

A GEOGRAPHICAL ANALYSIS OF URBANIZATION, DEMOGRAPHIC STRUCTURE AND PROBLEMS IN ASANSOL DURGAPUR PLANNING AREA (ADPA)

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Abstract: The process of urbanization has a tremendous effect on the demographic structure of any region. In the recent era, the impact of urbanization and industrialisation can be widely felt over the world. The developing countries are marching towards urbanization at a massive scale and India in this regard is not lagging behind. The Asansol Durgapur Planning Area (ADPA), is a potential region marching towards urbanization due to the presence of industries in this area. Hence in this region the impact of urbanization on the demographic structure and also the problems associated with industrialisation has been discussed. It has been observed that urbanization has cast a massive impact on the demographic structure of ADPA which is observable in the population density, employment scenario etc. However, indiscriminate industrial activities have led to the emergence of several problems like land subsidence, mining, pollution. This paper mainly based on secondary data attempts to discuss the scenario of urbanization, demography and problems of industrialisation in ADPA.

Keywords: Urbanization, Industrialisation, Demographic Structure, Land subsidence

1. Introduction

Urbanization has been defined in the following ways by different economists: The different Economists give the meaning of Urbanization in the following way:

- According to Eldridge, "Urbanization is a concept which shows the centralization of population."
- Ottis defined urbanization as "Urbanization means the increase in the living population in cities."
- Bergel opined, "Urbanization is a kind of process in which villages are transformed into cities that is the process of evolution and development of cities."

The physical growth of urban areas as a result of global change can be termed as urbanization or urban drift which leads to demographic and socio-economic changes among other things (Keivani,2010). The process of urbanization has a tremendous effect on the demographic structure of a region. In the recent decades the entire world has witnessed a massive level of urbanization and the effect of this can be seen in the developing countries mainly (Jennings 2016). India is also approaching towards urbanization and it can be seen that the Asansol Durgapur Planning Area in West Bengal has evolved as a dominant industrial region since the last few decades which paved the way for urbanization of this region. In the recent decades a massive level of urbanization has been witnessed in the Asansol-Durgapur Planning Area which came up under the Asansol-Durgapur Development Authority Area in 1980, under the provisions of WBT & CP Act. Previously, the areas under ADDA was under the district of erstwhile Bardhaman, however, recently the areas under ADPA has been brought under the newly formed district of Paschim Bardhaman.

However, not much work has been done on the socio-demographic aspect of ADPA, therefore, there is a substantial research gap on the studies of demography in the selected study area, *i.e.* ADPA. Keeping that in mind, the objectives of this research have been designed as follows:

- To determine the demographic characteristics of the study area.
- To determine the impact that urbanization has cast on the population growth rate, density and composition.
- To study the pattern of growth of the various determinants of demography in the study area.

2. Methodology

- **Delineation of the Study Area:** The study area was selected at first
- **Review of literature:** A thorough review of literature was conducted to find the research gap in the study area and it was seen that only the industrial aspect of the ADPA has been covered mostly with little importance on the demographic pattern of the region
- **Collection of data:** This work is mainly based on secondary data collected from various sources like the Census of India, various reports published by the ADDA etc.
- **Analysis of the data collected:** An analysis of the data collected has been done by cartographic representation.

3. Results and Discussion

3.1. Study Area

The Asansol-Durgapur Development Authority has been selected as the study area of this work. The Asansol-Durgapur Development Area is a prominent urban centre of eastern India. The region has made immense progress in the recent years (City Development Plan, 2006). The Asansol-Durgapur region can be broadly divided into two urban areas consisting of Durgapur Municipal Corporation and Asansol Municipal Corporation and around eight Community Development Blocks. However, in 2015 the municipalities of Jamuria, Kulti and Raniganj has been dissolved and brought under the aegis of Asansol Municipal Corporation. In 2017 the erstwhile Bardhaman district has been bifurcated into two parts and the new district Paschim Bardhaman came up with Asansol being the district headquarter(The Times of India, April 2017).

