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Impacts of Exorbitant Land Price in Urban Form - A Case of Kageshwori Manohara Municipality

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Abstract
Urbanization has become unavoidable phenomenon observed all across the globe especially in developing countries. One of the most significant impacts of urbanization is on the price of land. The supply of land is inelastic and the speculative demand for land breaks equilibrium of demand and supply which leads to deviation of land prices from their basic value. This study focuses on studying impact of exorbitant land prices on urban form of study area Kageshwori Manohara Municipality. Kageshwori Manohara is rapidly urbanizing municipality where the land price has increased in even faster pace. To gain insight into the current scenario of study area, both qualitative and quantitative analytical methods were used using the data collected via interviews with key informants and questionnaire survey. Various indicators with respect to land price at ward level were analyzed. The study has drawn conclusion and recommendations regarding the urban form and land management for the municipality, and for the urban areas that are in stage of rapid urbanization.

Keywords
Land Price – Urban Form –Urbanization – Urban Land Management

1. Introduction

Urbanization in Nepal, as a process, is largely the outcome of location of new economic activities and population movement as opposed to the outcome of a planning effort [1]. Urbanization in Nepal is dominated by a few large and medium cities with an excessive population concentration in the Kathmandu Valley. Kathmandu Valley accounts for 24 per cent of the total urban population [1]. With the population of 2.5 million people, Kathmandu valley is struggling to respond to its current urbanization rate of around 4 percent [2]. During the time period of 1989 – 2016, built up areas in Kathmandu valley has increased from 5.10% (2153.79 Ha.) to 26.06% (11,020.62 Ha.) of total land area [3]. There is pressure of urban growth in peri urban areas of Kathmandu Valley as the development is sprawling outward from urban core which has led to huge rise in land price, land speculation and uncontrolled urban development.

Land in Nepal has traditionally represented the principal form of wealth, the principal symbol of social status, and the principal source of economic and political power [4]. In Nepal, land is still the most secure form of financial investment and an asset to pass to future generation. The growing population has generated various demands of land use over limited supply of land resulting to increase in rent and land price.

In absence of strong government regulation and intervention, land brokers, land developers and land owners have become the major actors involved in determining the land price in the market. The speculative bubble in urban land market has become challenging land management issue in present context. Speculation adds to the demand for land, making prices go even higher. Land becomes priced for future use, not present day use [5, 6]. Kathmandu has witnessed spiraling increase in Land value decreasing affordability for majority of population which is promoting haphazard urbanization and urban sprawl. Fragmentation, unregulated urban land market, faulted land acquisition and compensation and incomprehensible zoning regulations characterize the current urban land.

While urbanization and urban growth appear inevitable, urban areas are beset with a host of critical

issues related to urban development, management and institutions. The evolving urban form is becoming increasingly disorganized mixed with incompatible land uses, declining level of amenities and neighborhood environment. Deficiency of urban infrastructures is highlighted by the situation of water supply, sanitation, solid waste management, housing, transport and energy [7].

2. Problem Statement

Kageshwori Manohara Municipality is rapidly urbanizing municipality where the land price has increased in even faster pace. In absence of proper planning and regulatory policies, this overpricing of land has negative implications on urban form of the municipality.

3. Research Objectives

The main objective of the research is to study the link between urban land market and urban form. The specific objectives of this research are:

To study the implication of land price on elements of urban form

To give recommendations regarding land management in present and future scenario.

4. Literature Review

In context of urban development, Land is the key understanding of two important aspects. Firstly, land is vital in explaining the shape, layout and growth of urban forms. Secondly, it is at the center of city's activities, influencing economic development and determining the relationship between the different social groups and activities [8]. Major characteristics of urban land are continuous change in its value, continuous change of its comparative location within the city, and continuous change of its characteristics in time. In order to be qualified as urban land, infrastructure should be maintained, the development rights should be determined by zoning plan and superstructure should be determined on the basis of infrastructure and zoning plans [9].

Price, expressed in money, is the generally accepted means to compare values in a market. Market price designates what a property might be sold for at a specific period in time; value designates a property's actual worth in relation to other similar properties [8]. In Nepal, there is major distinction in government rate and market rate of land. Government rate of land is the legal rate and is necessary for loan and tax purposes and is also the basis for compensation in land acquisitions. However, market rate; though it is informal, is used in land transactions and is more determining factor in urban land use.

