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*“Exploring The Pattern of Rural Transformation; a Study on Salanpur Block of West Bengal”*

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### **Abstract**

After 2011 no census data are have been published yet, therefore a vacuum of curiosity developed among regional planner about emergence of new census town in India. Census town are those which fulfill all the criteria to become as urban but still governed by rural authority. Rural transformation is a complex process and it has multi dimensions such as changes in the structure of the production system, livelihood diversification, rural – urban linkages, infrastructural development and many more. In the current study an attempt has made to elucidate pattern of emergence of new census town in Salanpur block area located in western most part of Paschim Barddhaman district of West Bengal. The focal aim of the study is to identifying possible emergence of new census towns using previous census population data trends and multi temporal analysis of satellite images. Village level expected total population, population density, LULC changes, NDBI components are taken under consideration to estimate location of new emergence census town and rural transformation under the study area. After analysis it has been find out that, two villages named Salanpur and Rupnarayanpur is meet two criteria having total expected population of 6023 and 6275 with population density of 1211 and 5468 per sq. km. in 2021. Village Salanpur in located very near to Kulti municipality where village Rupnarayanpur is found very far from municipality but nearer to census town Chittaranjan.

**Keywords:- Rural-Transformation, Urbanization, Land Use Land Cover change, Urban Township**

### **Introduction:-**

The current world is going through rapid transformation from rural to urban area which is commonly known as urbanization. The rate of urbanization is exponentially high specifically in developing countries like India where most number of people wants to live in urban places as it provides better job opportunities, health and educational facilities etc. Rural transformation is a complex process and it has multi dimensions such as changes in the structure of the production system, livelihood diversification, rural – urban linkages, infrastructural development and many more. In the current study an attempt has made to elucidate pattern of rural transformation in Salanpur block area located in western most part of Paschim Barddhaman district of West Bengal. The focal aim of the study is to identify possible location of villages having high chances to transform into urban area using previous census

population data trends and multi temporal analysis of satellite images. Rural transformation refers to the metamorphosis of the economic, social and spatial structure of the villages and also the way of life of the villagers through multiple processes which include changes in the structure of the production system, livelihood diversification, rural–urban linkages, infrastructure development, educational attainment and changes in the aspiration and way of life and many more. There are two types of factors namely exogenous and endogenous which influence the process of transformation. While the former includes land reforms, infrastructure development, innovations in agriculture, rural-industrialization, etc., the latter encompasses different types of village-level institutions, nature of soil, access to water for cultivation, method of cultivation, cropping pattern, pattern of land ownership, etc. (Rao and Nair 2003). Now a day’s rural and urban places are complementary to each other, Empirical studies done in different parts of the world in the last three or four decades have argued that due to the substantial growth and improvement in transport and communication technologies in areas located away from the city cores, physical, functional and cultural integration between ‘rural’ and ‘urban’ areas have occurred in an unprecedented way. As a result, ‘ruralization of urban and urbanization of rural’ have been taking place (Kumar 2016, 69). In India except all major economic factors, one of the significant social causes of rural transformation is gradual declining of caste domination and resulting into more people came out from their traditional job and joins to the job of their choices (Gupta 2005; Jodhka 2006, 2010).

Analyzing the pattern of rural transformation is a tedious activity as it is the result of multiple causes. In India during last census total 3000 Census Town’s has emerged. This unprecedented emergence of census town is a clear indication that India is going through rapid change in economic sectors. But after last census in 2011, no data regarding emergence of new census towns has been published yet hence the current study try to bridge the gap by providing estimated location of future census towns with the help of a case study on Salanpur block of west Bengal.

### **Objectives:-**

The main objectives of the current study are stated as under

- To explore pattern of rural transformation in Salanpur block of Paschim Barddhaman district of West Bengal.
- To identify possible location of villages having high chances to transform into urban area.
- To estimate possible causes behind transformation of villages into urban area.

### **Database:-**

The present study uses both population data and satellite imagery. Population data was collected from Census handbook, population enumeration datasheets, and district handbooks of Barddhaman district. Block map of Salanpur collected from district wise block map directory, census 2011. A number of articles and journals were collected to generalize the research thought except various government and non-governmental reports were taken under consideration for stating the concluding remarks. Satellite images of different time frame were obtained from USGS websites. Landsat 4-5 Thematic Mapper (TM) and Landsat 8 OLI series images were obtained from USGS websites.

