the study of classification of plants, their spatial distribution, origin and development, dispersal and extinction and functions. The main fictions of plants are to trap energy and prepare their food with the help of photosynthesis and to circulate and transfer energy and nutrients among the organisms of different tropic levels of the food chain.

The word 'Forest' originally means a large tract of land consisting of woody grounds pastures and whole villages where the king had the right to chase."

But most of the forest lands were laid bare where colonization was attempted and where towns and villages grew. In a few cases, deforestation had been on such a large scale that hardly it could be recognized that it was deeply forested.

In the north-eastern part of the study area some forest is found mainly on the Rajgir and Jethian hill ranges. "Except for some JUNGLES (Forest) in the Rajgir hills the district (Patna old) is devoid of forest wealth of any consequences. Of late, sonic a forestation work has been taken up in the Rajgir hills"

Table No. 1.3

FORESTED AREA OF THE DISTRICTS OF PATNA DIVISION: (2001)

Sr.no.	District	Percentage of total area of the district
1.	Kaimur	32.86
2.	Rohtas	14.58
3.	Nalanda	1.98
4.	Patna	0.02
5.	Bhojpur	- -
6.	Buxer	- -
	Total of Bihar State	5.19%

SOURCES: Statistical Dept., Patna.

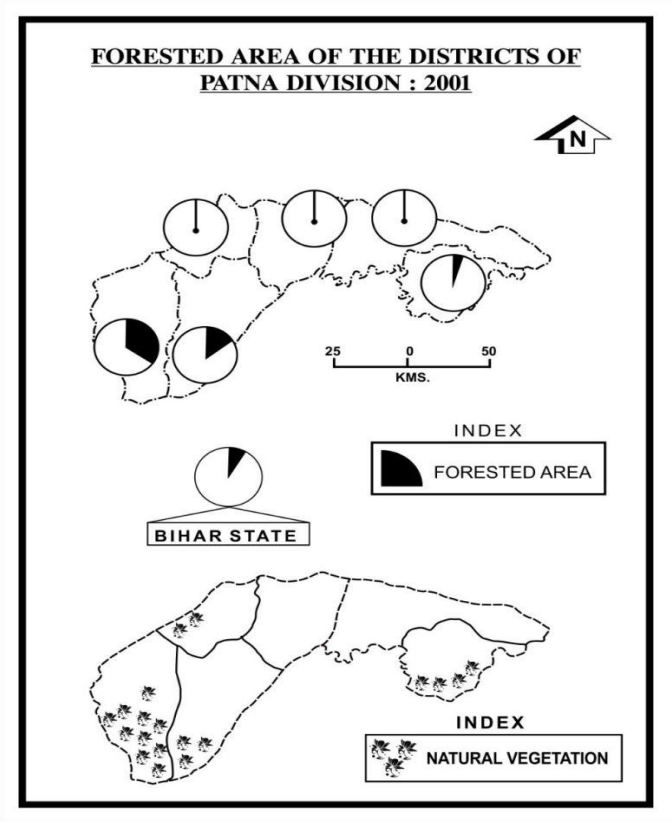

Fig. No. 1.3

SOIL :

Soil features : Soil, science is an integrative science that is at the heart of agricultural and forestry practice. The results of many years of study of soils have provided a system of classification of soil profiles and soil structure and a taxonomy of soil types in different areas. For the best growth, plants need a root environment that supplies optimal amounts of mineral nutrients, water and air (Oxygen). Soil fertility — the soils ability to support plant growth, after means specifically to the presence of proper amounts of nutrients. But the soil's ability to meet all the other needs of plants is another components of soil fertility[vi]

The history of civilization is the history of the soil, and the education of the individual begins from the soil".

- - Wilcox.

Soil is a layer of unconsolidated material at the earth's surface which has been derived from rocks and organic matter through agencies of decay and disintegration.[vii] Each sort of rock has its own peculiar uses as a raw-material, whether for building or for industry. Man's earliest shelter so far as we know, on archaeological findings was a natural rock cave, rock shelters and caverns. The geographical significance of stone consists primarily in its usefulness as building materials, Bedrock strongly influences shapes, size and development of the erosion landforms. Over and above building stones and

roofing slates, rock are used as paving slabs, gravel for paths, granite for road- making, concrete for construction of dams and clay for bricks and pottery"[viii]

The soils of the study area may be divided into the following types:

(i). Heavy clayey loam (Kewal)(ii). Mixed soil or loam (Dorgs)