Land market can be defined as a site which brings together buyer and sellers to exchange land and land use rights for an agreed price. Urban land market plays a critical role in shaping urban development outcomes – determining the location, density, form and price of residential, commercial and industrial development [10]. Efficient and equitable land markets are a pre requisite for well-functioning cities. Land market of Nepal is largely unregulated and informal. Haphazard land use and management is the ultimate price to pay as outcome of urban land market practice of Nepal.

The term 'urban form' can be used simply to describe a city's physical characteristics [11] referring to its size, shape, and configuration. There are five broad and inter-related elements that make up urban form in a given city- Density, Transport Infrastructure, Housing Type, Land Use and Layout. The effects of land speculation on urban planning and development consists of poor land subdivision, poor access roads, urban sprawl, lack of proper setback, emergence of cul-de-sac, dominance of residential land uses over other land uses like recreational, commercial and public and semipublic as well as presence of incompatible land uses [12].

Land management is dynamic and active process where the most appropriate land use is constantly changing with management of its planning regulatory and infrastructure activities [8]. Land management is designed to achieve planned urban expansion, adequate land supply and sustainable urban development. Urban intensification is regarded as the prevalent strategy to ease the pressures of urban sprawl through increasing the density of built form and activities [13]. Recently, participatory and more flexible approach of land development and management are in practice such as Land Pooling, Guided land Development etc.

5. Methodology

To achieve the stated objectives, suitable research paradigm needs to be associated with the study. The

nature of research requires both qualitative and quantitative research approaches (viz. Pragmatic Paradigm). First objective is to study the implication of land price on elements of urban form. The epistemological Position of research is post positivist where observations may involve error and reality is imperfect. Second objective is to give recommendations regarding urban land management. Here, epistemological position is interpretivist where there are multiple subjective interpretations of social reality.

Initially, literature review and case studies were done to gather the required background knowledge. To gain insight into the current scenario of study area, both qualitative and quantitative analytic methods was used and necessary data was collected via interviews with key informants and questionnaire survey. The selected key informants were ward members, engineers, local brokers and local residents and were interviewed upon different facets of overpriced land in municipality. The indicators of land price impact on urban form – population attributes, housing characteristics, land use configuration and transport infrastructure were determined on the basis of literature review and related data were collected from municipality. The market price of land was verified from different sources such as local residents, local brokers, clients, property websites etc. At least five samples of land prices were taken to calculate each average land price. A questionnaire was developed using the variables of land value determinants.

A total of 21,420 households (HH) from ward nos. 9,8,7,6 & 5 were taken as sample frame. A total of 160 HH samples were collected from the study area using stratified random sampling method. The data were analyzed and conclusions were drawn out.

6. Study Area

Kageshwori Manohara Municipality located in north east of Kathmandu District in province no. 3 of Nepal was declared municipality in December 2, 2014 by the decision of council of ministers of Government of Nepal. With total area of 28.8 Sq. Km., it is divided into 9 administrative wards.

Geographically, Kageshwori Manohara Municipality lies within 27 ° 41' 20" to 27°46' 33" North (Latitude) and 85 ° 21' 45" to 85°28' 19" East (Longitude)with elevation range of 1297 to 2258 meters from sea level [14]. The name of municipality was taken from historical Kageshwori Mahadev temple situated in Gagalphedi (Ward no.1) and Manohara River.