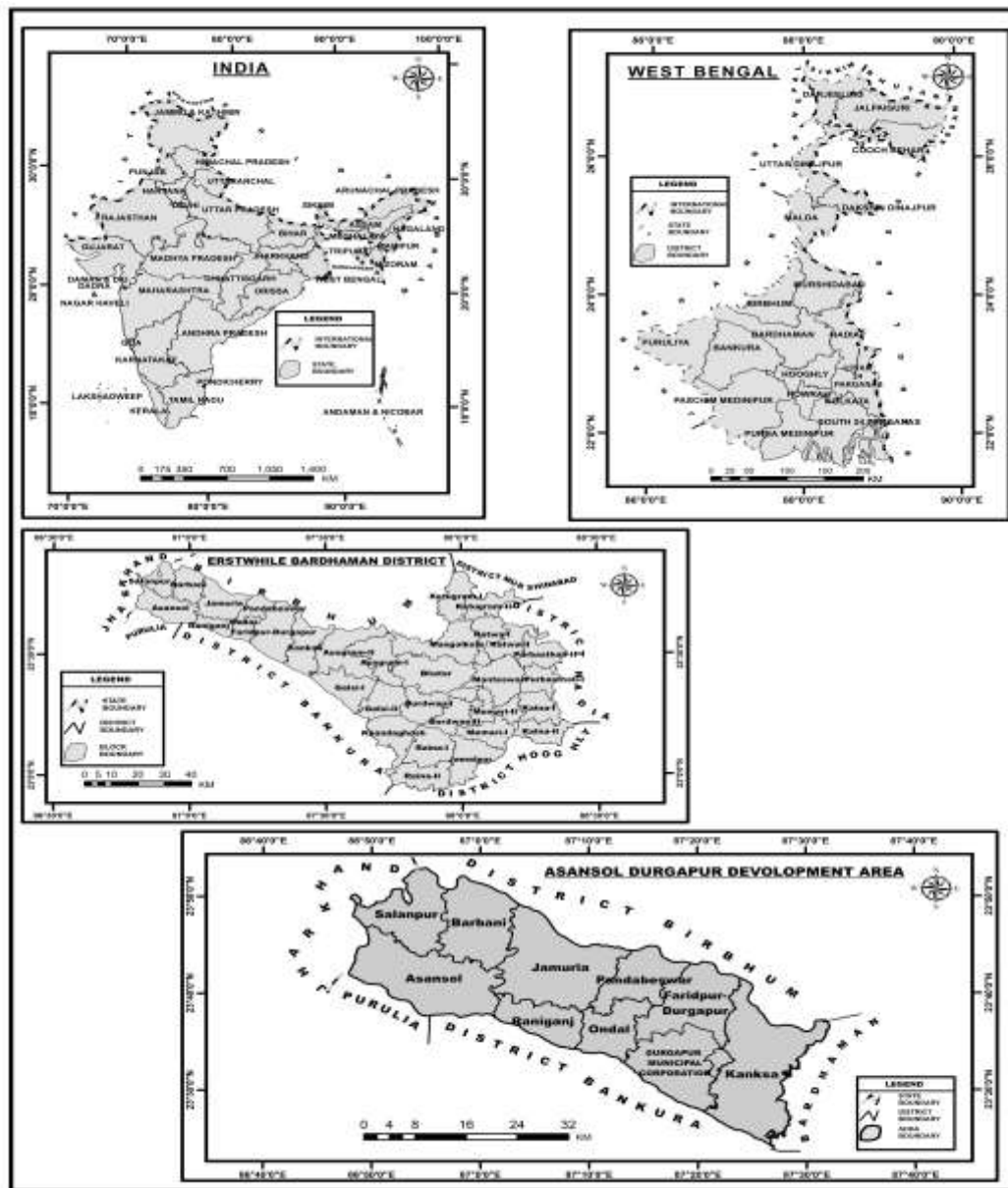


fig 1: location of the study area

3.2. Urbanization and Industrialization Scenario

The Asansol-Durgapur Planning Area is a prominent urban centre of eastern India. The region has made immense progress in the recent years (City Development Plan, 2006). The Asansol-Durgapur Planning Area can be broadly divided into two urban areas consisting of Durgapur Municipal Corporation and Asansol Municipal Corporation, three municipalities and around eight Community Development Blocks and it is the second largest urbanized region in West Bengal after the Kolkata Metropolitan Area (City Development Plan, 2006). As an urban agglomeration, Asansol has a quite cosmopolitan character. It is located on the lower Chotanagpur Plateau in the erstwhile Bardhaman district (Paschim Bardhhhaman) of West Bengal though only a small part of the plateau lies in West Bengal (Singh, 1971).

The Asansol-Durgapur Region is one the major industrial and urban area of West Bengal. Asansol and Durgapur are the two major cities in terms of economic development (Chakravarty, 2014). The economic activity is dominated by mining and wholesale trade. The availability of cost effective power, adequate raw material, cheap labour, power and strong connectivity with Kolkata are the

major impetus to economic development. In this region agriculture is limited owing to the low productivity of agricultural land in this region. Moreover, mining comprises a major part of the regional economy primarily oriented around Raniganj-Jamuria coal belt. (City Development Plan, 2006)

The trend of expansions of Asansol and Durgapur are leading towards formation of second metropolis within this state as the urban growth of the Asansol Durgapur industrial region is primarily focused on these two growth centres. Both the centres have already influenced their immediate rural hinterland towards urban transformation. On the eastern bank of river Barakar and northern bank of river Damodar along the GT road (NH2) and Durgapur-Dhanbad railway linkage the urban growth of Asansol-Kulti-Jamuria still continues (ADDA,2010).

Due to predominance of large scale mining and industrial activities within its local economy, very high levels of population density, urbanisation as well as growth rate is observed in ADPA, and within Asansol Sub-division in particular. Asansol sub-division lies over a huge coal reserve and contains the best type of non-coking coal reserves in the country. As early as 1774, mining activity started in this region but systematic extraction started in the second half of the nineteenth century. A vast number of private collieries extracted coal from the Raniganj coalfield reserve until all of non-coking coal mines were nationalized in 1975 and renamed as 'Eastern Coalfields Limited (ECL). After Talcher reserve, the second highest coal reserve in India is the Raniganj Coalfield. There are two blocks in Raniganj Coalfield: Raniganj measures and Barakar measures. A large share of the workforce is engaged in mining and related activities, though the share has dipped in the last decade.

Large iron and steel industries has been set up in this region due to the presence of large volume of coal reserves and consequential extraction activities, favourable geographical setting, proximity to other mineral ores especially iron ore. In addition to this, other extraction-based industries like heavy engineering works, refractories, distilleries, chemical industries etc. has come up in this region. Some of the most noted are the IISCO plant in Kulti and Burnpur, Chittaranjan locomotive factory, Hindustan cables factory in Chittaranjan, and Sen-Raleigh cycle manufacturing unit etc. However, over time obsolescence of production technology has led to slump in industrial activities within Asansol which led to closure of many significant manufacturing units. In recent times, fresh investments in both public and private, have played significant role in rejuvenating the industrial climate. After its merger with Steel Authority of India Limited (SAIL) IISCO Burnpur has experienced a complete turnaround. Apart from these lot of private iron and steel plants as well as other coal-based industries have come up - though the trend is more towards medium and small-scale industrial set up (ADDA,2010).