(iii). Sandy or light bait (Balsundri)(iv). Rehra

(v). Old Alluvium Soil(vi). Red Soil

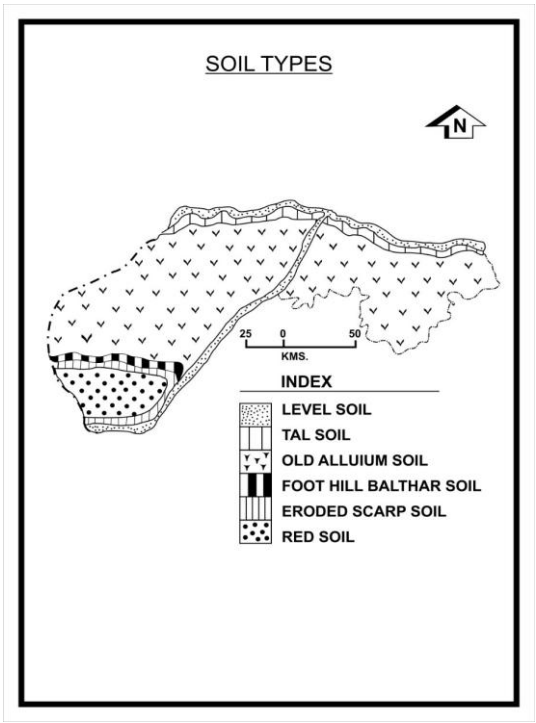

Fig No. 1.4

Animal Life:

Cattles are important biotic and natural resources of country. Comstock faming is part of agriculture. They help in rural economy of a country. From the very beginning of agricultural activities livestock has been the most important companion of farmers. Even today, its significance has been the most important companion of farmers. Even today, its significance has not decreased in the state of Bihar because of less adaptation in of iodine means of agriculture methods. Besides agriculture, livestock and dairy is one of the most significant sector for rural livelihood and employment opportunities specially for women folk in the marginal sector. This sector holds an important economy as it contributes one third of total revenue income. They have been providing primary source of power for performing of several agricultural activities like tillage, plugging of fields, driving carts, threshing the harvested crops etc. In addition to those they supplement agricultural income in the form of providing milk, neat, skin, furs etc. The Patna division has 1343,000 cows, 1438,000 buffaloes, 92000, Pigs, 111,000, sheep's, 726,000 Goats and 1522,000 poultries are found as per livestock census of 2007. The table shows the clear pictures of livestock in Patna division.

Table of District wise Livestock Wealth in Patna Division (2007)

Table	Caw	Buffalo	Pig	Sheep	Goat	Poultry
Patna	282 (2.27)	274 (4.09)	25 (3.96)	6 (2.75)	161 (1.58)	597 (5.23)
Nalanda	200 (1.61)	236 (3.52)	27 (4.27)	6 (2.75)	156 (1.53)	367 (3.22)
Bhojpur	236 (1.90)	220 (3.28)	15 (2.37)	21 (9.62)	109 (1.07)	127 (1.11)
Buxar	177 (1.43)	189 (2.82)	12 (1.90)	22 (10.07)	71 (0.70)	173 (1.52)
Rohtas	249 (1.43)	282 (2.82)	8 (1.90)	22 (10.70)	165 (0.70)	185 (1.52)
Kaimur	199 (1.60)	237 (3.51)	5 (0.79)	34 (15.57)	64 (0.63)	73 (0.64)
Patna Division	1343	1438	92	111	726	1522

Note: Figure is Parentheses Denote Percentage.
Source: District Rate of Animal Husbandry, GOB.

For bovine population (Cows and buffaloes), the district with larger proportion are Patna, Rohtas, Bhojpur, Nalanda, Kaimur and buxar. For goats and poultry animals concentration is significant in the districts of Patna Nalanda, Rohtas, Bhojpur, Buxar and Kaimur the Large numbers of sheep's are found in Kaimur, Buxar, Rohtas and Bhojpur districts, The large numbers of pigs are found in Nalanda, Patna, Bhojpur, Buxar and Rohtas districts of study area. The district of Patna, Rohtas, Bhojpur, Nalanda, Kaimur and Buxar are more important from the point of view of cows' concentration. In recent years, due to government efforts, the breed of cow has considerably improved. The demand in urban and industrial areas has led establishment of cooperative sector which has started marketing of milk and Dairy products. Almost all the

urban, areas and market them after necessary processing. Important diary centers are found at Patna, Ara etc.

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