

## Change of Land Use Pattern and the Present Status of Land Use Planning: A Case Study of Rajarhat New Town, North 24 Parganas, West Bengal.

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**Abstract:** Land use is the surface utilization of crops, forest, pasture, mining, residential, industrial, commercial, and transportation etc. Actually, land use is the reflection of any regions people living style and also long term interaction between humans and natural environment. But traditionally land use pattern has difference form between rural area (farming, forestry, and etc) and urban area (housing, industry, and etc). Due to different causes land use pattern has been changed i.e. rapid growth of urban area and continuously increase of population of any area. The plan city Rajarhat New Town is also known as a satellite city in West Bengal. It was totally a rural and agricultural based area before had grew up Rajarhat New Town. It is clear that the agricultural land transformed into urban residential, commercial, and industrial etc by the Government policy. This research paper gives an overview of the change of land use pattern of the Rajarhat New Town and analyses the present status of land use planning of the city.

**Keywords:** Land use pattern, Land use planning, Transformed, Population

### I. Introduction:

Basically land use is the function of land and modification of natural environment. Due to rapid urbanization and population growth land use has been changed. Initially, Rajarhat New Town is a part of Rajarhat block of North 24 Paraganas and part of Bhangar block of South 24 Paraganas district in the state of West Bengal and the on-going project started in 1990 under the chief minister Jyoti Basu of West Bengal. For this on-going project huge changed in land use pattern as well as demographic and occupational change in this area and its massive effect create problem inhabitants of the old rural settlement (lost agricultural land, lost different primary activities i.e. agricultural labour, fishing etc.). Rules of business were changed in 1997, keeping Housing Department for development of Rajarhat Township comprising Rajarhat Police Station of North 24 Parganas and east while Bhanagar Police Station of South 24 Parganas.

Rajarhat New Town is very close to megacity of Kolkata (7kms distance). The environment friendly city was set up for creating new residential units, to reduce mounting pressure on existing Central Business Districts (CBD) and to prevent unplanned growth settlements under the Land and Development Control Plan (LUDCP). Rajarhat New Town has given many facilities such as IT industry, different Head Office, modern Museum art, Eco-Park, shopping mall and etc. with large open space and lots of water bodies. At present, planned city Rajarhat New Town is very essential to reduce pressure of Kolkata megacity's after Salt Lake City in West Bengal and it is almost three times bigger than the Salt Lake City.

## II. Study Area:

Geographically Rajarhat New Town is situated in part of North 24 Parganas district (Rajarhat Block) and part of South 24 Parganas district (Bhangar Block) of the Indian state of West Bengal. The city with an area of 67 sq.km and extends latitudinally from 22°30'N to 22°38'N and longitudinally from 88°26'E to 88°32'E. Just 7 kms distance from Kolkata of the satellite town.

## III. Objectives:

The main objectives of the present study as follow-

- i) To know the change of land use pattern of the study area.
- ii) To analyse the present status of land uses planning of the town.

## IV. Methodology:

To analyses the present study, data, town project map and others information has been collected from Bijon Bhavan, West Bengal Housing Infrastructure Development Corporation Ltd. (WBHIDCO), Government of West Bengal, Land use and Development Control Plan (LUDCP) and different journals. To interpret of the data and diagrams has been made with help of the Microsoft Office Excel software and Photoshop.

## V. Limitation of the study:

The present study only describes as much possible land pattern and the status of land use planning of the study area due to lack of recent data. Actually it is an on-going project still now for that the present study has some barrier or limitations.