Asansol has also evolved as a trade and commerce destination covering a catchment area of Purulia, Bankura, Birbhum, Dhanbad and Bardhaman district. Most of the trading takes place in wholesale format. High volumes of trading, both retail and wholesale, are evident from the revenue earned from the sales and excise tax sources.

In the entire eastern India Durgapur is one of the most industrialised cities. In the middle of 1950s Durgapur was selected as the site for one of the new industrial townships of independent India, which was to be planned, set up, and run mostly by public sector companies. In 1955 the construction of Durgapur Barrage was started followed by the Durgapur Thermal Power Station, both under the Damodar Valley Corporation.

There was a massive follow up - Durgapur Steel Plant (commissioned 1960), Alloy Steels Plant (commissioned 1965), Durgapur Projects Ltd. (established 1961), Durgapur Chemicals were some of the prominent large industrial units that were set up in Durgapur. This industrialisation drive was accompanied by the establishment of were ancillary and downstream units, mostly in the private sector. By Durgapur Steel Plant started its massive modernisation and structural transformation middle 90s and by 2001 it had become much more efficient, lean and profitable. This was accompanied by renewed interest in the region and suddenly investors found a new the locational advantage of Durgapur as an industrial city.

3.3 Demography

The presence of coal mines and large industrial establishments attributes to the urban character of the Asansol Durgapur Planning Area. More than 77% of its total population is urban comprising about 2.4million. According to the 2011 census, about 88% of the Erstwhile Bardhaman district's urban population resides in the ADPA. It seems that the urban population has increased tremendously over the years from 1991 to 2011. There was a jump of urban population by 132.5% between the years 1991-2001 and 14.5% between 2001-2011. This implies that the major accelerated growth in urban population occurred from 1991 to 2001 after that the growth decelerated to a very low extent.

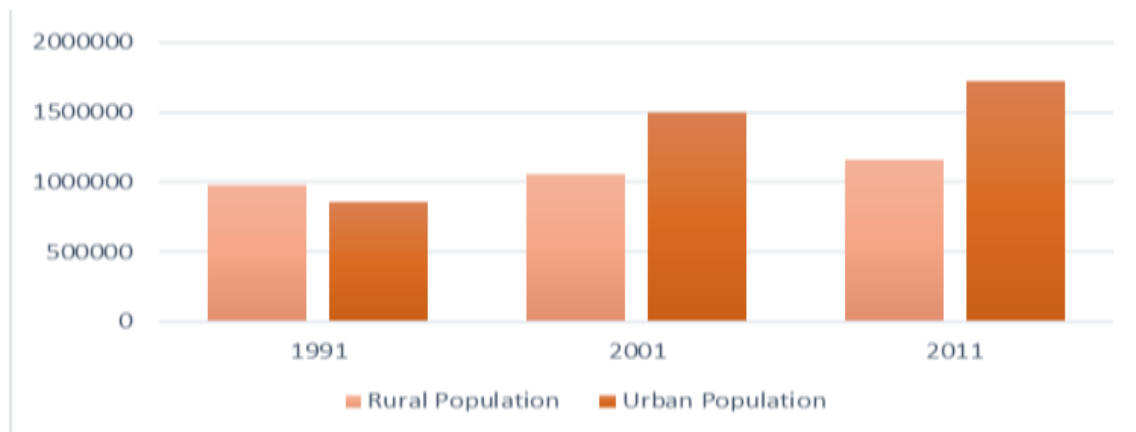


fig 2: trend of growth of urban and rural population, data source: census of india 1991,2001 & 2011

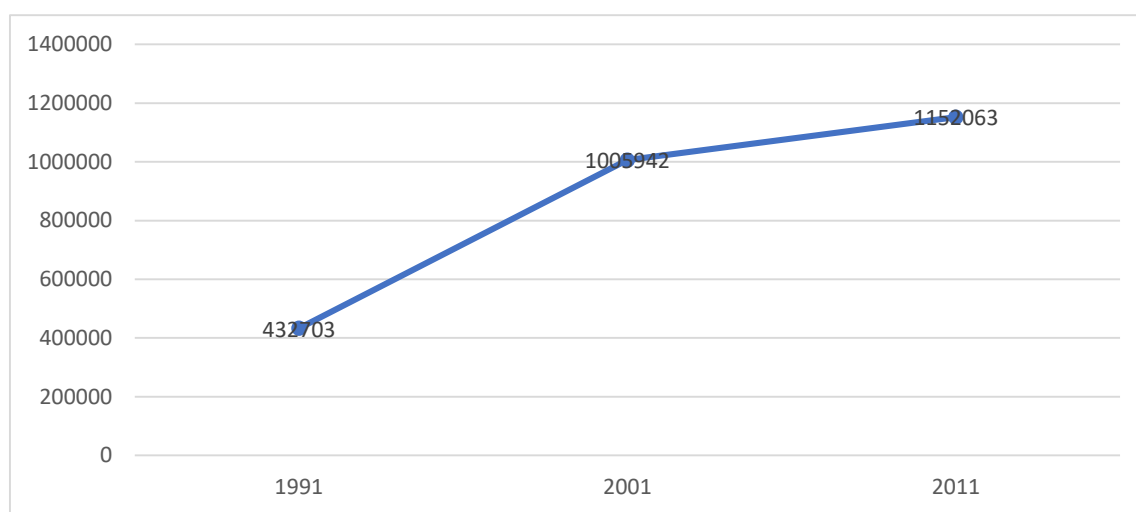


fig 3: trend of growth of urban population in ADPA, data source: census of india 1991,2001 & 2011

In fig 2 we can see that the rate of growth of rural population in ADPA has been quite low compared to the rate of growth of urban population. The rate of growth of urban population between the decade 1991-2001 has been quite high as can be seen in fig 3 while the rate decelerated in the decade between 2001-2011.

