

# Spatio-Temporal Changes of land uses and land values in Mirik Municipality of Darjeeling District, West Bengal

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## ABSTRACT

The Population in the country's over the past few years has become over populated but the amount of land are stable, so the population growth couldn't match up with the amount of land parcel. As a result the land prices or land values has been increasing day by day. The land values are the most important factor which determines not only the growth of any town or city but also the countryside or village. To know about the shape and size of any town or city, we have to follow the land use map of that respective town or city which shows us that different places have different land use zoning. There are definite spatial pattern of land use, not just a random distributions of land parcels used for various purposes. Disparity of this land uses may depend on communication, transportation, location of the place etc. Therefore, the land values are growing very much higher due to the lack of land. In the Mirik Municipality the land values are increasing day by day due to its changing pattern of land use. Thus, the paper has an attempt to study the spatio temporal changes of land uses and land values of Mirik Municipality highlighting its present situation.

**Keywords :** Hundred Percent Location, Decadal Growth Rate, Land Use, Land Values, Mirik, Peak Land Value Intersection, Bid- Rent, Land Taxation.

## I. INTRODUCTION

Land is considered in present, the most important resource of the world. As land prices or land values are the most invisible attractors of any urban area in India. The land use and land values of Mirik Municipality have changing day by day. Topographically undulating situation and importance of geographical location of such Municipality has a great significance in order to changes its land use and land values. The increases of urbanization and aggravation of tourism industries is the root cause to changes its landscapes and its valuation. Though the trend of changing land uses and land values of Mirik Municipality was not very high in past few decades ago but after the declaration of Mirik Notified Area in 1984, the rate of urbanization with respect to increasing trend of land uses and land values was started to increasing in a certain manner.

## II. Aims & Objectives

The objectives behind the paper are to:

- To find out the reasons for rapid increasing of land values in some wards of the Mirik Municipality.
- To make an assessment that shows, how land values are changing with respect to land use pattern of the Mirik Municipality.

## III. Study Area

The name Mirik comes from the Lepcha words Mir-Yok meaning "place burnt by fire". Mirik Municipality with an area of 6.25sq.km and at a height of 1700mtrs (5577ft.) from sea level is a small hamlet. This Mirik Municipality came into being in 1984 as Mirik Notified Area. From the land of

Thurboo Tea Garden and Khasmahal land in agreement between Sate Govt. and Private Tea Company this Municipality was agglomerated, consisting with 9 wards. Mirik Municipality is situated in Mirik Sub-division of Darjeeling District in the hilly area of Sikkim-Darjeeling Himalayas. Geographically, it is located 26°54'N to 26°57'N and 88°10'E to 88°13'E.

etc. The present land use and past land use maps have been collected from the Google earth (Historical Imagery). Diagrams have been prepared on Microsoft Office Excel 2007, maps are digitized on Global Mapper Software and maps are produced on MapInfo software.

## V. Literature Review

For prepare this paper several books, journals, articles and the internet have been considered and reviewed. In considering the urban land value, this is influenced primarily by the location of the land parcel. Nelson (1969) defines land values as “The downtown 100 percent retail corner has become largely a fiction”. It has been observed that there is a single location in the city where the land value is highest compared to the other sites of the city. This site or location is referred to as “Hundred Percent Location” or “Hundred Percent Corner” or “Peak Land Value Intersection” (Hudson, 1979). There is a general urban land value theory called “bid-rent” theory which deals with the amount of capital for use of a specific land parcel.

## VI. Results & Discussion

The spatio-temporal changes of land uses and land values of Mirik Municipality have a significant importance in order to accelerate the trend of urbanization. The different variable factors are responsible for affecting the land uses and land values of such Municipality.

### 6.1. What is Land Use?

Land use involves the management and modification of natural environment into built up area, such as settlements, semi natural inhabitants like arable farming, pasturing etc. The study of urban land use mainly deals with the surface utilization. Most of the cities land use shows the variety of such uses like settlements, commercial purpose, recreation, educational and service purposes etc.

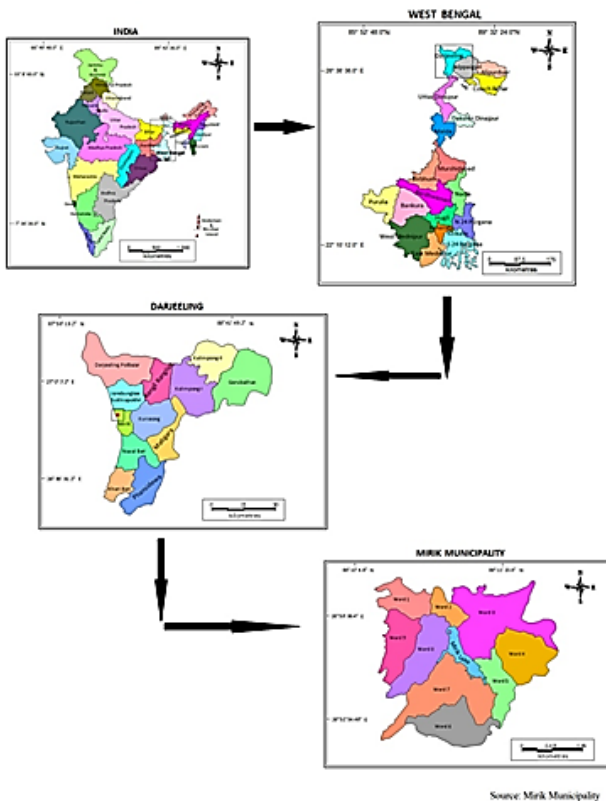


Figure 1: Location Map of the Study Area

## IV. Data base & Methodology

In order to study the land use and land values of the study area, the methodology adopted by the present investigator is a rationalistic one comprising of the details outlined as follows:-

The land use and land values information have been collected from different primary and secondary sources. The data has been analyzed by using different statistical and mathematical formulas and also by interpreting the primary and secondary data like-

$$\text{Decadal Growth Rate} = \frac{\text{Total Number of Population in 2011 Census} - \text{Total Number of Population in 2001 Census}}{\text{Total Number of Population in 2001 Census}} * 100 ; \text{ Mean}$$

Food and Agriculture Organization (FAO) defines the land use as “Land use is characterized by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it”.