## VI. Analysis and Interpretation:

The on-going project Rajarhat New Town cause a massive change in land use pattern of the study area and specially the agricultural land transformed into residents part, commercial part and other urban functional areas. It has a huge effect on the inhabitant of the old rural settlement. Almost 85% agricultural labour and cultivator are now in other occupational activities like security guard, construction labour, care taker etc. due to transformation of agricultural land. According to Land Use and Development Control Plan (LUDCP), there are 4 part mouzas and 41 full mouzas of the town and at present the eco-friendly town has been designed to develop the area in different area or phases. Initially the total area of the town is divided into three areas which are-Description of different areas of Township of New Town

Location	Action Area-I	Action Area-II	Action Area-III	CBD
Area (hectares)	677	1310	783	183
Progress of infrastructure development	Almost complete	More than 50% work completed	Work in progress	Work in progress

Source: LUDCP, 2012

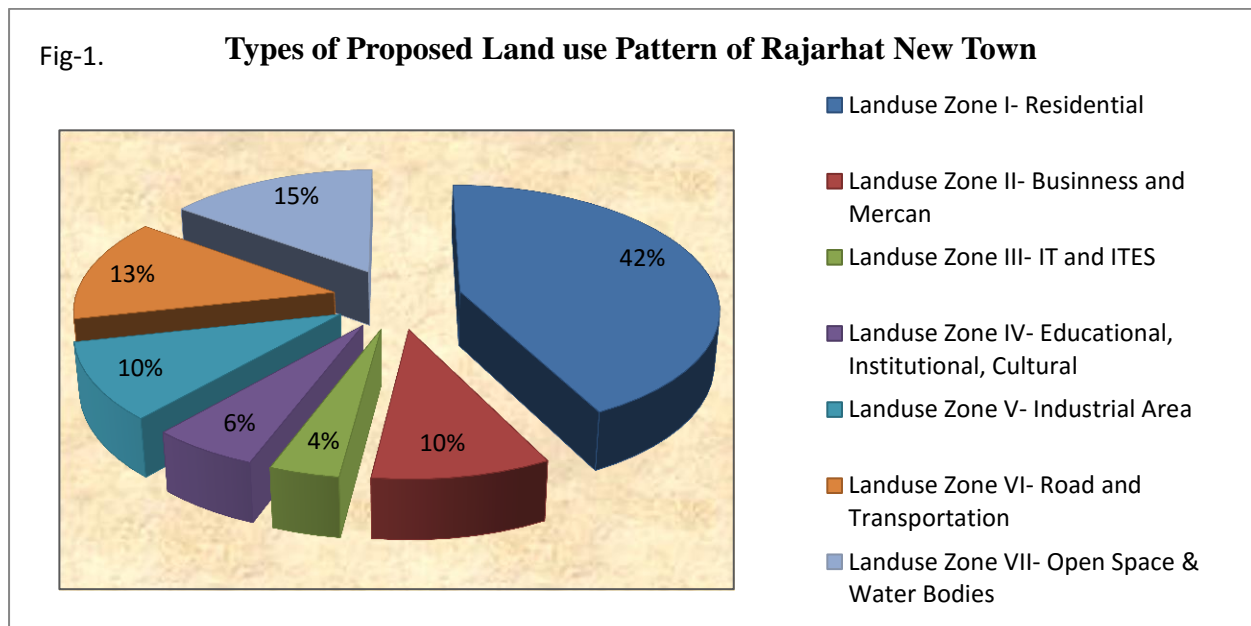
The Rajarhat New Town has been planned in a way and for the propose of formulating the general proposals of the land use and Land Use and Development Control Plan (LUDCP) indicates broadly the manner in which the land is proposed to be used.

The planning area of the Town has been planned to develop as an environment friendly city. More than 10% of the Town planning area will remain permanently open in the form of green areas, and open space.

Table-1: Proposed Land use pattern

Sl. No.	Land use Zone	Area (sq. km)	Percentage of area
1	Land use Zone I- Residential	26.782	29
2	Land use Zone II- Business and Mercan	6.012	6
3	Land use Zone III- IT and ITES	2.353	2
4	Land use Zone IV- Educational, Institutional, Cultural	3.618	4
5	Land use Zone V- Industrial Area	6.317	7
6	Land use Zone VI- Road and Transportation	8.496	9
7	Land use Zone VII- Open Space & Water Bodies	9.425	10

Source: LUDCP,



As per report 2018, the total residential population of the city approximately is more than 1 million and also has some floating population. But according to 2001 census report, the total rural population (before developed of the town) was 185060 of the 45 mouzas of the two districts in North 24 Parganas and South 24 Parganas in West Bengal. So, after well developed of the town the land use patter has been changed as well as population.