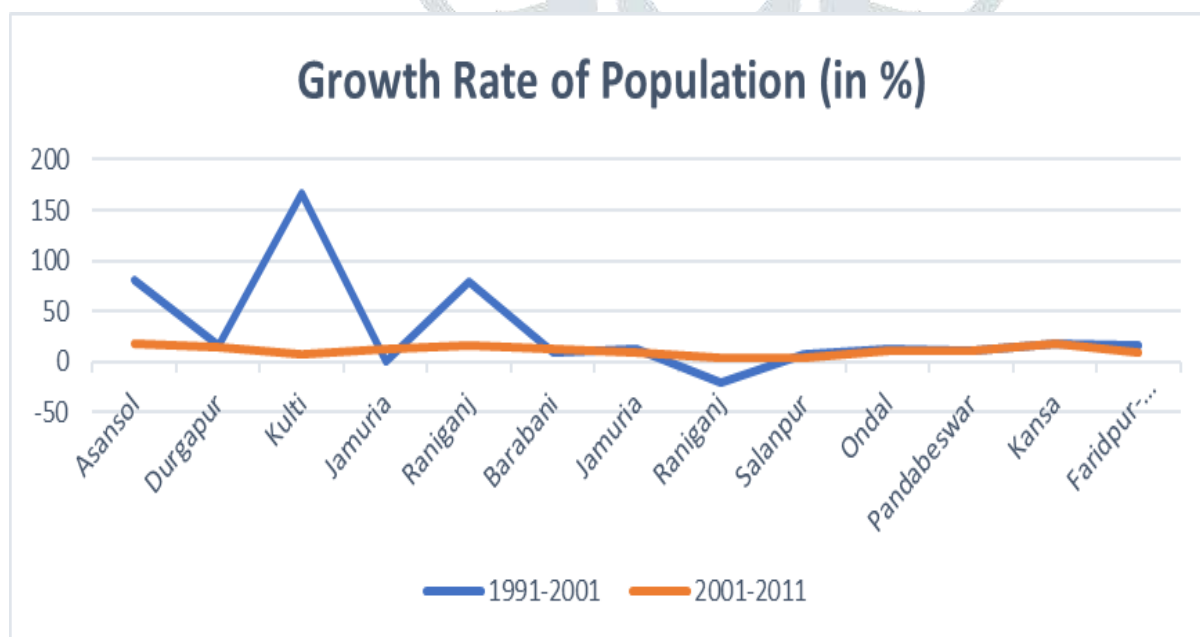


fig 4: growth rate of population (in %), data source: census of india, 1991,2001 and 2011

The growth rate of the total population in percentage (Fig 4) shows that the rate of growth has been quite erratic in the decade between 1991-2001 for all the centres and almost all the centres had a greater growth rate of population in 1991-2001 than in 2001-2011. In the decade spanning between 2001-11 the growth has been at a quite stable rate for all the centres of ADPA.

An analysis of the above graphs showing the growth rate of population shows that the rate of growth of population had been quite erratic in the decade of 1991-2001 among all the centres of ADDA. However, in the decade of 2001-11 the rate of population has been quite steady for all the centres. A noticeable fact is Raniganj C.D. Block had witnessed a negative growth of population in the decade between 1991-2001. This might be because of the growth of population Raniganj Municipality/ development of Raniganj as a municipality. Jamuria also recorded negative growth of population in the decade of 1991-2001. However, in almost all the centres the growth rate of population in 1991-2001 has been greater than 2001-2011. Asansol Municipality witnessed a tremendous increase in population growth in the years between 1991-2001 although the highest growth rate has been observed in Kulti which quite remarkably high in the decade spanning between 1991-2001.