A more inclusive definition of land use is often used in practice. Land use actually includes near surface water. Any given area of land is usually used to satisfy multiple objectives or purposes. In an urban development, it is considered that land use is one of the most essential factors. The limited space within cities combined with the growing space requirements for various purposes outlines the framework of the struggle or say competition for land for different purposes and thereby the land use patterns become complex.

**6.2. Land Uses of Mirik Municipality in 2001:**

Google earth shows us the previous (historical imagery) maps of the Mirik town (2001) where we can see that the percentage of residential area (approximate less than 20%) is almost less in comparison to the present day’s (2017) scenario. The total population of the town was in 9141 in 2001 census which mean that the land occupied by the settlements were low compare to the present day scenario. The commercial markets or super markets were being established and started to attract the people. Major roads were found all over but the small pathways with protected drains were negligible. The utility services like Switz Cottage was established but the surroundings of this cottages were vacant places. The amount of forests was much larger compare to present day (2017). Though the definite amount of data for land uses to various field was unavailable. But it is true that in Mirik Municipality, there was a vast of lea and tea garden in the last few years ago.

**6.3. Land Uses of Mirik Municipality in 2011:**

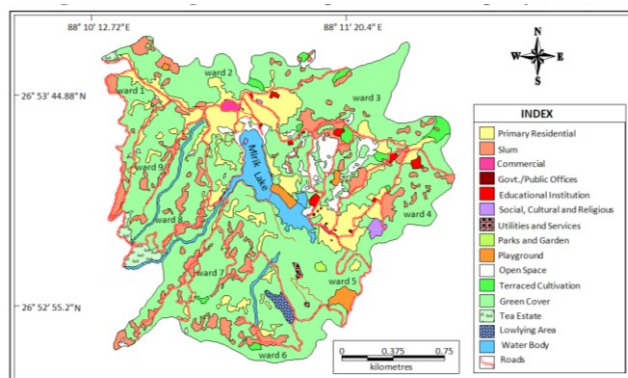
The area of this Municipal town was used for various purposes. The figure 2 reveals that the percentage of

the residential area is only 22.98% which is less than the standers occupied in comparison to others town of the country and also its hill side location stimulates the cause. There is no Industry in this Municipal area. There is only 0.25% land occupied for commercial purpose, Mirik Bazar and Krishnanagar are the main Commercial centers of this town. Roads, which occupies only 2.20% are lacking in this Municipalities. Major part of the municipal area is covered by forest (62.54%). The high percentage of the ecologically important areas are good for the development of ecotourism in this area but the protection of the existing ecologically important areas, especially the green cover is a must protectorate by the municipal authority.

**Table 1:** Existing land use types of Mirik Municipality (2011)

Serial No.	Land use type	Total area (Hector)	Exitng %
1	Residential	149.37	22.98
2	Commercial	1.63	0.25
3	Industrial	0.00	0.00
4	Public & semi public	10.21	1.57
5	Recreational	6.57	1.01
6	Transport	14.30	2.20
7	Ecological	468.00	72.00
Total		650.07	100

Source: Draft Development Plan of Mirik Municipality, 2008-2013



Source: Mirik Municipality

**Figure 2:** Existing Land Use Map of the Mirik Municipality

**6.4. Factors responsible for changes of land use in Mirik Municipality:**

The various factors which are mainly responsible for changes of land use in Mirik Municipality are below:

**6.4.1. Growth of Population:** According to 2011 census the Mirik Municipality had a population of 11513(out of this 5688 were male and 5825 were female) which was 9112 in 2001 census. Therefore, it

clearly shows that the growth rate of population is (+) 20.85%.

If we look at the ward-wise decadal growth of the Mirik Municipality then we will find that except ward 2, every ward (1, 3, 4, 5, 6, 7, 8, and 9) had a trend of positive growth rate (Figure 3 & 4) in between 2001 and 2011 census. But in case of ward number 2 there was a negative growth rate.

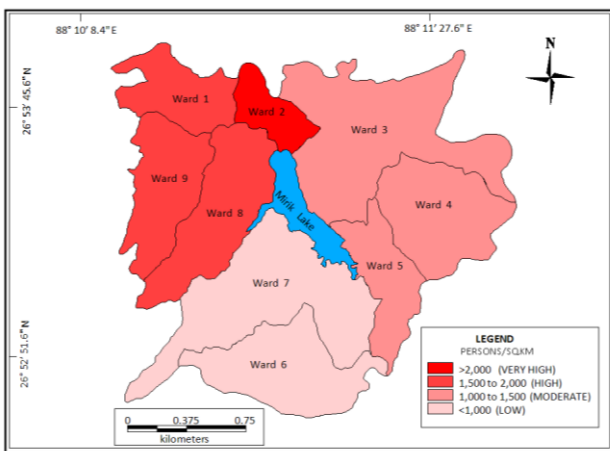
**Table 2:** Ward-wise decadal growth rate of Population in Mirik Municipality, 2001-2011

Ward Number	Population in 2001	Population in 2011	Decadal Growth rate in %
1	831	1113	25.34
2	1414	1247	-13.39
3	1421	1516	6.27
4	772	1096	29.56
5	591	857	31.04
6	720	982	26.68
7	1032	1319	21.76
8	1270	1856	31.57
9	1090	1176	7.31

Source: Census of Mirik Municipality, 2001-2011

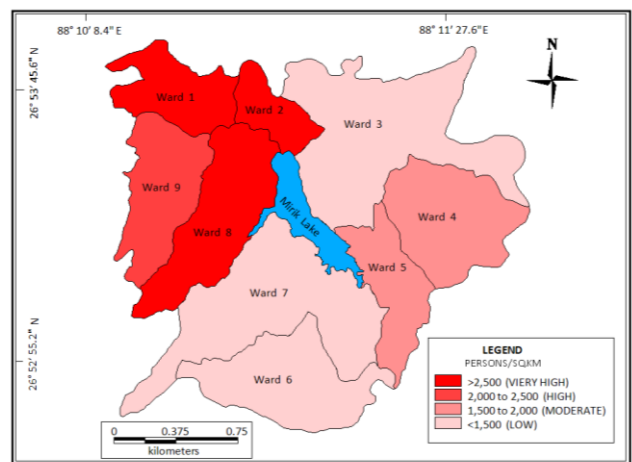
So it is easy to understand that the increasing population is obviously affecting the land use pattern of the town because due to the development, land is transforming into purely commercial and residential area. Thereby, the land use is changing in a certain manner with a relation of land values of such Mirik Municipality.