Major residential area have been planned in Raigachi J.L. No. 12, Rekjuani J.L. No. 13, Bhetenda J.L. No. 28, Basina J.L. No. 31, Sulanguri J.L. No. 22, Bishnupur J.L. No. 44 which are high density residential area. The entire planning area has been planned under the Land Use and Development Control Plan (LUDCP) and the total area is divided into seven which are-

1. Residential Area:

The land under this category comprises the areas that are to be used predominantly for buildings of residential use and most of residential area have been planned in Raigachi J.L. No. 12, Rekjuani J.L. No. 13, Bhetenda J.L. No. 28, Basina J.L. No. 31, Sulanguri J.L. No. 22, Bishnupur J.L. No. 44 which are high density residential area.

2. Business and Mercantile Area:

CBD of the planning town has been set up in Umarhati Mouza J.L. No. 41. Business and Merchantile zones also developed part of Jamalpara Mouza J.L. No. 49, Kashinathpur Mouza J.L. No. 39, Bishnupur Mouza J.L. No. 44 and commercial zones have been also provided in parts of Bhagabanpur Mouza J.L. No 10.

3. IT and ITES area:

For IT development Rajarhat New Town has two major areas which are Jagadishpur Mouza J.L. No. 27, Gangragari J.L. No. 37, Hudaitpur J.L. No. 54 and Naobad J.L. No. 53. This area is to be used predominantly for buildings of IT and ITES uses.

4. Educational, Institutional and Health Facility Area:

Major part of Dakshin Khirpur Mouza J.L. No. 12, Hudarait J.L. No. 54, Bhagabanpur J.L. No. 10, and Tarahadia J.L. No. 13 has been reserved for Educational and Institutional purpose and Pithapukria J.L. No. 24 has been reserved for Health facilities like multi-speciality hospitals.

5. Industry Area:

The planning area has been providing for lot of small scale industry and agro based industry which are located at Jirangachhi J.L. No. 25, Bamunia J.L. No. 45, Chaltaberia J.L. No. 69, Chakmaricha Mouza J.L. No. 71.

6. Arterial Roads and Logistics Hub:

Lauhati Road, Rajarhat Main Road, SRMC Road, and Bishnupur Road are the main road network which has been designed in a way following the pattern of the New Town area. In the western side of the area a green buffer zone has been kept beyond the Lauhati Road. The all transport network has been planned maintaining the regional connectivity to all surrounding areas.

7. Open Space, Water Bodies and Green Areas:

Major Water Bodies and adequate green zones (Parks, Play Ground etc.) of the area have been planned so well. Each and every land use sector has enough amounts of green and open spaces which has been maintained an eco-friendly environment or sustainable balance.

