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Environmental History of Bankura District

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Abstract:

This work focuses on the Environmental History of Bankura District: A Study of the historical relationship of man and nature in Bankura. It discusses the interface between ecology and society in Bankura district. The study examines the socio-economic activities of the people of Bankura and also the interaction between their culture and nature which is influenced to a great extent by Environment. There is an inseparable relationship between the overall activities and achievements of man and his position and environment. The overall human activities are organized in a particular geographical environment. The political change, social and cultural evolution of any country depends on the geographical conditions. The geographical location of a country - mountains, rivers, climate- affects the way of life and political aspirations of the people of that country as a whole. Bankura is a diverse district and the diversity of this environment has been influencing the society, economy and culture of different regions.

Keyword: Environment, Bankura District, development, Geographical condition, Socio-economic activity.

The term Environment traces its origin from the French word ‘environ’ which means surroundings. The environment comprises of the surroundings including the air, the water and the earth. It refers to the surrounding (both living and non-living) of the living species. The human-beings, plants, animals and other living beings operate in the environment. Environment is also sometimes referred to as habitat. Living things such as animals and plants interact with both living and non-living things. Similarly, non-living things such as soil, water, climate, temperature, sunlight and air interact with other non-living and living things. There is an intimate and harmonious relationship between living organisms and environment. The interaction of living beings including human beings brings changes in the environment. Similarly, living beings also display changes within them with the change in the environment. Environment is very essential in every aspect of life. Human beings utilize natural resources for development of civilization. For the betterment of human life, men use the environment in different sectors of developmental activities. The plant and animals also depend upon the environment. Therefore, the survival, reproduction, growth and development etc. of living organisms are done under the environment.

The Encyclopaedic definition of Environment are:- The sum total of all condition , agencies and influences which effect the development , growth , life and death of an organism , species or race (The Universal Encyclopaedia).

According to Western ecology, the environment is the environment that plants, animals, and humans need to live a healthy and normal life.

According to Mak House the environment is - "The whole sum of the surrounding external condition within which an organism, a community or an object exists".

Environmental elements: - 1) natural elements and 2) social elements. The environmental elements played an important role in deciding the destiny of mankind.

Natural Environment: - Earth's life is due to its water, soil, atmosphere and moderate heat and light from the sun. The desert, the mountains, the jungle, the climate, the soil structure, the living things - all these things are called natural or physical environment. In a word, the natural environment is the combined fruit of both living and non-living things. The natural environment encompasses all living and non-living things occurring naturally, meaning in this case not artificial. The accepted definition of natural environment given by ecology is- "Natural environment is the sum of the elements which nature itself has created for the healthy and normal survival of every organism through natural selection.

Social Environment: - The type of human society has developed with human livelihood, economic system, culture and technology. The social environment is always changing because the social environment is created by man with the help of nature for his own needs. This environment is formed with culture and technology. Culture is the combination of human actions, thoughts and social activities. This human culture mainly consists of food, clothing, shelter, education, health, income, leisure, religious thought, defence, etc. The elements of the social environment are - population, its distribution and density, habitat, education, communication system, human activities and its genres - the relationship of these elements with the environment is direct and indirect.

Environmental history is the study of human interaction with the natural world throughout time. As a separate discipline, environmental history talks about three core issues. Firstly, nature itself and its change through time – it explains that nature is more than a cultural construct and is a physical reality. It deals with the impact of humans on historical changes in Earth's surface, water, atmosphere and biological systems. It discusses issues of climate, energy exchanges, use of human resources, and interaction with ecosystems as well as major natural events such as floods, volcanic eruptions, wildfires, the spread of diseases etc. Secondly, how man uses nature; it deals with the environmental consequences of socio-economic activity resulting from increasing population, technology and ongoing process of change in the lives of the people. It studies how transformation has occurred over the years and how the basic human physical need for food, shelter, mobility, water and materials has, and through the complex social organization, been converted into industrial agriculture, megacities, modern transport systems, extensive dams, pipelines and water infrastructure, and sophisticated technology of the manufacturing industry. It also includes the separation from nature that occurred when nomadic hunter-gatherer communities advanced in settled agriculture in the neolithic revolution. The effects of imperialism and settlement communities, the environmental and human consequences of the industrial and technological revolutions are also studied. Lastly, how nature is viewed - how interaction with nature shapes the myths, legends, ideology, aesthetics, religion and science of nations and cultures; how it influences human attitudes, beliefs and values.

Donald Worster defined Environmental History as ―the interaction between human cultures and the environment in the past (Donald Worster, The Wealth of Nature. Environmental History and the Ecological Imagination, OUP, 1993, p.289). In simple terms, environmental history tries to explain the environmental situation of the present day and the role of human interaction with nature in shaping the current configuration.

Environmental History is the study of mutual relationships of Human and Nature through time. More specifically, delves into three main themes: -

a) How Environment shapes Human History;

b) How attitudes towards the Environment influence Human action; and

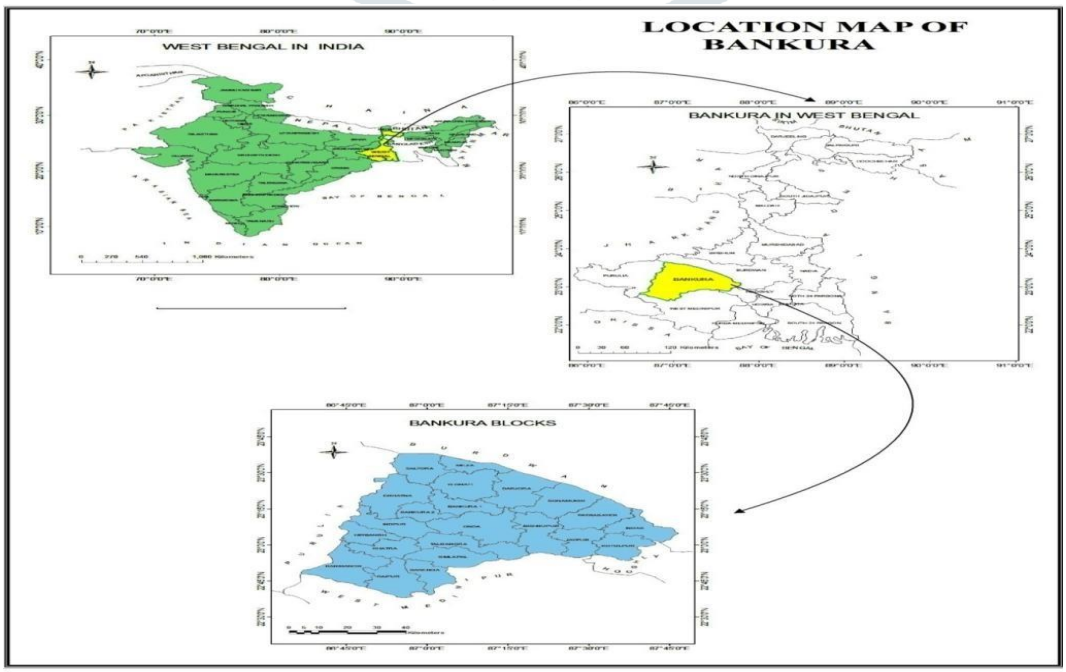
c) How these actions bring about Environmental changes

It sounds like a very broad field, and it is.