**6.4.2. Land taxation:** There is lower land taxation in wards number 1 and 2. It indicates that there is a higher concentration of residential area and commercial market and as a result the ward number 2 has super market only because of lower land taxation.



Source: Mirik Municipality

**Figure 3:** Ward wise Population Density May of Mirik Municipality in 2001



Source: Mirik Municipality

**Figure 4:** Ward wise Population Density May of Mirik Municipality in 2011

**6.4.3. Transportation:** Transportation is a factor of activity location, and is therefore associated intimately with land use. The expansion of urban land uses takes place over various circumstances such as infilling (near the city center) or sprawl (far from the city center) and where transportation plays a different role in each case. Urban transportation helps in supporting transport demands generated by the diversity of urban activities in a diversity of urban contexts. The Draft Development Plan (DDP: 2008-2013) of Mirik Municipality shows that up to 2005 every wards had less sufficient and well connectivity and accessibility but after 2009 all wards were well connected to each other and as a result the residential and commercial parts were growing all over the town. So the land use patterns were subjected to change.

**6.4.4. Trade and Commerce:** The trade and Commerce plays a very important role in order to changes the land use pattern of Mirik Municipality. After the establishment of the Super market in ward number 2 and a local market in ward number 5, it was begin to affect the land use pattern of Mirik Municipality. The people were started to live around this market due to the availability of essential commodities.

**6.4.5. Economic Factor:** At the ancient era, the Mirik town vastly cultivated tea and shifting cultivation but now days the cultivation of tea and shifting is mostly eradicated and this is because of the economic factors. At present Mirik is a most important hill station of West Bengal as well as India. So being a tourist place, it started to explore its tourism industry, so many more places have modified its shape of roads and recently Municipality has enacted an act to plan the households. So the overall town got reshaped and the land use pattern was also changed.

### **6.5. Changes of land uses in Mirik Municipality & its impact:**

Land use change is a complex phenomenon that varies from place to place. According to Hill (1989), causes of change include personal choice, legislation,

government policies and plans, decision of developers or transportation entrepreneurs, the nature of the land itself or the availability of technology to develop the land. Urban growth will also change the pattern of land use and land values. Growth of an urban place can offer more activities and persons into the urban area which is then concentrated by more workers, machines and buildings. As a result the urban area becomes more congested and requires to readjustment which actually needs to further improvement of the existing land use. Thus the urban growth helps the dual processes of internal reconstruction and outwards expansion. Over the period of time with the increase in the population and demand for more land the needs to modify the existing buildings and construct a new one has been the main focus of the town planners. After redevelopment took place, this may bring about a change in land use pattern, such as residential, offices, banks etc. with more intensive level.

The urban areas of Mirik Municipality are continuously subjected to changes in land use pattern. Social and economic factors are responsible for such changes. Due to the pressure exerted by them the land uses within an urban area changes. Basically the land use pattern of Mirik Municipality is an outline of various competitions for sites between different uses operating through the forces of demand and supply. Historical images by Google earth have clearly shown up the increasing residents of such Municipality. Not only the residents but also the others increasing trend like commercial, educational, health facility, utility service facility etc has been focused. Up to 2005, the percent of resident was only 20% but after that it started to grow up and now the percentage is 22.98% (2011). The changing process has also affected the Thurbo Tea Garden which is situated in ward number 8 and 9. In present day, the Thurbo Tea Garden is occupying only 3%-4% (approximate) but according to the local people of Mirik town, it was lying on the huge area of ward number 8 and 9. The vegetation cover is not excluded from this list. One primary survey was conducted for this purpose and the result

is shocking. Some permanent resident of this town were told that before 1980's most of the area was under fully ecological cover but now the amount of the ecological cover is only 72%. So it may be said that if this ecological damage process is not stopped then in future the result will be hazardous as because this is a hilly region.

## 6.6. What is Land value?

Land value is the value of a piece of property, including both the value of the land itself as well as any improvements that have been made to it. Land values increase when demand for land exceeds the supply of available land, or if a particular piece of land has intrinsic value greater than neighboring areas.

Generally the meaning of land value is its monetary worth which actually deals with the value of the market place of the land. Land value can be considered in two contexts- one is the **market value** which deals with the price of a particular land parcel negotiated at the time of sale of that land parcel and the other is the **assessed value** which deals with the estimated worth or price of the land parcel made by the private competent or public assessor.

## 6.7. Land values of Mirik Municipality:

Land value can be defined as the monetary cost of the land parcel. It can be the cost of an undeveloped land or a built property. Basically the land value is associated with a vacant plot. In Mirik Municipality, land values play an important role to make any

residential, commercial and other kind of area. Like the other towns or cities Mirik municipalities land value can be considered in two contexts- one is the **market value** which deals with the price of a particular land parcel negotiate at the time of sale of that land parcel and the other is the **assessed value** which deals with the estimated worth or price of the land parcel made by the private competent or public assessor.