## Methodology:-

Two paths are have been followed to understand pattern of rural transformation:-

1. Village wise analysis population trend using previous census data.

$$\text{Decadal Growth rate} = \frac{\text{population of 2011} - \text{population of 2001}}{\text{population of 2001}} \times 100$$

$$\text{Annual Growth rate} = \frac{\text{Decadal Growth rate}}{10}$$

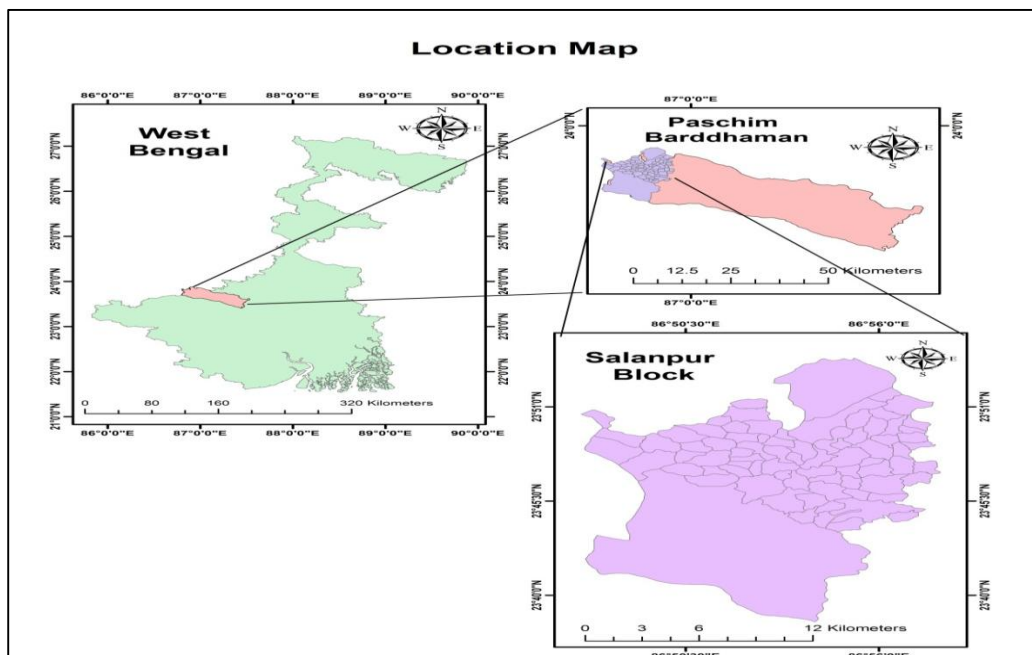
With this an attempt has made to estimate possible total population and population density per sq. km of every villages.

2. Understanding pattern of land use changes in Salanpur block area with the help of land use land cover analysis.

For that satellite images of 2001 (landsat 4-5 TM) and 2024 (landsat 8 OLI) series were taken from USGS website and LULC maps were developed with the help of GIS software.

## Study Area:-

Salanpur block is located on extreme western part of Paschim Barddhaman district of West Bengal. The latitudinal and longitudinal extension is from 23°44'N to 23°54'N and 86°46'E to 87°2'E respectively. This area shares boundary with Jharkhand in west, Barabani block in east, Birbhum district in north and Puruliya district in south. It consists of total 75 villages with 2 census towns. Asansol-Kulti Township area is present in the southern part of this block. Among these 75 villages 7 are not inhabited. Economically this region is a part of Asansol-Durgapur Industrial Belt. This area is also comes under famous Asansol-Raniganj coalfield area.



The average elevation of this area is 111 meter from mean sea level. The study area lies in between two important river of West Bengal Ajay in the north and Damodar in south. They almost flow parallel and bounded this region with an average distance of 30km in between them. Earlier this area was heavily forested but with time the forest areas is being cleared and industrialization and urbanization has taken place. The discovery of coal has played crucial role for industrialization in this region.

As of 2011 India census, Salanpur had a population of 129,456. Males constitute 53% of the population and females 47%. Salanpur has an average literacy rate of 58%, lower than the national average of 59.5%: male literacy is 67%, and female literacy is 47%. In Salanpur, 14% of the population is under 6 years of age.

### **Pattern of Rural Transformation:-**

Identifying pattern of rural transformation is very significant for future planning in any part of the world. The evidence of rural transformation is very common in specifically developing country like India. The probability of transformation into urban or merges with existing urban region is unevenly distributed among different villages. Generally villages nearer to large urban centre are more vulnerable towards transformation. In the current study villages located vicinity to the Asansol-Kulti township area are prone to transformation into urban and merge with the existed urban locality. On the other hand villages located 10 to 15 km distance show high rate of transformation due to close vicinity of Chittaranjan census town which is very famous for rail engine manufacturing centre. There is a certain possibility that in near future Chittaranjan census town emerge as large urban centre by collaborating all the surrounding village areas. Thereafter, Asansol-Kulti township area and Chittaranjan new emerging town joins together to form large urban agglomeration.