The term Environmental History was first introduced by Rodrick Nash in the article Pacific Historical Review, 1972. **J.R. Mcneil** (2003) in his article,, 'Observations on the Nature and Culture of Environmental History' has defined Environmental History as the history of the mutual relations between humankind and the rest of nature on which they depended.

Bankura, occupying the central position in the western part of West Bengal, is the true representative of Rarh Bengal. The District is located between 22°38/ and 23°38/ North latitude and between 86°36/ and 87°46/ East longitude with the shape of an isosceles triangle. The total area coverage of the District is 6882 sq. km. The whole District is divided into three subdivision namely-Bankurasadar, Khatra and Bishnupur subdivision consisting of 22 blocks. The District is bounded by Burdwan in the North and North-East, separated by the Damoder River, on the South-East by Hooghly District, on the South by Midnapur and on the West by Purulia. Dwarakeswar and Kangshabati are the two major rivers of the district and Silabati, Gandheswari, Sali, Joyponda, Birai, Amoda are the other notable ones. Rice is the main crop of the district. Though the district is prone to drought it can raise surplus food productions in the years of good rainfall. Beside rice the other major crops are potato, wheat, mustard, etc. The Bankura district is one of the most under developed districts of the state West Bengal with levels of low industrialization and high enslavement upon agriculture. The rate of growth of small scale industries is also not at all satisfactory. The small scale industries are mainly based on processing of local resource. However, the district is moderately rich in the fields of handloom and handicraft. The district has been placed in category 'C' as per State Government's incentive scheme.

Bankura district is located in a transitional zone. To the east of Bankura district lies Burdwan district, plain land; to the west lies the Jharkhand Plateau. Due to this eastern part of Bankura district is plain and the western part is plateau and wide forest lands where there are people of many tribal communities and they are largely dependent on the environment. Barjora and Mejia-mining areas to the north; Variety can also be observed in the soils of Bankura district; In other words, Bankura is a diverse district and the diversity of this environment has been influencing the society, economy and culture of different regions.



The Geological history of Bankura shows a subtle difference in the structural history. If a deliberate approach is taken to conduct a geological field work with a goal to nurture the objectives of the current survey activities, mystery of the history of local geology will be exposed. The western part of the district is characterised by poor, ferruginous soil and hard beds of laterite with scrub jungles and Sal woods. Presence of long broken ridges is characterised by the presence of huge irregular patches of recent alluvium and it has remarkable influence upon local seasonal cultivation. Apart from this, the area draws special attention for imparting its scenic beauty and filigree of nature. Being a drought prone area, long dry season prevails here at a large extent. The appearance of soil is reddish in colour and termed as 'red soil'. While the eastern part of this track is covered by stretch of rice field. Most areas of this region were produced by erosion over a longer period of time and is typically sustaining as 'undisturbed' by crustal movement and such unique feature of landmass is known as 'peneplain'.

Climate Condition:

The district of Bankura experiences an extreme climate with high range of temperature. The climate of the district is characterized by oppressive heat and high humidity in summer with average daily maximum temperature varies between 26ºC and 39ºC. Winter is generally dry and cold with average winter temperature around 15º C. The Rarh plain of Bankura district in summer is humid and warm, while the winter is dry and cold. The annual average rainfall ranges between 130 cm and 140 cm. The average winter temperature is 15°C and the average summer temperature is about 30°C (Nandi et.al.,2007).

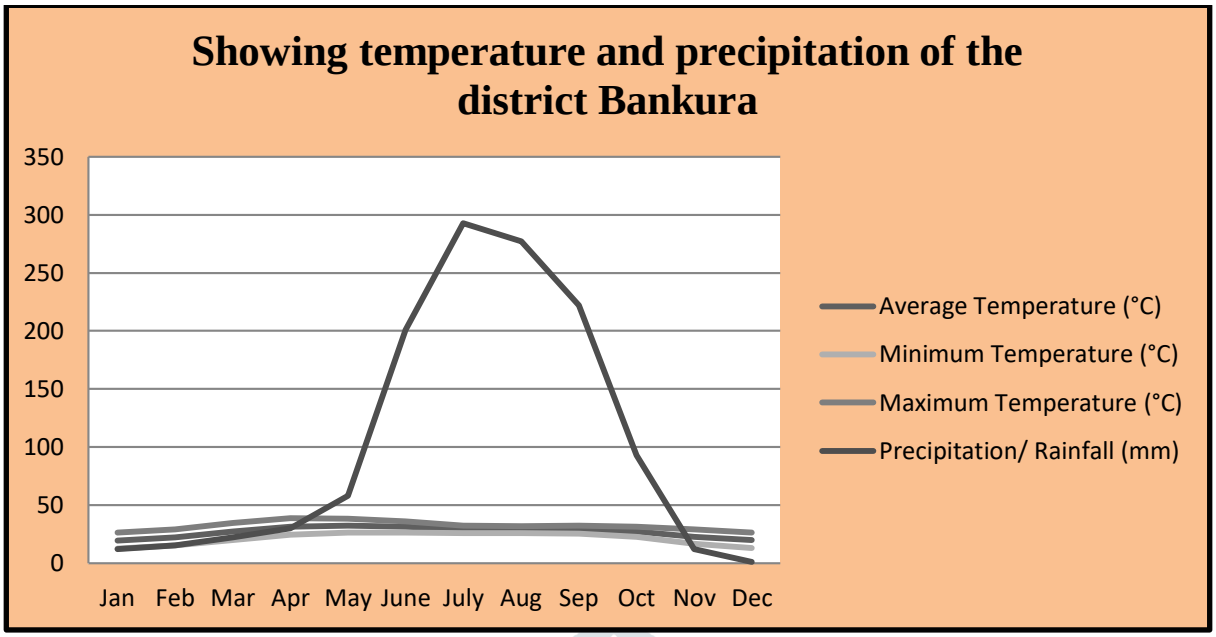
Rainfall (month wise) and Humidity:

Rainfall in the district of Bankura is generally scanty even though good rainfall occur on the eastern part of the district. The annual average rainfall range between 130 cm and 140 cm. Relative humidity is generally high throughout the year. Average percentage of humidity varies from 50 in April to 82 in August (Nandi et. al., 2007).