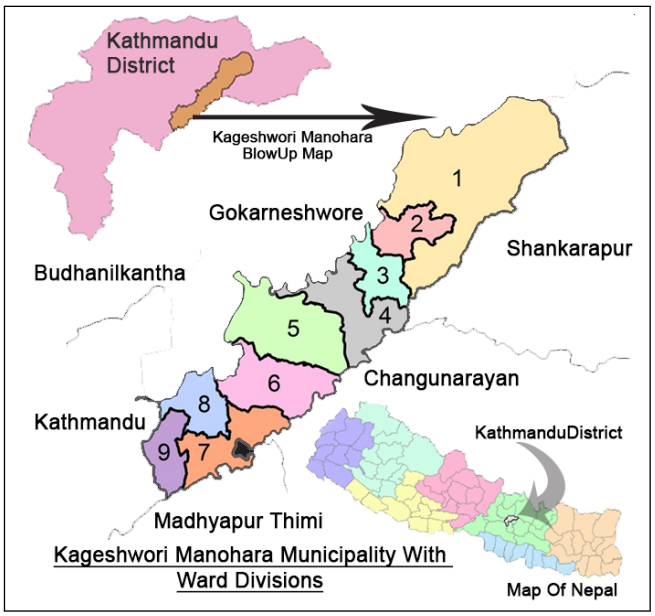

Figure 1: Location of Kageshwori Manohara Municipality
Source: GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive, Danchhi, Kathmandu

Table 1: Ward Level Population data of Kageshwori Manohara Municipality- 2075 B.S.

Ward No.	Total Popn.	Area (Sq. Km.)	Pop. Density	HH No.
1	6784	9.82	690.84	1515
2	3468	1.55	2237.42	752
3	2932	1.61	1821.12	683
4	7785	2.96	2630.07	1796
5	9780	4.22	2317.54	2397
6	12886	3.03	4252.81	2941
7	19046	2.42	7870.25	4901
8	11032	1.72	6413.95	3029
9	28522	1.46	19535.62	8152
Total	**102235**	**28.79**	**3551.06**	**26166**

Source: Household Population Survey, 2075 B.S. (2018 A.D.), Kageshwori Manohara Municipality

The municipality has ample of agricultural land which it has viewed as both strength and opportunity from perspective of agriculture and probable industries. But from planning perspective, there is always threat of spread of urban sprawl towards vacant and agricultural land.

7. Development Trend in Study Area

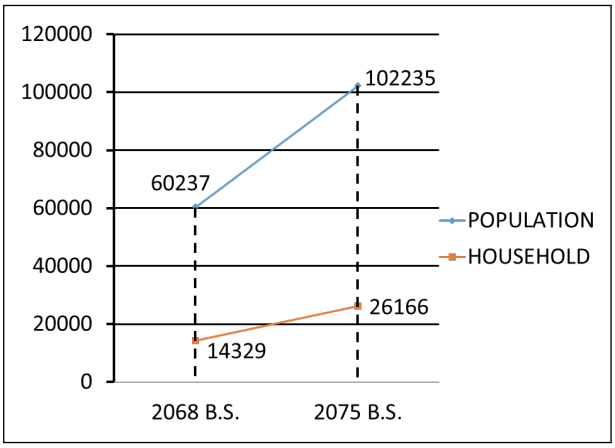

Figure 2: Chart showing population and HH data between 2068 B.S. and 2075 B.S.
Source: CBS National census 2068 B.S. (2011 A.D) and Household Population Survey, 2075 B.S. (2018 A.D.), Kageshwori Manohara Municipality

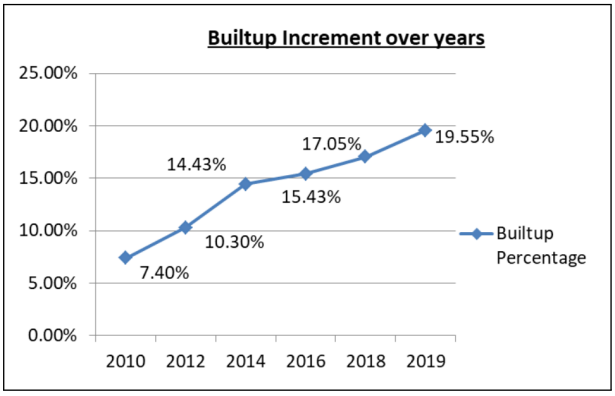

Figure 3: Chart showing built up growth in Kageshwori Manohara Municipality from 2010 A.D. to 2019 A.D.
Source: Google Earth Images and GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive

As shown in figure 2, Population and Household number of municipality has nearly doubled in span of 7 years. Settlement increment is centered in ward no. 9, 8, 7, 6 and 5 of the municipality and is sprawling haphazardly towards north of municipality. The spatial temporal analysis of Google earth images shows that the percentage of built up has increased from 7% to 20% in span of a decade.