### **Location of villages with high chances to transform into urban area:-**

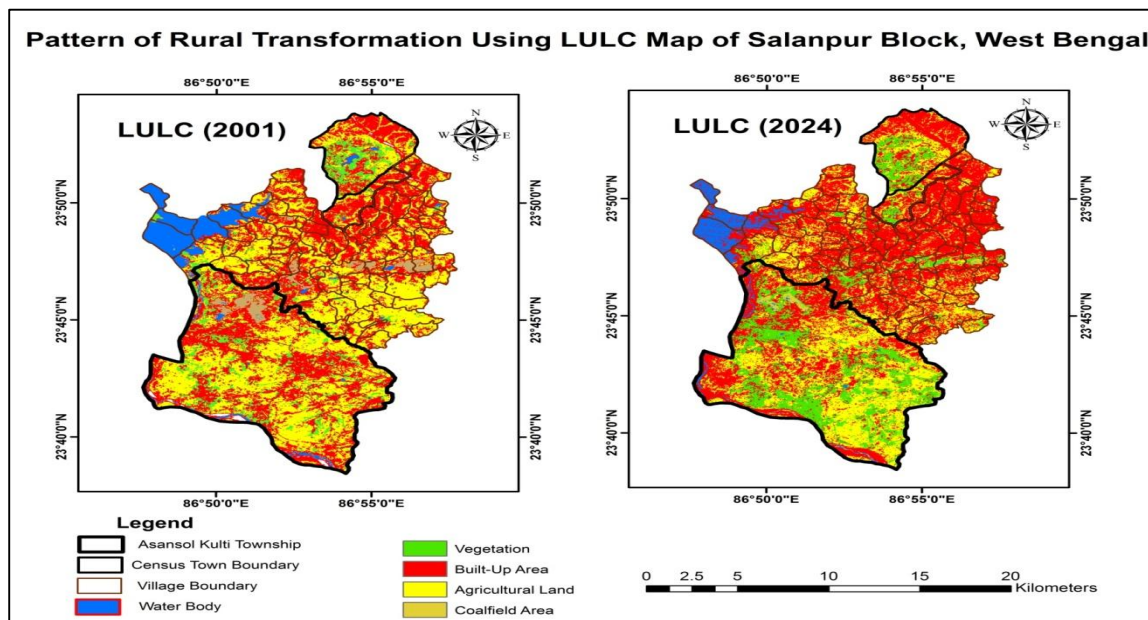
Mainly two locations is identified after analysis of population data one is very close to Asansol-Kulti Township area and another is close to Chittaranjan census town for high possibility to transform into urban centre. It becomes clear after temporal analysis of satellite images that large proportion of agricultural land is transformed into non agricultural uses over the north eastern part of current study area. Therefore in terms of land use land cover change from rural land use pattern to urban land use pattern is very much profound over this place and show high possibility toward rural transformation.

### **Causes behind transformation of villages into urban places:-**

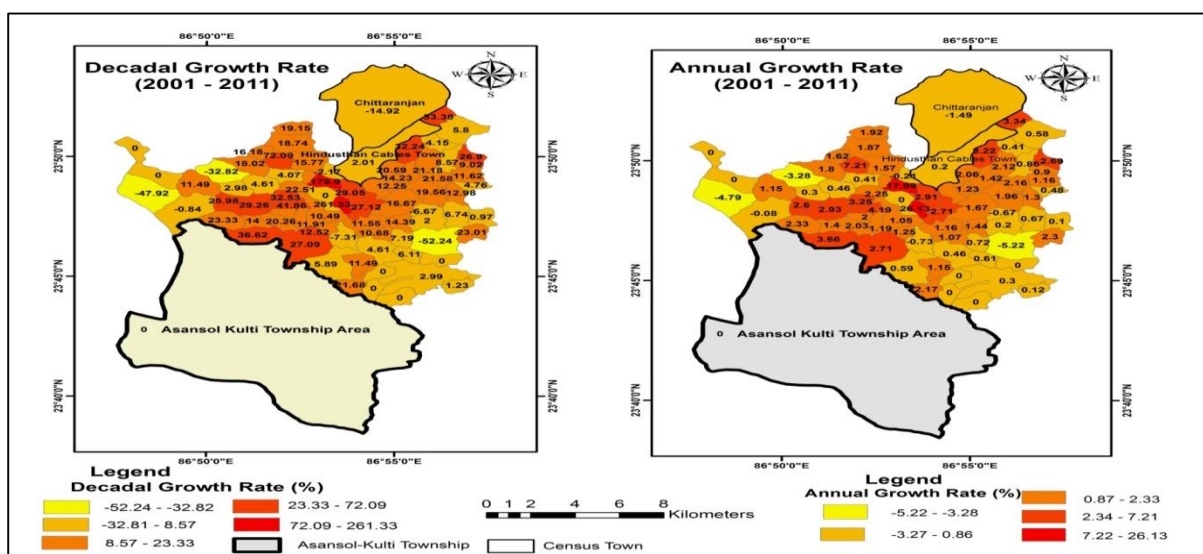
An array of causes has been identified as possible causes of village transformation. The various causes may be categorized under following two heads such as change in population and change in land use pattern over the period of time. Transportation system plays an important role in transforming villages into urban areas. The annual population growth rate of Rupnarayanpur is 18 % which is higher than average resulting into estimated population density in 2021 is 8171 people per sq. km. Even with negative population growth rate the population density of Benagarya village is showing comparatively high 7088 per sq km. According to census of India the minimum population density of any area must be above 400 per sq km. the above mentioned two villages have population density much higher than that. Except these population aspects the facilities of health, education and transport and communication is well grown over these places which increases the rate of transformation in specific or urbanization in general.