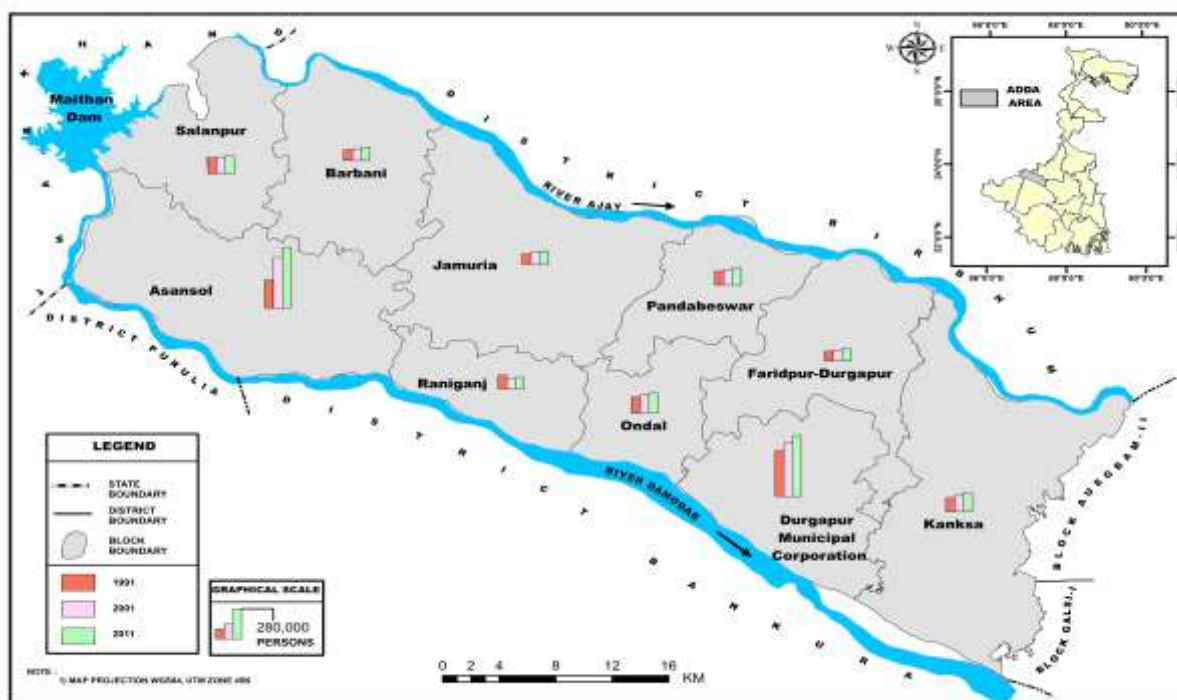


fig 5: total population in the blocks of adpa, data source: census of india

There has been phenomenal increase of population in the centres of ADPA (Fig 5). However, it is a noticeable fact that the massive growth of population occurred in the decade between 1991-2001; this decade witnessed a very high degree of growth rate in all these centres specially in Kulti Municipality the growth rate has been enormous. In the decade between 2001-2011, the trend of the population growth has been moderate but compared to the previous decade it is seen that the growth pattern is quite on the lower side. A remarkable fact is Jamuria did not have a single urban population in the 1991 Census but in the 2001 census its population increased to quite a certain extent. Migration is one the main factors for the tremendous increase of population in this region. There has been huge influx of migrants in these regions particularly after 1970s due to the industrial flourishing which created immense job opportunities which in turn attracted lot of immigrants.

The density of population exhibited by the centres under ADPA also shows a massive concentration of population in these areas particularly in Asansol, Durgapur and Raniganj (Fig 6). These areas have population densities which are quite higher than the national average. The increase in the job opportunities can be attributed to this fact of phenomenal concentration of population in these areas. Most of these areas are occupied by the industrial workers who have settled here for their employment purposes. The potentiality of these regions to emerge as prominent growth centres in Eastern India is quite remarkable. However, this immense population pressure creates obstacles in the growth potentiality of this region which is experiencing industrial slump these days. Hence, the ever-growing population need to be controlled immediately in order to fasten the progress of this region.

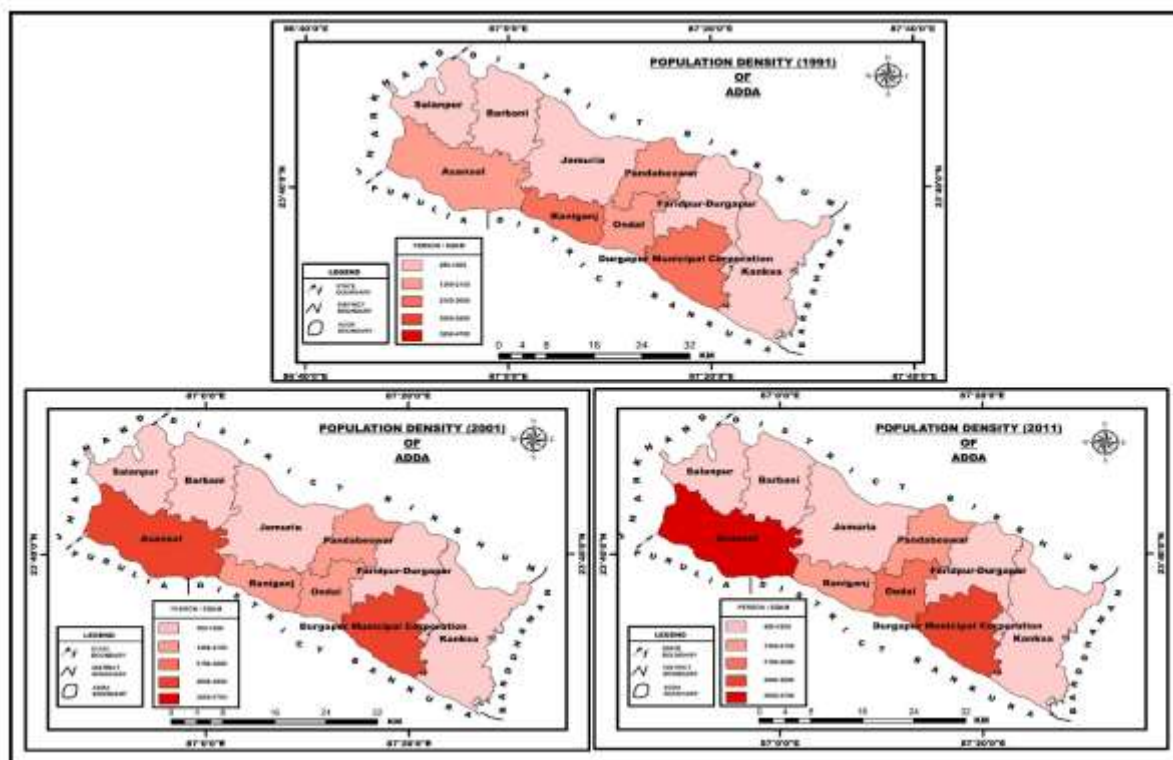


fig 6: population density in the blocks of adpa, data source: census of india

The trends of the male female population share in this region shows almost equal share of male and female in the total population (Fig 7). However, it can be noticed that the sex ratio is lower than the national average in some centres of the ADPA.