Table showing temperature and precipitation of the district Bankura

Parameters	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Average Temperature (°C)	19.3	22.1	27.3	31.4	32.2	31.2	28.9	28.8	28.7	27	22.7	19.7
Minimum Temperature (°C)	12.5	15.2	20	24.3	26.4	26.4	25.7	25.7	25.3	22.7	16.7	13.1
Maximum Temperature (°C)	26.2	29	34.6	38.6	38	36	32.1	31.9	32.1	31.4	28.8	26.3
Precipitation/ Rainfall (mm)	12	15.	22	30	58	201	293	277	222	93	12	1

Source: https://en.climate-data.org/asia/india/west-bengal/bankura-5553



Topography and Terrain:

Bankura district has an area of 6,788 square kilometres. The District is covered by crystalline rocks of Precambrian age. Granite, Granite gneiss, micaschist, anorthosite, shale, quartzite, sandstone, limestone etc. are the principle types of rock in this district. The study area lies within a thick mantle of laterite generally mountainous and with undulation. Bankura district can be geologically divided in three categories According to the height of a total land area of 384496 hectare.

High hilly region / Hard rock area:

The areas as Saltora, Mejia, Khatra, Ranibandh, Gangajalghati etc., are collectively covering 176915 Ha and located in this region of higher elevation and hard rocks. Therefore, most of this area does not suitable with irrigation facilities.

Uneven lands / Hard rock ring area:

Bankura, Barjora, Chatna, Onda, Simlapal, Taldangra, Raipur, Sarenga etc., are located in suchuneven lands along with areas of hard rock ring and the covers 150611 Ha as whole.

Even alluvial lands / alluvial area:

The landmass with evenly distributed alluvium found mainly in Bishnupur, Sonamukhi, Patrasayer, Indus, Joypur, Kotulpur etc., which covers 56970 Ha. Bankura consists of two different tracts. The western portion marks the gradual descent from the table land of Chhotanagpur to the delta of lower Bengal, consisting largely of spurs projecting from the western table land and of low swelling ridges. However, there is no marked ridge of hills. In the central portion of the district there are rolling downs eventually merging with the alluvial plains. Biharinath which is located near Saltora is the highest hill of the district having height of 1480 feet (451 metre). Susunia is the second highest hill of Bankura having height of 1450 feet (442 metre). These hills are found in the high hilly region/hard rock area in the western part of the district.

Water Course and Hydrology:

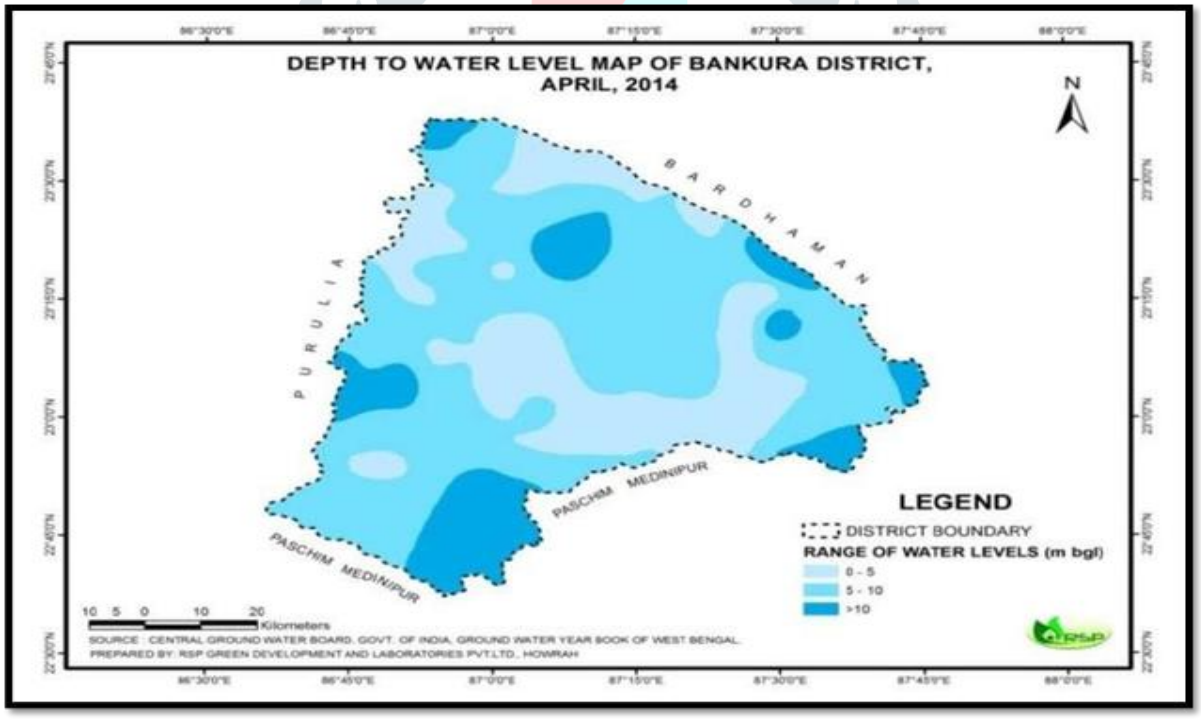
Hydro logically, the weathered overburdens which are characterised by high porosity and significant amount of water content due to relative high clay content and a low permeability are predominant in this province of West Bengal. The basement rock on the other hand is relatively fresh, frequently fractured and thereby producing high permeability. In the western part of Bankura depicts a unique feature with

consolidated/semi-consolidated crystalline rocks where ground water occurs when it is weathered residual and/or possess fractures.

Ground water development:

The district, Bankura displays diversified hydrogeological characters that do not have resemblance with the planes. Based on geology and mode of occurrence of groundwater the underline area of the district has been divided into three sectors (i) western sector covered by crystalline rocks of Archean age. (ii) Middle sector covered by laterite and Older Alluvium formation of Pleistocene age and (iii) Eastern sector covered by Recent Alluvium. Groundwater in the district occurs both under water table condition and confined condition. The water table generally declines with the varying gradients from west, north-west to east and south-east directions and broadly confirms to the topographical slopes. In the western sector comprising mainly of Crystalline rocks ground water occurs in the weathered mantle of varying thickness from 6 metre to 15 metre under water table conditions. In many parts of the area lateritic gravels lies on the weathered basement rock that attributes favourable condition for percolation of rain water. The block of Chatna, Bankura-I, Saltora, Gangajalghati, Ranibandh, Khattra, Hirbandh and Indpur falls under this sector.