**6.7.1. Land values of Mirik Municipality in 2011:** In the past, the land values of Mirik Municipality were less for all the fields like residential, commercial etc. in comparison to present day's value. Figure 5 shows that the highest land values for residential area were found in ward number 4 along the Don Bosco School road (the assess value was Rs.400000/ Katha and the approximate market value was Rs. 700000/ Katha) but the highest commercial value was found in ward number 5 along the Mirik Main road (the assess value was Rs.800000/ Katha and the approximate market value was Rs. 1400000/ Katha) and this is because of its locational advantages. Besides, the lowest values were found in ward number 7 along the Kawley road (the assess value for residential area was only Rs. 80000/ Katha and the market value was only Rs. 80000/ Katha; the assess values for the commercial area was Rs. 140000/ Katha and the market value was Rs. 140000/ Katha) and this is because of the undulating plain area and lack of livelihood commodities.

**Table 3:** Land values of Residential area in Mirik Municipality (2011)

Name of the Roads	Comprises the ward	Assessed value (Rs./Katha)	Approximate Market value (Rs./Katha)
Thurbo Road	1	90000	150000
Mirik Bazar Busty	2	150000	200000
Krishnanagar Busty		200000	300000
Thana Line	3	150000	200000

Marma Road		80000	150000
Upper Deosy Dara Busty	4	110000	200000
Paila Gaon Road		90000	150000
Don Basco School Road		400000	700000
Deosy Dara Road		150000	250000
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara		110000	200000
Mirik Main Road	5	300000	500000
Factory Line	6	110000	200000
Kawley Road	7	80000	140000
Kawley Road	8	90000	150000
Thurbo Road	9	110000	200000

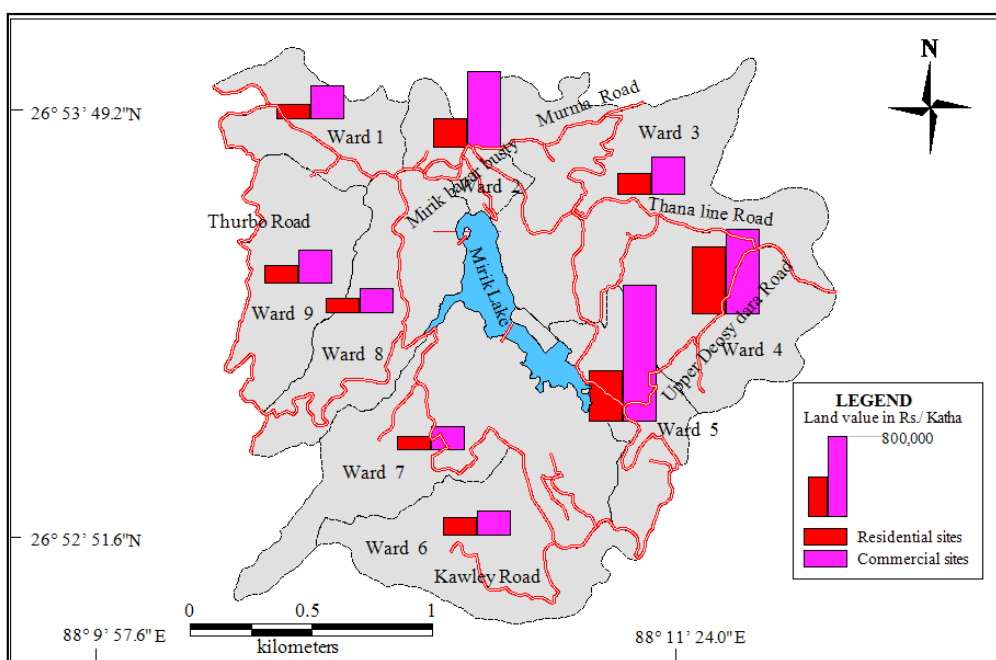
Source: Computed by the Author

**Table 4:** Land values of Commercial sites in Mirik Municipality (2011)

Name of the Roads	Comprises the ward	Assessed value (Rs./Katha)	Approximate Market value (Rs./Katha)
Thurbo Road	1	200000	350000
Mirik Bazar Busty	2	400000	600000
Krishnanagar Busty		450000	700000
Thana Line	3	250000	500000
Marma Road		150000	250000
Upper Deosy Dara Busty	4	170000	300000
Paila Gaon Road		190000	350000
Don Basco School Road		500000	900000
Deosy Dara Road		250000	450000
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara		170000	300000
Mirik Main Road	5	800000	1400000
Factory Line	6	150000	250000
Kawley Road	7	140000	240000
Kawley Road	8	150000	270000
Thurbo Road	9	200000	350000

Source: Computed by the Author





Source: Directorate of Registration and Stamp Revenue, Govt. of W.B

**Figure 5:** Assessed Land Values of Mirik Municipality in 2011

**6.7.2. Land values of Mirik Municipality in 2017:**

The figure 6 clearly reveals that the highest land values for residential area were found in ward number 5 along the Mirik Main road (where the assess value for the residential sites was Rs.699999/ Katha and the approximate market value was Rs. 1200000/ Katha; the assess value for the commercial sites was Rs.1400000/ Katha and the approximate market value was Rs. 2500000/ Katha) and this is because of its

locational advantages. Besides, the lowest values were found in ward number 7 along the Kawley road (the assess value for residential area was only Rs. 140000/ Katha and the market value was only Rs. 300000/ Katha; the assess values for the commercial area was Rs. 300000/ Katha and the market value was Rs. 550000/ Katha) and this is because of the undulating plain area and lack of livelihood commodities.