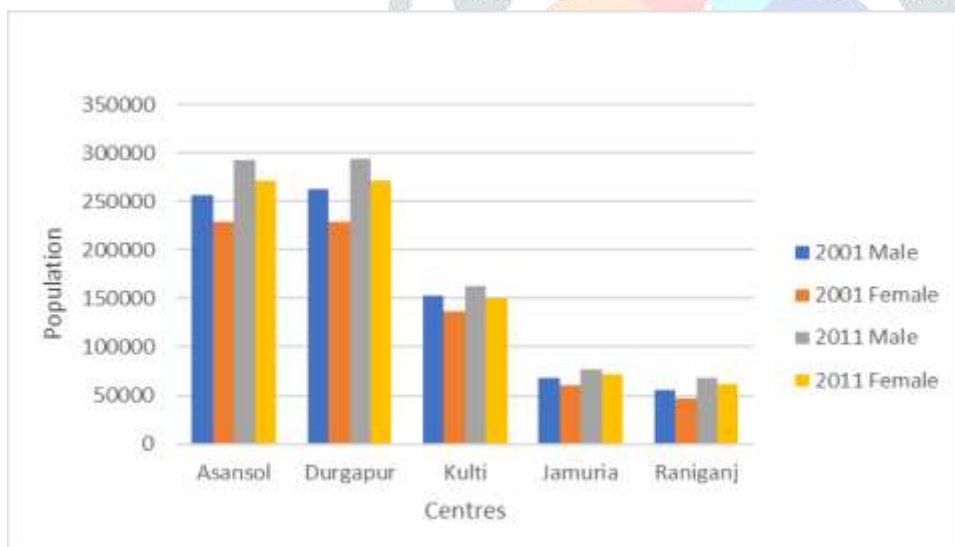


fig 7: male female population, data source: census of india

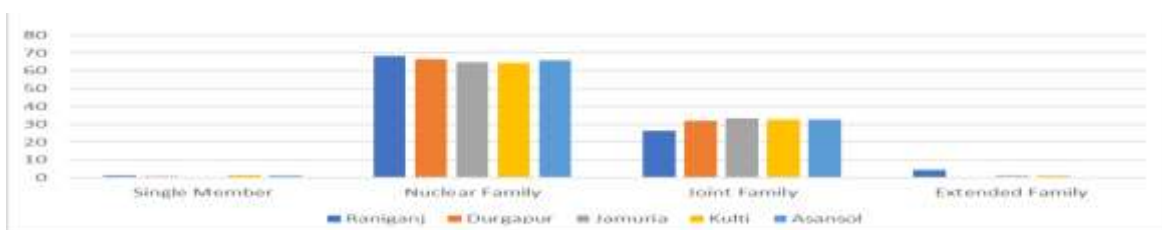


fig 8: distribution of households according to household type, data source: land-use and development control plan- asansol sub-division, 2010

The prominence of the percentage of nuclear families in ADPA (Fig 8) indicates the fact that urbanization is progressing at a great rate in this region. However, a noticeable fact in the urban centres of ADPA is that most of the migrants in this region have settled here (Fig 9) in search of employment which points to the fact that this region acts as a potential growth centre of generating secondary and tertiary sector of employments. (Fig 10).