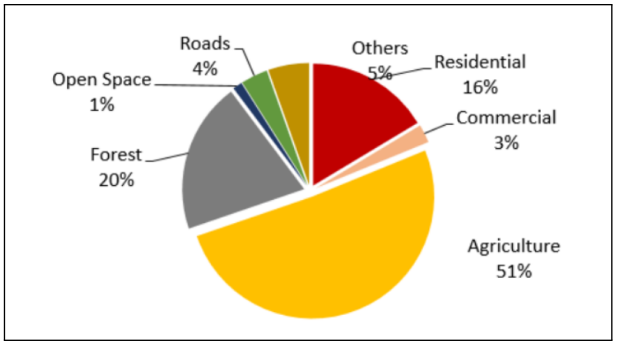

Figure 4: Chart showing land Use Distribution Percentage of Kageshwori Manohara Municipality
Source: GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive

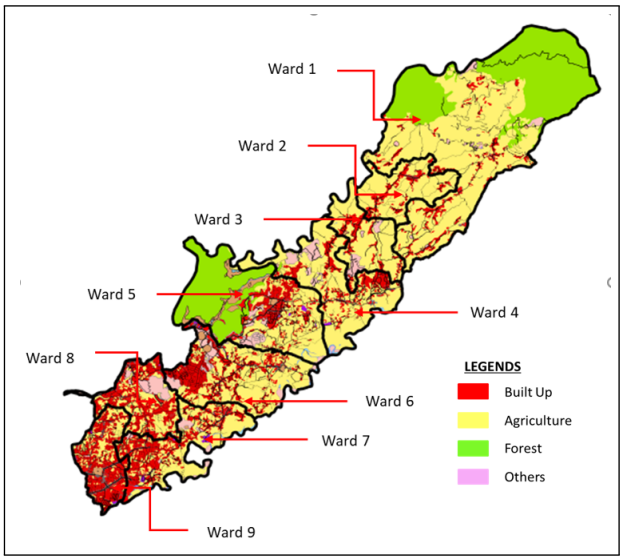

Figure 5: Land use map of Kageshwori Manohara Municipality
Source: GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive

There is still dominance of agriculture in land cover of municipality. As shown in figure 4, 51% of total land cover is occupied by agriculture. Total 4% of land is occupied by roads. As seen in the map, road network in the municipality is highly unregulated and developed without any sort of planning.

According to national urban development strategy (NUDS, 2017), the target of urban road density is 7.5 km per Square km land area. Most of the roads are

very narrow (<4.0 m). Figure 6 shows that 57.7% of total municipal road are less than 4m wide. The average road density for total area of municipality is 19.29 km road per square km area and the density of road per 1000 population is 5.43 km. The density of the road in municipality is found to meet the national strategy. The major constraint for the implementation of Municipal Transport Master Plan (MTMP) is to provide sufficient right of way of the roads.

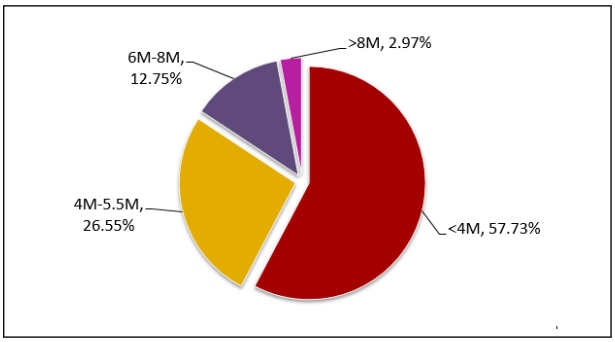

Figure 6: Chart showing percentage of Road Length of Municipality on the basis of Road Width
Source: GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive

8. Data Analysis

8.1 Analyzing Responses from Interviews with Key Informants

According to Mr. Umesh Jung Thapa - Structural Engineer of Kageshwori Manohara Municipality, Land price varies greatly within a single municipality due to settlement pattern. After earthquake of 2015 A.D., in migration increased in Municipality especially in ward nos. 9, 8 and 7 & commercial activities has also equally increased. Ms. Seema Acharya - Ward Engineer, adds that the broker culture is one of main reason for price hike in this area. Agriculture land is being divided into small parcels and sold without ensuring provision of basic infrastructure leading to haphazard urbanization.