**Table 5:** Land values of Residential area in Mirik Municipality (2017)

Name of the Roads	Comprises the ward	Assessed value (Rs./Katha)	Approximate Market value (Rs./Katha)
Thurbo Road	1	170000	250000
Mirik Bazar Busty	2	280000	350000
Krishnanagar Busty		332000	450000
Thana Line	3	220099	300000
Marma Road		164875	250000
Upper Deosy Dara Busty	4	165000	250000
Paila Gaon Road		164875	250000
Don Basco School Road		406001	700000
Deosy Dara Road		267000	400000
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara		164875	250000



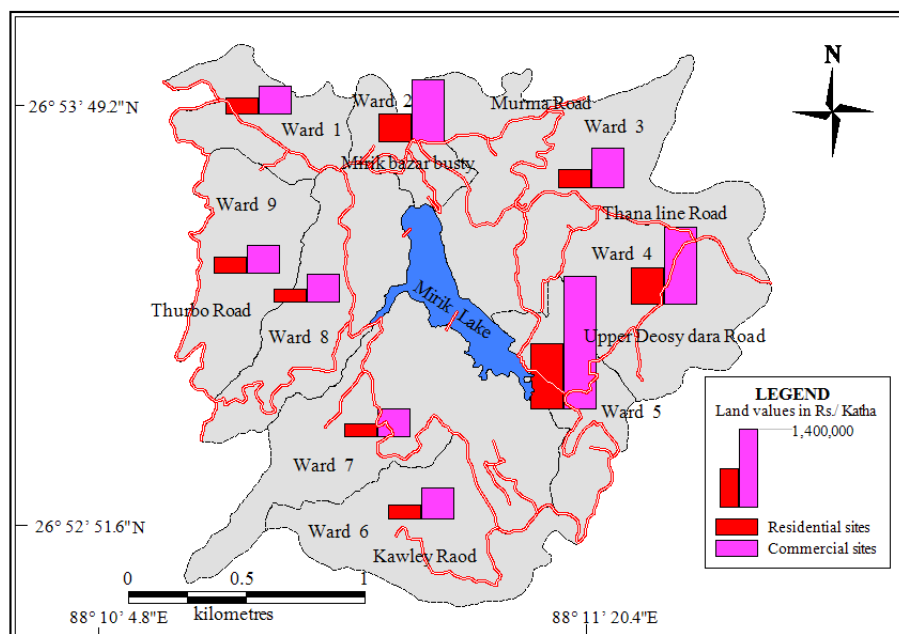
Mirik Main Road	5	699999	120000
Factory Line	6	164875	250000
Kawley Road	7	140000	300000
Kawley Road	8	150000	300000
Thurbo Road	9	170000	350000

Source: Directorate of Registration and Stamp Revenue, Govt. of W.B

**Table 6:** Land values of Commercial sites in Mirik Municipality (2017)

Name of the Roads	Comprises the ward	Assessed value (Rs./Katha)	Approximate Market value (Rs./Katha)
Thurbo Road	1	310000	500000
Mirik Bazar Busty	2	560000	800000
Krishnanagar Busty		664000	1000000
Thana Line	3	442000	750000
Marma Road		329749	500000
Upper Deosy Dara Busty	4	330000	500000
Paila Gaon Road		329749	500000
Don Basco School Road		812000	1400000
Deosy Dara Road		533999	800000
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara		329749	500000
Mirik Main Road	5	1400000	2500000
Factory Line	6	329749	600000
Kawley Road	7	300000	550000
Kawley Road	8	305000	550000
Thurbo Road	9	310000	600000

Source: Directorate of Registration and Stamp Revenue, Govt. of W.B



Source: Directorate of Registration and Stamp Revenue, Govt. of W.B

**Figure 6:** Assessed Land Values of Mirik Municipality in 2017

## 6.8. Factors affecting the land values of Mirik municipality:

**6.8.1. Distance:** Distance from the Central Business District (CBD) or main commercial sites of super market along the Mirik Main road in ward number 5, distance from the nearest commercial centre in ward number 2, distance from the educational institution in ward number 4 (Don Basco School) etc. are the main significant factor to determine the proposition of a land parcel importing its influence in its value which is supposed to be the greater the distance the lower the land values.

**6.8.2. Availability of basic amenities:** Plain topography is more suitable for residence and so ward no. 7 and 8 are less valuable in comparison to other wards of the town. Besides this, the availability of water, sewer lines, etc. are also the major causes to changing the land prices.

**6.8.3. Accessibility to economic activities:** The easiest accessibility to economic activity of a town or city means there is high prices of land parcel. This is another reason for more concentration of people in ward number 1 and 2 because of easy accessible to

economic activities to other parts also and thereby gradually the land values is changing.

**6.8.4. Neighborhood amenities:** A super market on Krishnanagar site namely Krishnanagar market where all essential commodities are easily available, closeness to shopping malls, better medical facilities (health centre ward number 3), parks and play ground and close proximity to schools in ward number 2 and 3 namely Cambridge Model High School, Mirik Junior High School, Rose Bud School, Tibetan School, SSK Centre, Levis English School, Turbo Primary School, Orange Lake School etc. and availability of other basic amenities have also affected the land value of a urban place. This actually helped to minimize the time of the people located near the city centre and therefore, the cost of the land was much higher compare to the other areas.

**6.8.5. Location & Transportation:** Locating in a city centre or in a high economically intensive area thereby makes land price will high for ward no. 5. Easy mobility, lack of congestion, hierarchy of roads, efficient transportation etc. are some of the desired transportation factor of Mirik Main road in ward number 5 tends to lead the value of the land as

Hundred Percent Location or Hundred Percent Corner in Mirik Municipality.

### 6.9. Changes of land values in Mirik Municipality & its impact:

Defining the changes of urban land values of Mirik Municipality is an important work because it shows up the changing trend of values. In this Municipality it is clearly seen that in 2011, the highest residential land price was found in Don Basco School road in ward number 4 (Rs. 400000/ Katha) but in 2017 the highest price for the same is found in Mirik Main road in ward number 5 (Rs. 699999/ Katha) and this is because the place of Mirik Main road in ward number 5 is easily accessible than the other part of the town and most of the educational institutions were nearer to this area and also a super market was located here. Similarly, due to the high concentration of the town, the highest commercial land price was found in Mirik Main road in ward number 5 which was Rs. 800000/ Katha in 2011 and Rs. 1400000/ Katha in 2017. The price increases within this 6 years is Rs. 600000/- i.e. the growing trend is 100% in every year. That place is considered to be a single location of the city where the land value is highest compared to other site of the city. This site or location is referred to as "Hundred Percent Location" or "Hundred Percent Corner" or "Peak Land Value Intersection" in Bid-rent theory. In overall discussion except the ward number 7 and 8 all the other ward have the higher rate of increasing trend but in the case of such two wards mostly the

undulating surface and distance from main commercial area is the main reason for having the lower rate of growing prices. However, as the Mirik town is a popular place for residence since last few years so it may be said that the land prices of all wards will be much higher in the near future.