In the middle sector covered by laterite and older alluvium, groundwater occurs in the moderately thick to thin aquifer under unconfined to semi confined condition. Heterogeneous character of the water bearing formation with complex aquifer geometry prevails in the area and is feasible for open dug wells of 10 metre to 15 metre depth with 3 metre of diameters. The complete or parts of the blocks of Bankura II, Mejia, Taldangra, Simlapal, Raipur & Sarenga fall under this sector. Ground water occurs under confined condition below a blanket of clay whose thickness varies around 10 metre. In the eastern alluvial area of Indus, Kotulpur & Joypur blocks.



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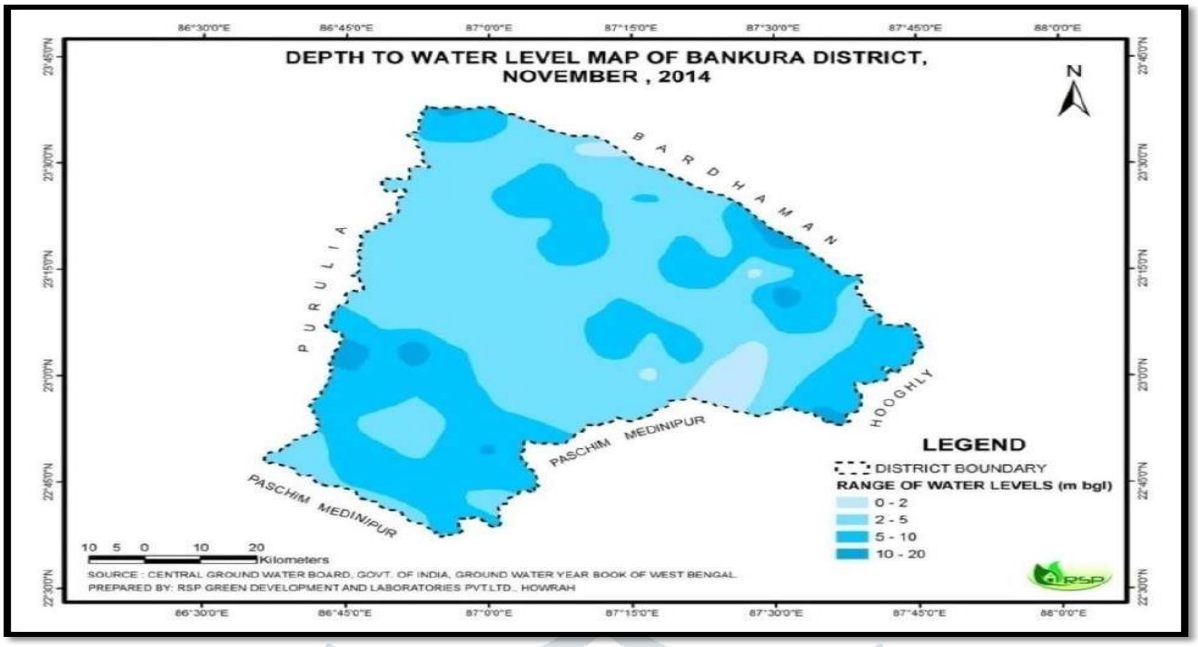


Drainage system:

It deserves special attention that Bankura district is drained by rain-fed Damodar, Darkeswar and Kangsabati along with their tributaries of which Gandheswari, Silai and Kumari reach the apogee of importance. The rivers of the area flow from the north-east to the south-west in courses roughly parallel to one another. They are mostly hill streams, originating in the hills in the west. The rivers come down in floods after heavy rains and subside as rapidly as they rise. In summer, their sand beds are almost always dry.

The district is bounded on the north by the Damodar river and is intersected by a number of river flowing from north west to north east in courses roughly parallel to one another. They debouch from the western hill streams, which come down in flood after heavy rain but subsides as rapidly as they rise. Their beds are sandy and in the summer months nearly everywhere is dry up. The main river flowing in this district is Damodar, takes its rise in the hills of Chotonagpur and touches upon the Bankura district just after it has received the water of the Barakar. It then flows in a south-easterly direction, forming the boundary between Bankura and Burdwan for about 45 miles. The course of the river is tolerably straight, but it is full of sand banks. From the middle of July till the middle of October, during the rain, Damodar is liable to heavy flood in the lower portion of the course.

The chief tributary of the Damodar is the Sali, which rises a few miles west of Kora hill and fall into the Damodar at the village of Samsar in Indus police station. This river drains a large portion of the north of the district.

Another most important river is Dwarkeswar or Dhalkisor. This river takes its rise near the Tilabani hills in Manbhum district and flowing south-east enters the district of Bankura near Dhumka in Chhatna police station, in the lower portion of its course, after its confluence with the Silai on the border of Midnapur. During rainy season, it is subjected to heavy floods and is often an impassable torrent.

During the course through the district the Dhalkisor receives many tributaries, the principal of which are Gandheswari, the Kukra and the Birai.

The river Silai or Silabati rises in the Manbhum district and entering bankura near Salanpur in Khatra police station. There are some small but picturesque waterfalls along its course near Hansara. The river Kasai or Kanshabati enters the district near Bamandihi in Khatra. It is only the river navigable during the rains besides the Damodar. There is also a minor river in Raipur called the Bhairabbanki, has a course of a few miles in the

district. There are no natural lakes except a large swamp called the Mejia bill in Mejia police station. Springs are common throughout uplands.

Cropping Pattern:

The net sown area of the district of Bankura is 345.4 hectare, the area sown more than once is approximately 220.3 hectare, and gross cropped area is approximately 565.7 hectare. The cropping intensity is about 164%. The major crops cultivated in this district are rice, wheat, pulses, oilseeds, potato. Rice is the only rain fed kharif crop, which is cultivated over an area of 20.4 hectare of land and oilseed is the only rain fed rabi crop grown on an area of 0.3 hectare. The rabi crops which are cultivated by irrigational practices are rice (grown on a land area of 328.8 hectare), wheat (grown on a land area of 3.5 hectare), oilseeds (grown on a land area of 40.1 hectare), potato (grown on a land area of 41.9 hectare).