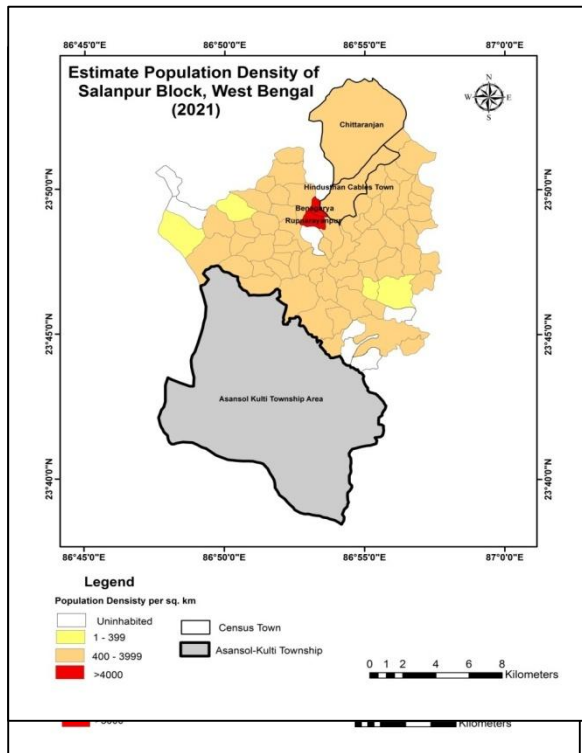
## Result and Discussion:-

The rate of rural transformation is more on north eastern part of the map. Villages that are more vulnerable towards transformation are Uttar Rampur, Salanpur, Chayenpur, Malladih, Kankurkunda, Kususmdanali, Rupnarayanpur, Benagarya, Ghiadoba etc. Highest transformation type is showing from Agricultural land to Built-up area. Increase in vegetation coverage in Asansol-Kulti Township area is showing over last few decades due to road side plantation took under consideration. Land use change has been noticed relatively more on the rural part than urban region.



The decadal growth rate of village Amjharia and Rupnarayanpur are 261.33% and 179.90% respectively. Surprisingly, Chittaranjan census town is showing negative population growth. Villages having relatively high population growth rate are found near to coalfield areas. If we look at the map these villages are located in a linear manner from south-west to north-east.





Among these total 75 numbers of villages 18 villages are having population more than 2500 but less than 4999. Except two census towns (Chittaranjan and Hindustan Cables Town), There are only two villages Rupnarayanpur and Salanpur which has the possibility of crossing 5000 as total population. Expected population of village Rupnarayanpur and Salanpur were 6275 and 6023 respectively. Interestingly, village Rupnarayanpur is located very near to census town Chittaranjan and village Salanpur share boundary with Asansol-Kulti Township Area. Mostly all the villages having expected population more than 2500 were found closer to either Salanpur or Rupnarayanpur.

Almost all the villages except eleven (seven were uninhabited) are having expected population density more than 400 people per sq.

km. Two villages namely Rupnarayanpur and Benagarya are exceptionally having very high population density with 8171 and 7088 population per sq. km. There are four more villages having population density more than 3000 per sq. km namely Alladi (3597), Ramdi (3668), Jemari (3203) and Radhaballavpur (3749).

## Conclusion:-

After considering all the aspects of change in population data and land use land cover, it becomes quite clear that two types of rural transformation have taken place. In one case the village is found very close to the well grown urban corporation area such as Salanpur village which share its boundary with Asansol-Kulti township area. In another case, the village is found at distance place from main urban township area but located near to sub-urban small census town such as village Rupnarayanpur and Benagarya. These two villages located very near to Chittaranjan census town and showing possibility to transform into urban area in near future. Hence, the influence of small towns exceeds the influence of large urban township area on pattern of rural transformation.

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