### 6.10. Spatio- Temporal changes of land uses with relation to land values of Mirik Municipality:

To understand spatial and temporal changes in the land use and land values environments of Mirik Municipality, various field of framework needs to be adapted to see changes. There are essentially two perspectives from which to view spatio-temporal changes of urban land uses and land values patterns (Figure 2, 3, 4, 5, 6). The urban areas of Mirik Municipality are continuously subjected to changes in land use pattern regarding with valuation. Due to the pressure exerted by them the land uses within an urban area changes. Basically the land use pattern of Mirik Municipality is an outline of various competitions for sites between different uses operating through the forces of demand and supply. Not only the residents but also the others increasing trend like commercial, educational, health facility, utility service facility etc has been focused. Up to 2005, the percent of resident was only 20% but after that it started to grow up and now the percentage is 22.98% (2011).

**Table 7:** Changing Assessed values of Residential sites of Mirik Municipality from 2011- 2017

Name of the Roads	Comprises the ward	Land use in 2011	Assessed value in 2011 (Rs./Katha)	Assessed value in 2017 (Rs./Katha)	Land use changes in 2017
Thurbo Road	1	Residential	90000	170000	Residential
Mirik Bazar Busty	2		150000	280000	Commercial
Krishnanagar Busty			200000	332000	Commercial
Thana Line	3		150000	220099	Residential
Marma Road			80000	164875	Residential
Upper Deosy Dara Busty	4		110000	165000	Residential
Paila Gaon Road			90000	164875	Residential

Don Basco School Road			400000	406001	Residential
Deosy Dara Road			150000	267000	Commercial
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara			110000	164875	Residential
Mirik Main Road	5		300000	699999	Commercial
Factory Line	6		110000	164875	Residential
Kawley Road	7		80000	140000	Residential
Kawley Road	8		90000	150000	Residential
Thurbo Road	9		110000	170000	Residential

Source: Directorate of Registration and Stamp Revenue, Govt. of W.B

The changing process has also affected the Thurbo Tea Garden which is situated in ward number 8 and 9. In present day, the Thurbo Tea Garden is occupying only 3%-4% (approximate) but according to the local people of Mirik town, it was lying on the huge area of ward number 8 and 9. The vegetation cover is not excluded from this list. One primary survey was conducted for this purpose and the result is shocking. Some permanent resident of this town were told that before 1980's most of the area was under fully ecological cover but now the amount of the ecological cover is only 72%. So it may be said that if this ecological damage process is not stopped then in future the result will be hazardous as because this is a hilly region.

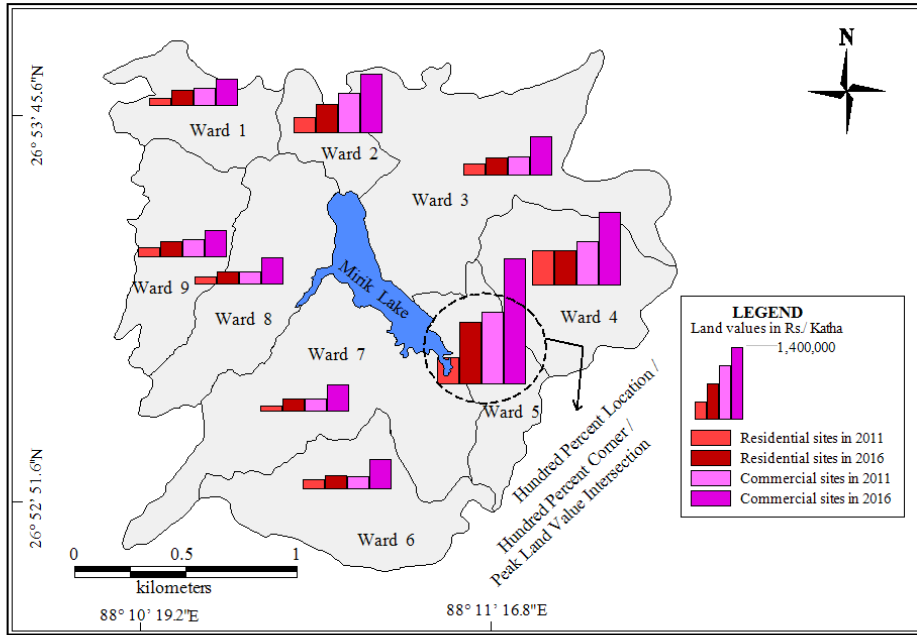
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**Table 8:** Changes Assessed values of Commercial sites in Mirik Municipality from 2011- 2017

Name of the Roads	Comprises the ward	Assessed value in 2011 (Rs./Katha)	Assessed value in 2017 (Rs./Katha)
Thurbo Road	1	90000	170000
Mirik Bazar Busty	2	150000	280000
Krishnanagar Busty		200000	332000
Thana Line	3	150000	220099
Marma Road		80000	164875
Upper Deosy Dara Busty	4	110000	165000
Paila Gaon Road		90000	164875
Don Basco School Road		400000	406001
Deosy Dara Road		150000	267000
Bhanu Tole/ Bojhu Ghari/ Lower Deosy Dara		110000	164875
Mirik Main Road	5	300000	699999
Factory Line	6	110000	164875

Kawley Road	7	80000	140000
Kawley Road	8	90000	150000
Thurbo Road	9	110000	170000