Flora:

There are many trees, shrubs, herbal species found in the district. The following tree species are noticeable in the district, viz., Akashmoni (Acacia auriculiformis), Mango (Magnifera indica), Arjuna(Terminalia arjuna), Bot (Ficus bengalensis), Bel (Aegle marmelos), Chhatim(Alstonia scholaris), Haritaki (Terminalia chebula), Jarul (Lagerstoemia flos-reginae), Jhau (Casuarina equisetifolia), Kdam (Anthocopharus cadamba), Kendu (Diospyros melanexylon), Madar (Erythrina stricta), Mahua (Bassia ratifolia), Neem (Azadirachta indica), Palaash (Butea freundosa), Piasal (Peterocarpus marsupim), Sal (Shorea robusta), Tamal (Diospypos tomentosa), Teak (Tectona grandis) etc. Akanda (Calotropis gigantean), Bantulsi (Ociumum sanctum), Dhutura (Dhatura strmonium), Karabi (Nerium odorum), Kul (Zizyphus xylopyra), Nilkantha (Curcuma caeria) etc. are some of the noticeable shrubs and herbs species found in the district. Source: https://bankuraforest.in/flora-fauna/].

Some wild edible plants consumed by tribes of Bankura are Man Kachu (Alocasia indica), Shalincha (Alternantherasessilis), Kantanotey (Amaranthusspinosus), Noteysak (Amaranthusviridi), Nona ata (Annonareticulate), Kam-ranga (Averrhoacarambola), Neem (Azadiracht indica),Bramhisak (Bacopamonnieri), Kumkumsak (Boerhaaviadiffusa), Karamcha (Carissacarandus), Jhitkisak (Cassiatora), Thankuni | (Centellaasiatica), Bathua (Chenopodiumalbum), Telakucha (Cocciniagrandis), Kachu (Colocasiaesculenta), kansira (Commelinabenghalensis), Amada (Curcumaamada), Chalta (Dilleniaindica), Kham Alu (Dioscoreaalata), Kendu (Diospyrosmelanoxylon), Keshut (Ecliptaprostrate), Amlaki (Emblicaofficinalis), Hingchasak(Enhydrafluctuans), Ash phal (Euphorialongan), Dumur (Ficushispida), Gandhi buuti (Glinus oppositifolius), Falsa (Grewiaasiatica), Kulekhara (Hygrophilaspinosa), KalmiSak (Ipomoeaaquatic), RangaAlu (Ipomoeabatata), Dhudul (Luffa cylindrica), Mahua (Madhucalatifolia), Aam (Mangiferaindica), Susnisak (Marsileaquadrifolia), Pudina (Menthaviridis), Gimasak (Mollugospergula), Kari Patta (Murrayakoenigii), Lalputiya (Nasturtiumofficinale), Seuli (Nyctanthesarbortristis), Sapla (Nymphaearubra), Amarul (Oxaliscorniculata), Gadal (Paederiafoetida), Bon Tepari (Physalisminima), Nona sak(Portulacaoleracea), Bedana (Punicagranatum), Bok phul (Sesbaniagrandiflora), Kaakmachi (Solanumnigrum), Piringsak (Trigonellacorniculata), Khammam (Typhoniumtrilobatum), Okra phal (Xanthiumstrumarium), Kundri(Zehneriaumbellate), Kul (Ziziphusmauritiana) [Banerjee et. al., 2013].

Some plant species of medicinal value, timber value, ornamental value reported from the sacred grooves of Gangajalghati, Bikna, and Onda blocks of district of Bankura are as follows: Akashmani (Acacia auriculiformis), Chakolda (Adina cordifolia), Bel (Aegle marmelos),Akor (Alangium salvifolium), Shirish (Albizia lebbeck), Aata (Annona squamosa), Dha (Anogeissus latifolia),Neem (Azadirachta indica), Bamboo (Bambusa arundinaceae), Kanchan (Bauhinia variegate), Simul (Bombax ceiba), Taal (Borassus flabellifer), Kasui (Bridelia retusa), Piyal (Buchanania lanzan),Palash (Butea monosperma),Sonajhuri (Cassia fistula), Krishnachura (Caesalpinia pulcherrima), Sisu (Dalbergia sissoo), Kend (Diospyros melanoxylon), Eucalyptus (Eucalyptus tereticornis), Bot (Ficus benghalensis), Dumur (Ficus hispida), Aswathwa (Ficus religiosa), Sheora (Glycomis pentaphylla), Gamar(Gmelina arborea),Kurchi (Holarrhena antidysenterica), Challa (Holoptelea

integrifolia), Lohajang(Ixora arborea), Sidha (Lagerstroemia parviflora), Kayet Bel (Limonia acidissima), Mahua (Madhuca indica), Aam (Mangifera indica), Kadam (Neolamarckia cadamba), Karabi (Nerium indicum), Fani manasa (Opuntia dillenii), Khejur (Phoenix sylvestris), Kusum (Schleichera oleosa), Sal(Shorea robusta), Kuchila (Strychnos nux-vomica), Jaam (Syzygium cumini),Tentul (Tamarindus indica), Arjun (Terminalia arjuna), Bahara (Terminalia bellirica), Hartaki (Terminalia chebula), Ason (Terminalia tomentosa),Bhadu (Vitex glabrata) (Mitra et. al., 2017) and the diversity of macrophytes found in the wetland of Bankura are as follows: Hydrilla verticillata , Ipomea aquatica , Nelumbo nucifera, Marsilea minuta , Trapa bispinos, Utricularia gibbosa, Salvinia sp., Potamogeton nodosus, Sagittaria sagitifolia , Eichhornia crassipes , Nymphaea pubescens , Centella asiatica, Nymphaea nouchali , Typha angustifolia, Colocasia esculanta , Oryza sativa, Saccharum sp. , Vallisnaria spiralis , Pistia sp. , Lemna minor , Cyperus sp., Enydra sp. , Hygrophyla sp., Polygonum berbatum, Nymphoides indica. (Palit & Mukherjee, 2012)

Fauna:

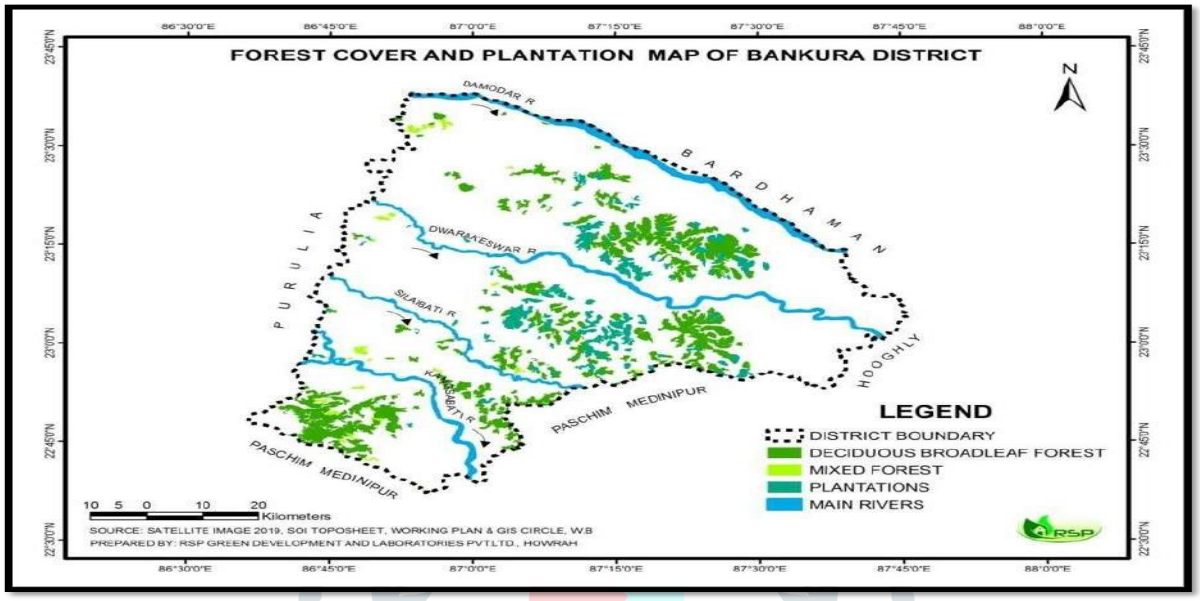
The Bankura district is having a poor fauna in regard to the number of species as well as in their population. The continuous deforestation followed by human occupation over the area is the main cause for it. Among the wild animals carnivores like the leopard or panther are rarely found. Apart from this, jungle cat (common name: ban- biral, scientific name: Felis chaus) and the leopard cat (common name: chitabiral, scientific Name: Prionailurus bengalensis) are occasionally seen in the area. Wolf (common name: nekre, scientific name: Canis lupus) is quite rare whereas the jackal (common name: sial, scientific name : Canis aureus) and the fox (common name: khek- sial, scientific name: Vulpes vulpes) are largely seen in the area. In the Susunia hill region sloth bear (common name: bhaluk, scientific name: (Melursus ursinus) is seen. Indian mongoose (Herpestes edwardsii) and grey mongoose (Herpestes edwardsii) are seen in and outside the village areas. Hyaenas (Hyaenidae sp.) are found in the area though nocturnal. The rhesus macaque (common name: lal-bandar, scientific name:Macaca mulatta) and the langur (common name: Hanuman, scientific name: Semnopithecus sp.), squirrel (Sciuridae sp.) and the porcupine (Erethizon dorsatum) are even noticed throughout the area. House mouse (Mus musculus), field mouse (Apodemus sylvaticus), shrew (common name: chhucha, scientific name:Soricidae sp.) and bats (common name: badur, scientific name:Chiroptera sp.) are seen in the area.

In respect to birds both game and non-game birds are found throughout the area. Ducks (Anas Platyrhynchos) and geese (Anserini sp.) are common in the area. The barheaded goose (common name: raj-has, Scientific Name:Anser indicus) and the brahminy duck (Scientific Name: Tadorna ferruginea) are quite common. The peacock (common name: mayor, scientific name: Pavo cristatus) and the red jungle fowl (common name: banmurgi, scientific name: Gallus gallus) are found in quite good number. Among the non-game birds, cormorant (common name: pankauri, scientific name: Phalacrocorax carbo),darter or snake bird (common name: gayar, scientific name: Anhinga anhinga), vultures (Gyps indicus), eagles (Haliaeetus leucocephalus.), kites (Accipitridae sp.), falcons(Falco sp.), cuckoos (Cuculidae sp.), parakeets (Psittacula krameri), owls (Strigiformes sp.), bee-eaters (Meropidae sp.), flycatchers (Tyrannidae sp.), sun-birds (Nectariniidae sp.), orioles (Ploceus manyar) are common in the area. The game bird includes the white breasted water-hen (Amaurornis phoenicurus), Indian moor-hen (Gallinula chloropus), coot (Fulica sp.), bronzewinged jacarta (Metopidius indicus), pigeons (Columbidae sp.) and doves (Columbidae sp.) which are quite common in the area.

The reptiles include lizards of various types and snakes like python (Pythonidae sp.), cobra (Serpentes sp.) and others are found to occur in this area. The snakes include, the common kraits (Bungarus caeruleus) and banded kraits (Bungarus fasciatus), Russel viper (Daboia russelii), rat-snake (Ptyas mucosa), blind snake (Indotyphlops braminus), wolf snake (Lycodon sp.), Indian gamma (Boiga trigonata), cat snake (Telescopus fallax) and fresh water snakes like the checkered keelback (Xenochrophis piscator) are other common snakes.Among the fishes, cat fishes like the magur (Clarias batrachus) and singi (Heteropneustes fossilis) are commonly found. Rohu (Labeo rohita), katla (Catla catla), mrigel (Cirrhinus cirrhosus) and kalbose (Labeo

calbasu) are commonly found in the area. Other than this the lata (Channa punctatus), sal baim (Mastacembelus armatus), sole (Channa striata), chela (Chela macrolepis), bata (Labeo bata) and various kinds of punti(Puntius sophore)are even common type of fish. The other following type of fish are Anabastestudineus (koi), Mystus seenghala (dire), PalaeAmblypharyngodon mola (maurala), Mystus sp. (tangra), Notopterus chitala (Chital),Gadusia chapra (khayra) and such various types which needs mention as fish which forms a main part of the diet. [Source:https://shodhganga.inflibnet.ac.in/bitstream/10603/165128/8/08_chapter%202.pdf]

Forest:



Dense forest like Khatra, Ranibandh, Bishnupur, Sonamukhi, Bojora, Gangajalghati occupies huge areas of the district, Bankura. Currently the land under forest department is approximately 21.5%. About 48% of the forest in this district is degraded type and alarmingly the forest/plant cover is depleting gradually. In addition to ecological utilities, the forests in this district also serve as the basis of livelihood of poor communities of the rural area and the tribes as well. Forests not only provide money but also are important for energy resources in form of fuel and forage for the disadvantaged folks.