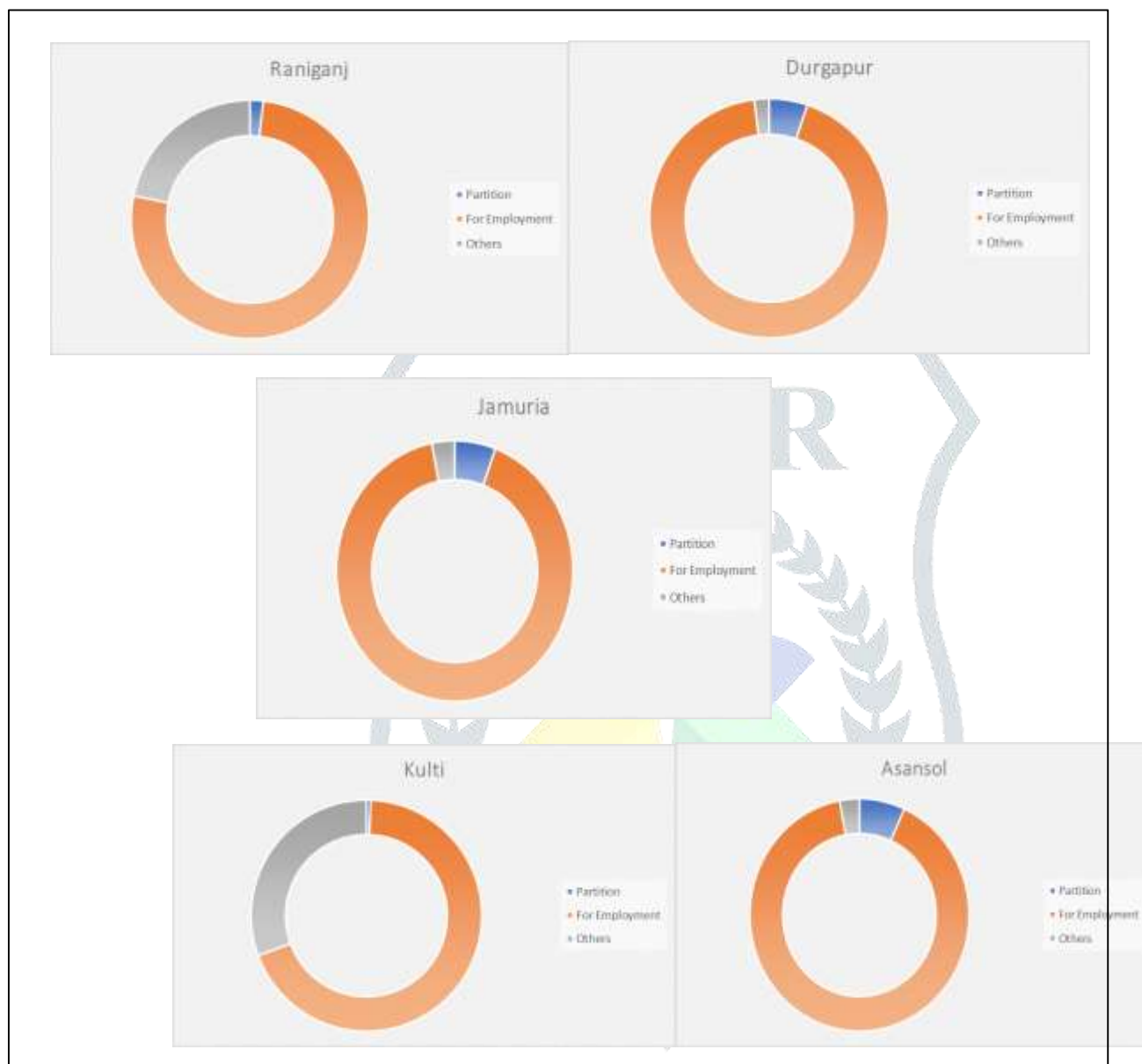


fig 9: distribution of households according to reason for changing place of stay, data source: land-use and development control plan, 2010

It is seen that the share of working population in 2011 in the tertiary sector has increased progressively while the share in agriculture is on a decline which implies that the region has steadily progressed towards urbanization.



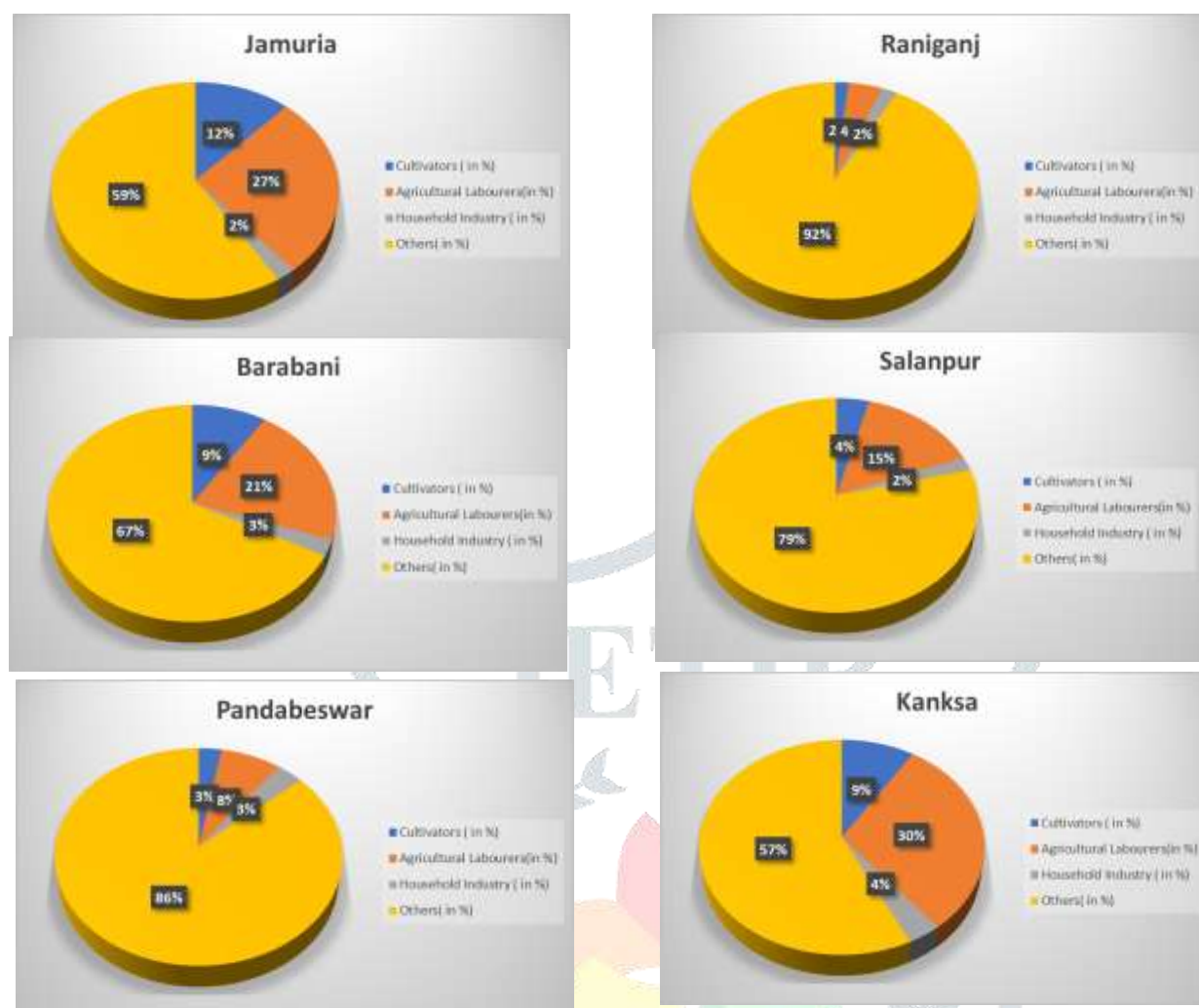


fig 10: categories of workers in the c.d. blocks of adpa, data source: land-use and development control plan, 2010