Source: Directorate of Registration and Stamp Revenue, Govt. of W.B



Source: Directorate of Registration and Stamp Revenue, Govt. of W.B

Figure 7: Comparison of 2011 & 2017 Assessed Land Values of Mirik Municipality

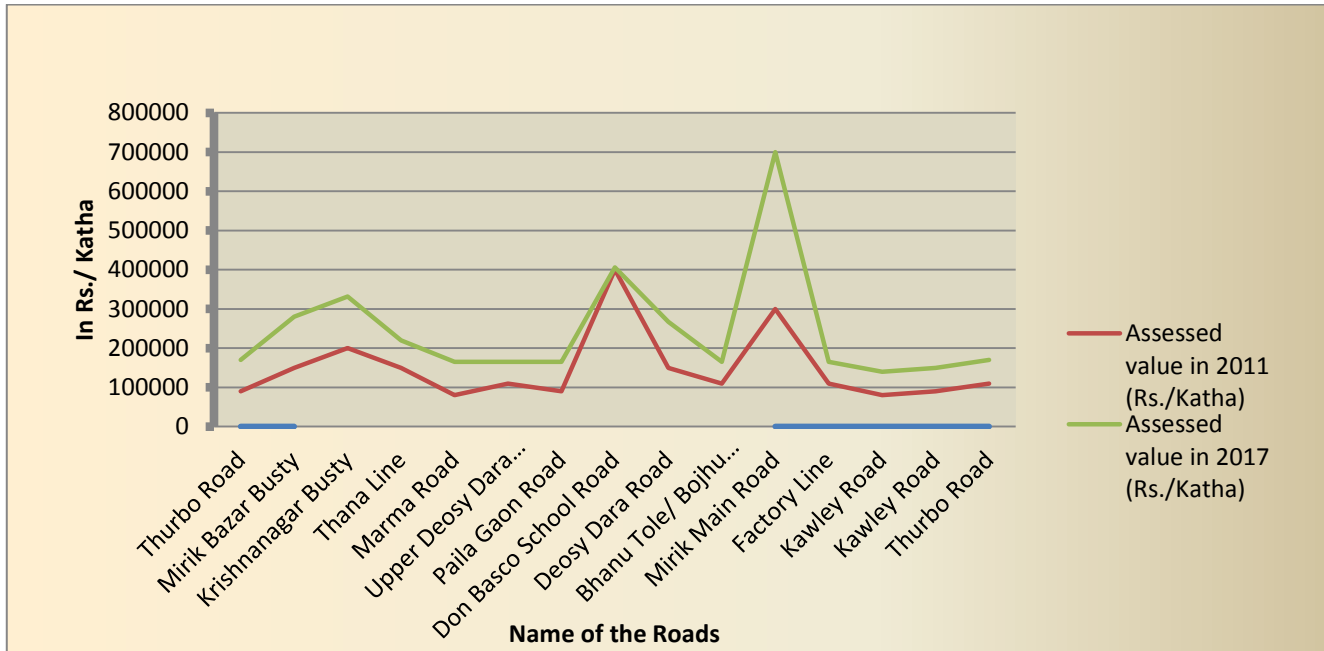
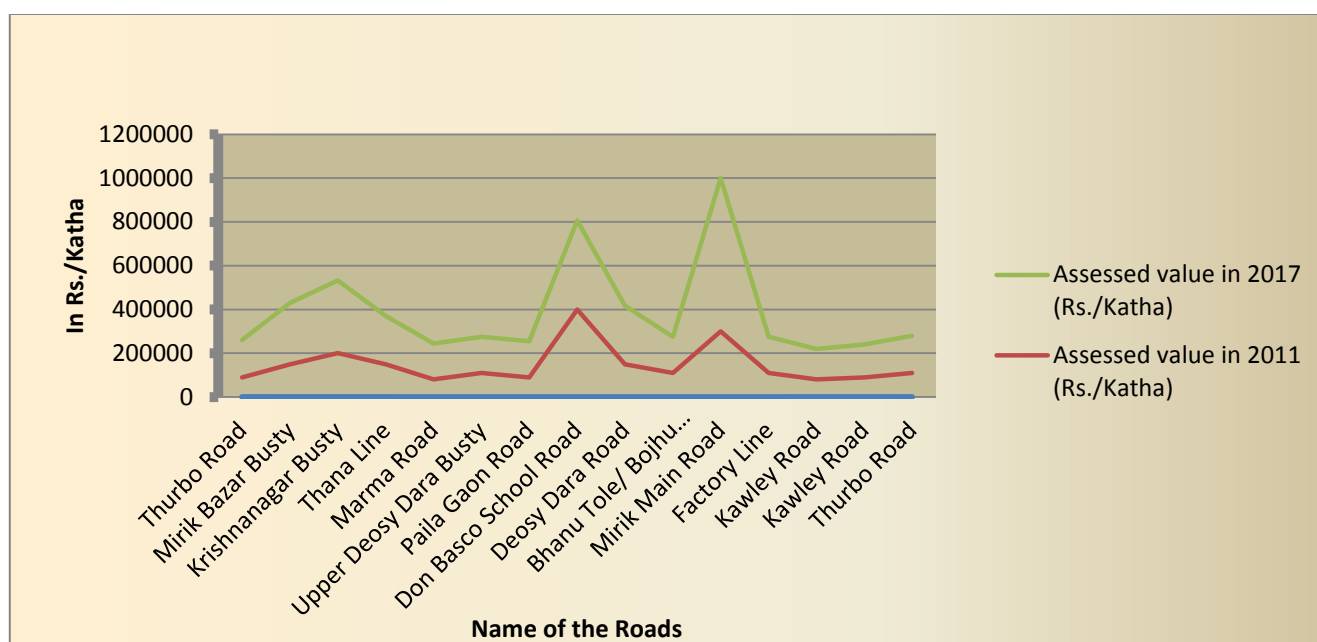


Figure 8: Changing Assessed values of Residential sites in Mirik Municipality from 2011- 2017



**Figure 9:** Changing Assessed values of Commercial sites in Mirik Municipality from 2011 - 2017

Similarly, due to the high concentration of the town, the highest commercial land price was found in Mirik Main road in ward number 5 which was Rs. 800000/ Katha in 2011 and Rs. 1400000/ Katha in 2017. The price increases within this 6 years is Rs. 600000/- i.e. the growing trend is 100% in every year. That place is considered to be a single location of the city where the land value is highest compared to other site of the city. This site or location is referred to as “Hundred Percent Location” or “Hundred Percent Corner” or “Peak Land Value Intersection” in Bid-rent theory. In overall discussion except the ward number 7 and 8 all the other ward have the higher rate of increasing trend but in the case of such two wards mostly the undulating surface and distance from main commercial area is the main reason for having the lower rate of growing prices. However, as the Mirik town is a popular place for residence since last few years so it may be said that the land prices of all wards will be much higher in the near future.