Agriculture and Irrigation:

Agriculture is the main stay of the economy of the district like the other rural areas of West Bengal. About 80 per cent people of the district dependent on agricultural activity but infertile soil, insufficient irrigation and frequent draught are certainly the barriers for the non-prosperous agricultural profile of this district. The district has a considerable natural forest cover with a total area of 1450 Sq. km amounting to 20.4 per cent of the total geographical area. Sal (Soria), Piasal, Palas, Kend, Asan, Behera are found to be the main tree species of this area. Tribal people in and around the forest area are highly dependent on the forest and forest resources. All most all the cooking fuels required for the tribal peoples are collected from the forest. Even forest leaves, fruits, tubers, roots and flowers are source of their food and medicine. Even today, tribal are to a great extent dependent on forest based on medicine. They have a considerable knowledge of bio-medicine by dint of their traditional ecological knowledge.

Agriculture in Bankura district is dominated by paddy in kharif season and mustard in rabi season. For the entire district, there is very little irrigation infrastructure – i.e., tube wells, dug wells, surface runoff irrigation schemes and surface lifting structures (Mandal and Gupta, 2012).

A large amount of rice was cultivated by the tribal and rural communities of farmers in Bankura district, so far 65 folk rice varieties have been produced from Bankura district of West Bengal such as Dharangara, Sukalma, Bhootmuri, Tulsibhog, Seetasal, Govindbhog, Rupsal, Kalamkati, Neta, Nagarshal, Danaraguri,

Chandrakant, Daharlagra, Badsahbhog, Raghusal, Bhurishal, Khejurchari, Gangajli, Basmati and Kataribhog (Sinha and Mishra, 2012).

Crops like paddy, wheat, sugarcane, oilseed etc. are cultivated in the study area. Most of the forest areas of this district are cultivated with a variety of seasonal vegetables like potato, tomato, cabbage, cauliflower, pumpkin and gourd. A variety of fruit crops such as jackfruit, banana, watermelon and sugarcane are also grown in farmers' pastures (Panja and Mistry, 2018).

Although the district is drought prone, farmers engage themselves in the production of surplus food crops and/or other food resources every year during good rainfall and paddy is the main crop of the district. Apart from paddy the main crops are potato, wheat, vegetables, mustard, summer sesame etc. Farmers in the district produce potatoes and other vegetables as surplus. Production of pulses and oilseeds is still poor in the district and that is why the government is trying to focus on the production of the same by introducing new varieties of pulse crops like arhar, lentil, gram, kesari, kalai, mung etc. and groundnut and sunflower. Oilseeds are planted in rabi season to meet the gap between oilseed demand and production. The farmers of this district also grow broccoli and capsicum to meet the demand of the local people.

[http://www.bankura.gov.in/agriculture.htm]

The sources of irrigation in the district are canals, tanks, open wells, borewells etc. The area also shows lift irrigation schemes such as micro irrigation, pump sets, tractors etc.

Mineral Wealth:

Bankura literally depicts the presence of minerals such as coal, tungsten, kaolin, biotitic and feldspar. The main mineral of the district is coal Notable coal mines are located in Saltora, Mezhia, Barjora and Gangajalghati areas. Mezhya alone has 10 coal mines. Coal occurrence in Bankura is estimated at 11 million tonnes (G.S.I.) covering an area of 33.5 km2. In Mejia, the proved-reserve is 13.14 million tonnes and the indicated reserve is 197.37 million tonnes according to the Geological Survey of India. Tungsten is a rare metal that is in great demand in India and other countries. The only deposits of this metal in the entire state are chart and limestone. Additional deposits of kaolin or china clay have been reported at many places in Jalaharipahar, Dhatara, Malti, Thakurdungriitesi, and Taldangra PS jurisdictions.

Flood:

Bankura is not defined as a flood-prone district, but after the arrival of monsoons the district records many incidents of flash floods and inundation in many low-lying areas of the district adjacent to major rivers and tributaries flowing through the district such as Damodar, Dwarkeshwar, Kansavati etc. Also due to occasional heavy rains in the district and upper Damodar river, flood water is released from DVC barrage and sometimes floods from Kansavati reservoir in different parts of the district causing damage to crops, houses and other properties.

Soil:

The western part of the district has poor ferruginous soil and hard beds of lateritic with scrub jungles of Sal woods. Long broken ridges with irregular patches of more recent alluvium have marked almost everywhere. During the long dry season, large extent of Red soil with hardly any trees tends the country a scorched and dreary appearance. In the eastern part, eye constantly rest on wide expenses of rice fields, green in the rain but parched and dry in summer.

Natural Vegetation:

The Bankura district is well marked for its forest resources which have much significance in regard to the concentration of tribal population in the region. The tribal are preferred to live in the forest areas and thus an assessment of the vegetative cover becomes important in the present study. Pressure of population is also a cause of extension of cultivation across the forest fringes in productive areas. As a result, the forest of Bankura is characterized by a lack of compactness.

Industry and trade:

It is one of the most backward districts of the state of West Bengal. The district is characterized by low industrialization with high dependence on agriculture. There are no major industries in the district and the growth rate of small scale industries is also not satisfactory. Bankura has a position in the handloom sector of West Bengal. Across the district, about 20000 (2001 census) people are engaged in handloom sector. Sonamukhi is known as a village of weavers and the district has a tasar silk weaving stage. The tribal in the study area collected tussar silk worms from the local forests and sold them to prominent traders, who in turn handed them over to weavers for retail cloths that were woven mostly from tussar silk (Mukherjee, 1905). Other important industries are conch craft, bell metal and lantern making industries.

Transportation:

Transport and connectivity is an important factor for the economic and cultural growth of any place. Bishnupur and Sonamukhi are attractive for ancient temple, handicraft and handlooms. Tourism is an important source of income. So transport and connectivity are important. Bankura, Bishnupur are important rail stations in south Eastern Railway division. These stations are well connected with Kolkata and other places of India. Bishnupur is 200 kms away from Howrah and 84 kms from Kharagpur. Different places of the district are well connected with different parts of the state of West Bengal, Bihar, Jharkhand and Orissa. NH-60 (Baleswar to Raniganj) road passes through Bishnupur town. State High Way 2 directly connects Bishnupur with Kolkata.

Community structure:

Ethically, Bankura can be described as a border district situated between Chotonagpur, the tribal abode and the Gangetic delta with its old Hindu population. Even within the district it has a significant difference between Bankura subdivision in the west and Bishnupur subdivision in the east. In the former primitive castes, such as Santals, Bauris and Bagdis predominate, and in the latter pure Hindu castes such as Brahmins are found in greatest strength.