4. Problems associated with urbanization and industrialization

Several problems associated with industrialization which has led to urbanization is present in ADPA. Land subsidence due to unscientific ways adopted during mining is one of the major problems faced by the inhabitants in the ADPA region. Moreover, due to rapid rate of industrialization and eventual urbanization the problem of pollution has cropped up in the region.

4.1 Land Subsidence: Existence of the geological fault along with the presence of extensive coal extraction has made this area vulnerable to land subsidence which appears to be the major risk factor for the promotion of industrial expansion in this mining dominated region. In the process of identification of suitable sites for future development. the opinion of geotechnical experts with experiences in mining operations of this region should get the topmost priority. In this region particularly in adjoining area of Andal Raniganj, where unfilled hollow spaces of abandoned underground coalmines have been identified as the major zone of concerns land subsidence is quite common.

4.2 Mining: Coal mining has been the prime commercial activity of Raniganj coal region since 1774, and now this has turned out to be the primary cause of severe post mining hazards of this region. Till the mines were nationalized, underground coal mining operation has been continued by numerous small owners since 1774. As those private owners, did not undertake any scientific method for coal extraction unregulated coal mining made the region vulnerable to typical land subsidence and mine fires. Prior to the introduction of the Coal Mines Nationalization Act in 1973 no effective regulatory measures were implemented though several regulations on such activities was introduced since 1926. The District Magistrate has been empowered as the statutory authority for permission of any further construction after the implementation of the West Bengal Restriction of Construction in Unsafe Area Act by the state government in 1979. However, the problem of land subsistence still persists as these acts are hardly strictly followed.

4.3 Pollution: Pollution is probably the biggest hurdle in the growth of urbanization and specially in the industrial regions the problem of pollution happens to be quite severe. It is observed that over the years as a side effect of urbanization in general and industrialization in particular the problem of pollution is becoming severe over the years in ADDA specially in Durgapur as it is an

industrial hub. The pollution level in Durgapur is one of the highest in the country as it is an industrial hub. Industrial pollution is one of the leading causes of pollution in the world. High level of pollution persists in Durgapur due to the presence of a large number of industries. As per the Environmental Protective Agency report almost 50% of the pollution in the world happens to be caused by industrial pollution. Emissions from industries causes degradation of the quality of air leading to air pollution while water gets polluted by the dumping of the untreated industrial effluents in the water bodies. Moreover, in order to accommodate space for industries and settlement trees are cut down which further accelerated the pollution problem.

Factory workers of almost all the factories in Durgapur are highly vulnerable to this uncontrolled pollution. Areas of Durgapur, like Angadpur, Raturia, Kamalpur etc. where a number of industries (sponge iron and ferro-alloy) came up in recent years are the worst polluted. Durgapur Project Limited, Durgapur Steel Plant, Alloy Steel Plant are the other major industries polluting the air and water of Durgapur in big way. Even a few years back pollution was not a problem in Durgapur but the ever-increasing pollution due to cutting of trees and ever-increasing ill effects of industrialization accelerated the problem.

5. Conclusion

There has been phenomenal increase of population in ADDA. The potentiality of this region to emerge as an important urban area is immense. However, it is a noticeable fact that the massive growth of population occurred in the decade between 1991-2001; this decade witnessed a very high degree of growth rate in all these five centres specially in Kulti the growth rate has been enormous. In the decade between 2001-2011, the trend of the population growth has been moderate but compared to the previous decade it is seen that the growth pattern is quite on the lower side. A remarkable fact is Jamuria did not have a single urban population in the 1991 Census but in the 2001 census its population increased to quite a certain extent to about 129284 and to 144971 in 2011.

Migration is one the main factors for the tremendous increase of population in this region. There has been huge influx of migrants in these regions particularly after 1970s due to the industrial flourishment which created immense job opportunities which in turn attracted lot of immigrants. Migrants mainly came here in search of jobs. Gradually post 2001 the rate of growth of population subsided mainly due to the industrial boom and lessening of employment opportunities in this area. These centres suffer from a lot of congestion because of the quite high population densities prevailing over here. Compared to the population densities of India and West Bengal the density of population in these areas are very high.

The density of population exhibited by the centres under ADPA also shows a massive concentration of population in these areas particularly in Asansol, Durgapur and Raniganj. These areas have population densities which are quite higher than the national average. The increase in the job opportunities can be attributed to this fact of phenomenal concentration of population in these areas. Most of these areas are occupied by the industrial workers who have settled here for their employment purposes.

The trends of the male female population share in this region shows almost equal share of male and female in the total population. However, it can be noticed that the sex ratio is lower than the national average in some centres of the ADPA.

The increasing concentration of working population in tertiary sector also points out that the potentiality of these regions to emerge as prominent growth centres in Eastern India is quite remarkable. However, this immense population pressure creates obstacles in the growth potentiality of this region which is experiencing industrial slump these days, Hence, the ever-growing population need to be controlled immediately in order to fasten the progress of this region.

6. Acknowledgement

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