#### 6.11. Future Recommendation:

The landscape of the towns of Mirik Municipality has changes tremendously in the last few years due to increase in population and unscientific growth.

Thereby, the town will experience a number of problems if some suggestive measures are not taken in present day scenario. Some of the suggestive measures may be forwarded regarding the future land use and land values of such Municipality.

- In Mirik Municipality, there is a deficiency of proper urban planning. So need to proper urban planning.
- Special attention needs to the development of transport networks.
- Settlements should be grow up a in scientific and plan wise manner.
- Municipality should be checked the land values where the slums and lower income people are living.
- Attention also needs in the field of land use.
- The role of Municipality should be very strict in the case of reservation of forests and human resources.
- Transformation of forests to commercial or residential lands should be checked by the Mirik Municipality.

## VII. CONCLUSION

From the various findings of the study, it can be concluded that Mirik Municipality land use had gradually changed the level from residential use to commercial with the latter becoming more prevalent. This change has caused corresponding increase in both residential and commercial land values of the Municipality. Being a tourist spot, influx of people from the surroundings area and influx of commercial activities has been the major contributor to such changes of land use and land values. The increase in demand for commercial use in turn led to increase in property values. As changes is the part of any urban growth, so for economic reasons land and property will continue to change in use from a lower order to a higher order status in order to attain optimal use.

It is very important that, Mirik towns have deficient land use planning which needs to be taken care in respect to the changes. Deficient structures should not be put in place to accommodate the increased commercial activities. Therefore, Mirik Municipality has to undertake an adequate land use planning to develop the whole area. However, despite of this fact it may be said that Mirik town has its own potentiality to develop and thereby the changes of land use and land values will continue. The Mirik Municipality has already incorporated the planning laws to attain a balance in land allocation for various uses.

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## IX. REFERENCES

- [1]. Ali, Ershad (2018): Demographic Characteristics of Mirik Municipality with references to 2001 and 2011 Census Data, *International Journal of Research in Geography*, Vol-4, No.-1, pp: 50-66.
- [2]. Alonso, William (1960): *Papers and Proceedings of the Regional Science Association*, Vol. VI, 1960.
- [3]. Bhende, A.A & Kanitkar, T (2010): *Principles of Population Studies*, Himalaya Publishing House, Mumbai, pp: 622-626.
- [4]. Census of India (2011): *District Census Handbook Darjeeling*, Directorate of Census Operations, West Bengal, Series- 20, Part XII-B, pp. 9-16 & pp: 36-41.
- [5]. Chandna, R.C. (2015): *Geography of Populations: Concepts Determinants and Patterns*, Kalyani Publishers, New Delhi, pp. 42-54.
- [6]. Espindola, Giovena M. de (2012): *Spatio-temporal trends of land use change in Brazilian Amazon*, Instituto Nacional de Pesquisas Espaciais – INPE, Brasil, pp. 43-47
- [7]. Gallion, Aurther B. & Eisner, Simon (2005): *The Urban Pattern city planning and design*, J.S. Offset Printers, Delhi, pp: 263-286.
- [8]. Hudson, F.S (1981): *A Geography of Settlements*, Macdonald & Evans Ltd., U.K, pp. 125-133.
- [9]. Khullar, D.R. (2014): *India A Comprehensive Geography*, Kalyani Publishers, New Delhi, pp. 369-376 & pp .644-650.
- [10]. Mandal, R.B (2000): *Urban Geography A textbook*, Concept Publishing Company, New Delhi, pp: 479-489.
- [11]. Mundhe, Nitin N & Jaybhaye, Ravindra G (2014): *Impact of urbanization on land use/land covers change using Geo-spatial techniques*, *International Journal Of*



Geomatics And Geosciences, Vol. 5, No. 1, pp. 50-60.

- [12]. Misra, R.P (2002): Regional Planning-concepts, techniques, policies and case studies, Concept Publishing Company, New Delhi, pp: 795-799.
- [13]. Northam, R.M (1979): Urban Geography, John Wiley & Sons, New York, pp. 265-279.
- [14]. Nelson, Richard Lawrence (1969): Land Values in United States, Urban Land, Vol. 28, No. 2 (February, 1969).
- [15]. Parsa, Vahid Amini & Salehi, Esmail (2016): Spatio-temporal analysis and simulation pattern of land use/cover changes, case study: Naghadeh, Iran, Vol. 5, No. 2, pp.43-51.
- [16]. Ramachandran, R (2015): Urbanization and Urban Systems in India, Rakmo Press, New Delhi, pp. 120-132.
- [17]. Sen, Jyotirmoy (2010): Janabasati Bhugol, West Bengal State Book Board, Kolkata, pp.7-13.
- [18]. Sidhartha, K. & Mukherjee, S. (2000): Cities, Urbanisation & Urban Systems (Settlement Geography), Kitab Mahal Printing Division, Allahabad, pp: 357-282.
- [19]. <http://planningtank.com/urban-economics/factors-affecting-land-value> (accessed on 28th January 2017)
- [20]. <https://en.wikipedia.org/wiki/Mirik> (accessed on 23rd January 2017).
- [21]. <https://www.eolss.net/Sample-Chapters/C12/E1-05-01-03.pdf> (accessed on 26th January 2017)
- [22]. <http://www.investopedia.com/terms/l/landvalue.asp> (accessed on 26th January 2017)
- [23]. <http://www.medwelljournals.com/fulltext/?doi=sscience.2009.111.117> (accessed on 1st February 2017)