Religion:

The study area was never under the direct control of a Muslim ruler and the Malla kings were Hindu in religion. Hence the study area is Hindu dominated. The religious structure of the study area is as follows:

Hindu:

In Bankura, lying as it does, between the highlands of Chhotonagpur, the home of Animistic races, and the civilized Gangetic Valley inhabited by Hindus, the Hinduism of the lower classes exhibits a marked mixture of the Animism of the aboriginal races and the higher monotheism of the Aryan Hindus. A very large portion of the population consist of semi-Hinduized aboriginals, such as the Bagdis and Bauris, whose religion is compounded of elements borrowed from orthodox Hinduism and survivals from the mingled Animism and nature-worship of the pure aboriginals.

Muhammadans:

Muhammadans are found in greatest strength in the Bishnupur subdivision and specially in the thanes bordering on Burdwan viz. Kotulpur and Indus, which account for nearly one half of the total number. They are Sunnis belonging to the Hanifi sector, and the majorities are believed to be descendants of local converts. The veneration of pirs or saints is common among the local Muhammadans, who frequent their shrines and make offering of sweetmeats.

Of the total number of population, no less than are Sheikhs and the number of Mughals and Pathans is very few. The animists are almost entirely represented by the Santhals.

Caste:

The total population of the study area in 2011 is 3596674. The percentage of Scheduled Castes is 33.53% and Scheduled Tribes is 10.25% of the total population (Census, 2011). Taking the district as a whole, tribal or semi-tribal castes and tribes have the largest number. The most prominent tribes in this area are Bhumij, Deshwali, Manji, Santal, Bauri and Bagdi. Santals, Bauris and Bagdis alone constitute more than one-fourth of the total population.

Santhal:

Though far removed from the core of the clan, they have preserved many of its distinctive customs

and the old tribal life remains intact to a certain extent. They still largely speak Santali, a language that is not taught in district schools, and boys and girls are badly handicapped in taking exams in Bengali. They had an uncanny ability to convert forests and waste lands into paddy fields. They have a well-established and fairly complete system of self-government. The head man of each village, known as Majhi. The internal structure of the race is also well preserved.

Bagdis:

The Bagdis are a race of non-Aryan origin, to whom many legends account for their origin. One of these is to the effect that they originally came from Koch Bihar and were descended from Shiva and Pārbati. The Bagdis are divided into the following tribes: 1. Tentulia, 2. Kasaikulia, 3. Dulia, 4. Ujha, 5. Machna, 6. Gulimanji, 7. Dandamanji, 8. Kusmetia, 9. Mallametia. The Bagdis practice both child and adult marriage indifferently. Most Bagdis are engaged in agriculture for some time, usually as korfa or under-ryots. A large number of Bagdis work as landless day laborers, working for cash or as type or nomadic cultivators, cultivating other alliance systems. Their social status is very low.

Bouris:

The Bauris are low aboriginal caste who works as cultivators, agricultural laborers and Palki bearers. They are divided into the following nine sub castes: 1. Mallabhumia, 2. Sikharia, 3. Panchakoti, 4. Mola, 5. Dhulia, 6. Malua, 7. Jhetia, 8. Kathuria and 9. Pathuria. The bauries are addicted to strong drink.

Occupation:

The income of the people is determined from the various sources of occupational structure. According to West Bengal human development report (2004), income index of Bankura district is 0.26. This standard is the lowest in comparison to other district in West Bengal. This indicates that the occupational structure is highly underdeveloped in this district. According to district human development report (2007), people in the 41.52 percent belonging to below poverty line category, people in the 42.48 percent below poverty line community live in the block area and 29.48 percent live in municipal area of this district. Highest below poverty line category blocks are Raipur (49.98), Hirbandh and Chhatna (49.95). This is the evident of high population pressure and only 29.3 lives in below poverty line community in Kotulpur block. Bankura district comprises twenty two blocks. For the diversification of the study area have been calculated Simpson diversification Index for rural and urban areas as well as all each blocks of the district. Using census of India (2011) data on classification of workers, which classified all the workers in to four categories namely Cultivators, Agricultural labour, Household Industry and others. Simpson index is used for the measurement of livelihood diversification, higher value of Simpson index, indicates higher diversification.

Occupational pattern of Bankura district

Bankura	Total worker	cultivators	Agricultural labour	Household industry	Others	Simpson index
Rural	1356914	22.69	47.37	4.00	25.94	0.6552
Urban	109396	1.69	4.16	6.49	87.66	0.2253

Source: Census 2011

Table shows that level of diversification is highest for rural areas of the district. It indicates that economy of the district is agricultural based. Most of the people in rural areas depend on agriculture and allied activities. Only 4 percent people in rural and 6.49 percent people are engaged in household industry sector. In urban area of the district majority is pre dominance on other sector. In the study area, block wise Simpson Index has been considered for the occupational diversification. Total numbers of this district are twenty two, here eleven blocks are more diversified on the basis of occupational pattern and others are less diversified. Kotulpur block is more developed from all sides of the district. Gangajalghati and saltora are diversified blocks for occupation but health and literacy status are not so better position. Hirbandh block of the district is underdeveloped due to high population pressure, low level literacy, lack of medical amenities and lowest occupational diversity. Most of the people of this district live in rural areas, block level analysis is necessary for features of the district livelihood opportunity. Many blocks of the district is suffering population growth, poverty, gender discrimination, low literacy, unemployment etc. regional disparities has

been noticed among the blocks of the district on the basis of occupational diversity.

Conclusion:

It was initially assumed that the district Bankura, mainly located in the infertile tract of Rarh Bengal pronounced with rocky uplands of plateau fringe at the west, lateritic tract with rocky out crop at the middle and east and fertile plain at south-eastern corner has the little scope for agricultural development. Therefore it is ascertained that level of human development based on agricultural economy is not up to the mark (Ray. A. P. 2013). The pattern of diversity change from plain to plateau gradient gives important insight about ecological edge effect. There is a clear dichotomy between the western hill terrain and the rest of the portion, in terms of forest, soil, tribal concentration. As a result either in population growth or in human development index, western portion voices in a lower tune than that of the other areas. But recent time mining and industrialization in the central portion of northern blocks have gained newer momentum in respect of population growth as well as human development. The south-eastern corner associated with fertile plain is showing mark difference in terms of both population growth and human development. The study area lies in Bankura district, a part of Bankura-Bishnupur rarh plains, under the state of West Bengal. Agriculture dominated rural economy (besides pottery industry) is the backbone in the study area. Bankura Region is one of the most drought-prone areas in West Bengal. The historical perspective and geographical features are found closely related in different types of activities of folk culture and their eminent art, which are developed for various folk crafts among local tribal population.

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