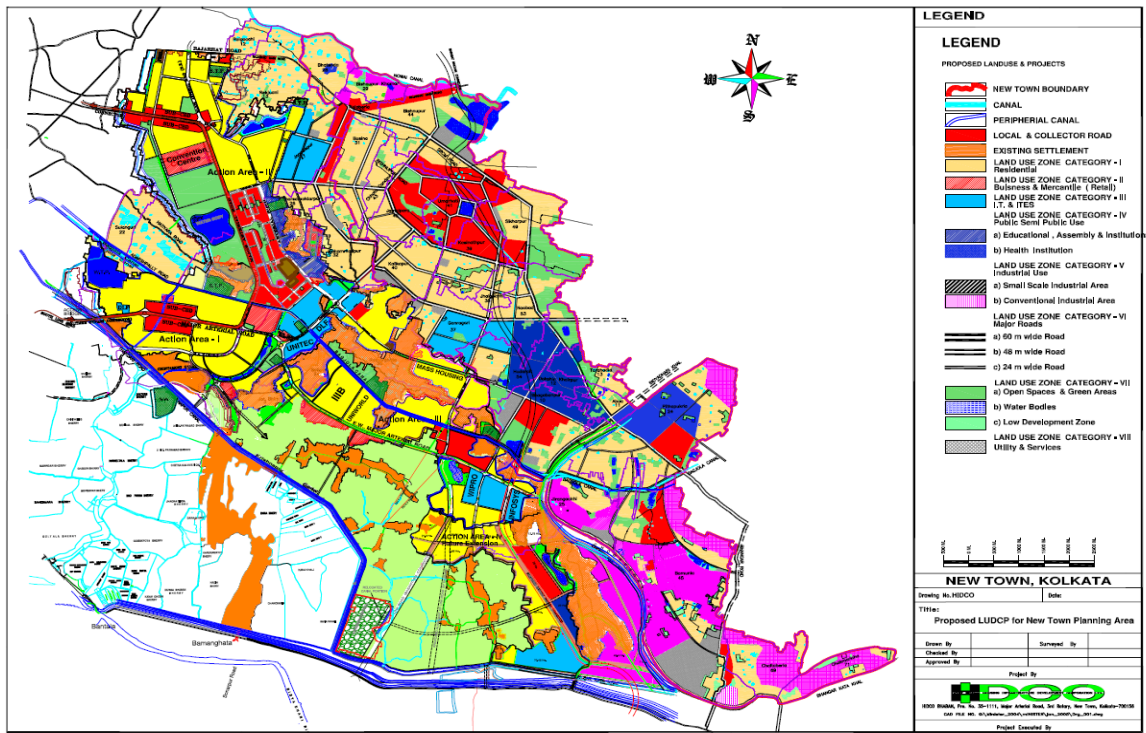
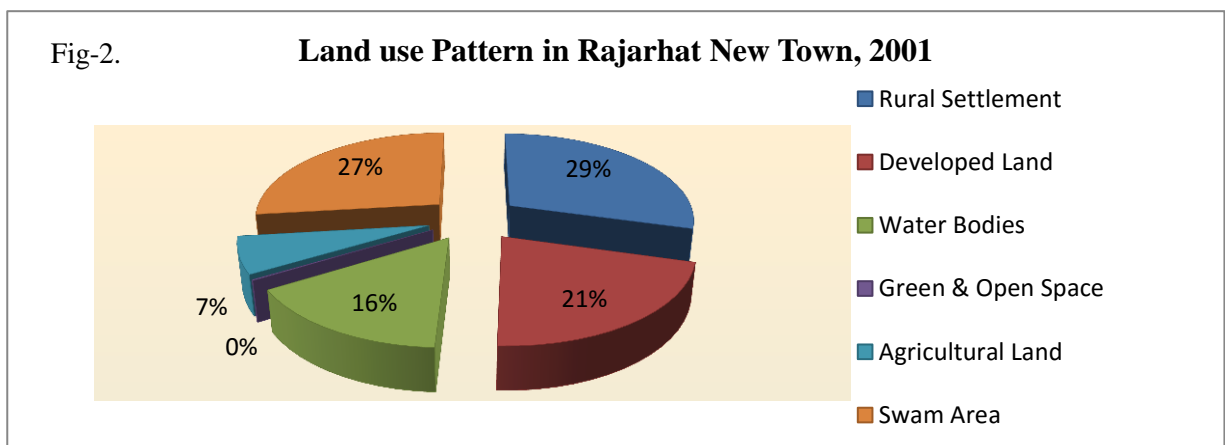


Fig. - Proposed Land Use Map of Rajarhat New Tow. (Source: WBHIDCO, 2012)

Table-2: Land use pattern in Rajarhat New Town, 2001

Sl. No.	Land use/Land cover	Details	Area (sq.km)	Area (%)
1	Rural Settlement		19.74	29.4
2	Developed Land	i) Business & Market ii) Industrial Area	14.37	21.41
3	Water Bodies	iii) Educational, Institutional & Cultural Area iv) Road & Transportation	10.53	15.54
4	Green & Open Space	i) Pond ii) Cannel	0.1	0.03
5	Agricultural Land	i) Recreation ii) Vacant Land	4.48	6.67
6	Swam Area		18.09	26.95

Source: WBHIDCO



From the table and figure (no.-2), it is clear that the uses of land use pattern of Rajarhat New Town in 2001 try to achieve as per proposed land use pattern. 26.78 sq.km areas proposed for residential, where as 19.74 sq.km areas covered residential purpose in 2001. The on-going project also tries to cover the proposed land use pattern in different sectors like Business area, IT & ITES. Educational, Industrial, Road and Transportation, and Open space & Water bodies.

The table (no.-3) shows that the almost covered the proposed land use pattern in various sectors of Rajarhat New Town in 2008. As per report, from 2008 Swam area and agricultural land was totally vanished due to on-going township project.

Table-3: Land use pattern in Rajarhat New Town, 2008

Sl. No.	Land use/Land cover	Details	Area (sq.km)	Area (%)
1	Rural Settlement		22.45	33.35
2	Developed Land	i) Business & Market ii) Industrial Area iii) Educational, Institutional & Cultural Area iv) Road & Transportation	36.68	54.49
3	Water Bodies	i) Pond ii) Cannel	7.31	10.86
4	Green & Open Space	i) Recreation ii) Vacant Land	0.87	1.3

Source: WBHIDCO

Rajarhat New Town has changed rapidly from typical agricultural area to urban area and everything is changed of the study area during last two decades. In 1980, the urban population was 41.43% but in 2001, the urban population percentage became 66.75%. Total socio-economic structure or profile has been changed of the study are during the urbanization process (literacy rate, metal road, electricity, education, population etc.).

Table-4: Profile of Rajarhat New Town

Subject	Year	
	2001	2011
Total Population	410463	592737
Male	216544	301534
Female	200648	291203
Urban Population	271811	402844
Rural Population	138652	189893
Population Density per sq km	3861	5576
Literacy %	63.78	79.05
Male Literacy %	56.66	81.65
Female Literacy %	43.33	76.37
No of Household	89461	143608

Source: Census of India (2001, 2011) and District Statistical Hand Book

With large open green space the environment friendly township has been developed from agricultural land just within 20-25 years and so many modern facilities available of the citizen of the town. No doubt, Rajarhat New Town is a well planning city. But it's true that so many problems arise in the city after changing the land use pattern of the area. The major problems are-



- i) Change the occupational pattern of the area due to transformation of agricultural land into urban land use pattern. Number of local people lost their agricultural land and people faced massive problem of the old area.
- ii) Different environmental problems arise (air pollution, dirt problem) due to so many numbers of cutting of trees for making the city.
- iii) Within 20 minutes distance from the city the international airport is located. As a result the noise of the aeroplanes create headache, mental problem, hearing problem etc.
- iv) Road side residential local people facing very much noise pollution because of bad noise and horn of the many vehicles, when it passes through the area.

### Discussion and Conclusion:

It is clear that the land use change is a major issue of global environment change (Prakasam, 2010). Same way the vacant and agricultural land has been changed into urban land by the Govt. Policy. Rajarhat New Town provided world class facilities such as sports complex, recreation and technology Park, large institutional complex, environment-friendly industrial complex, super speciality hospital, and educational institution etc. the basic approach of planning to integrated development of the study area and its surroundings.

After the change of the land use pattern, some social hazards or problems have of the plan city like others plan city in India. To reduce the problems Govt. should takes some necessary steps by Govt. policy like occupational pattern of the local people (cultivator), more plantations and different pollution (noise, air, water). No doubt that Rajarhat New Town decreased the maximum pressure from Kolkata megacity. However at recent times the on-going project Rajarhat New Town is successful township in West Bengal after Salt Lake City so far.

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