Ms. Deepa Karki - Ward Engineer, cites that most of roads have minimum road width. Road network is unregulated & there is problem linking feeder roads to main road. The increase in number of vehicles on road is causing increment in road accidents, traffic congestion, and commuter hour loss. Similarly, Mr. Ram Babu Acharya - land owner, told that his family decided to buy land here as the family has many relatives here in this area and is more accessible and near to city center than previous location. They have sold 11 anna of ancestral land at Chhaimale, near Dakshinkali to be able to afford 3 anna land here.

8.2 Macro analysis of Indicators

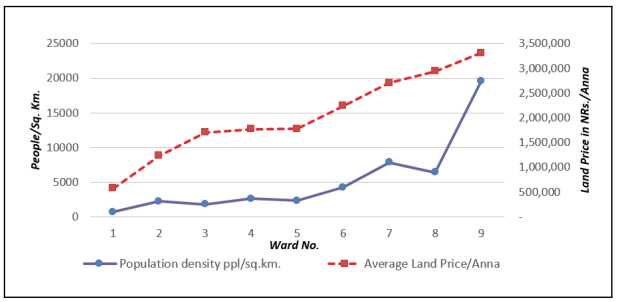

Figure 7: Chart showing ward level population density & average land price per anna

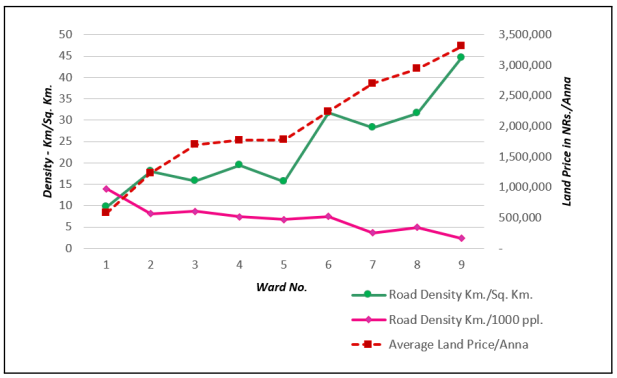

Figure 8: Chart showing ward level road densities & average land price

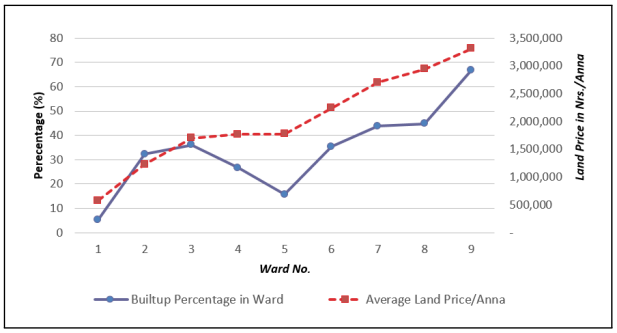

Figure 9: Chart showing ward level builtup percentage & average land price

Table 2: Ward Level Population Density, Percentage of In migrants, Rental Households, Built ups, Road Densities and Average Land Price per Anna

Ward No.	Population density ppl/sq.km.	% of In migrants	% of Rental Households	Builtup % in Ward	Road Density Km./Sq. Km.	Road Density Km./1000 ppl.	Average Land Price/Anna
1	690.84	15.2	12.28	5.29	9.65	13.96	575000
2	2237.42	11.2	11.17	32.25	18.01	8.05	1230000
3	1821.12	22.1	17.28	36.02	15.78	8.66	1700000
4	2630.07	42.2	21.49	26.68	19.41	7.38	1770000
5	2317.54	75.2	38.1	15.64	15.62	6.74	1775000
6	4252.81	73.5	28.18	35.31	31.71	7.46	2240000
7	7870.25	72.9	45.89	43.8	28.24	3.6	2700000
8	6413.95	81.2	51.22	44.76	31.6	4.92	2940000
9	19535.62	85.1	61.74	66.75	44.64	2.28	3310000

Source: Report - Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive, Danchhi, Kathmandu Source of Land Price: Local Information Sources

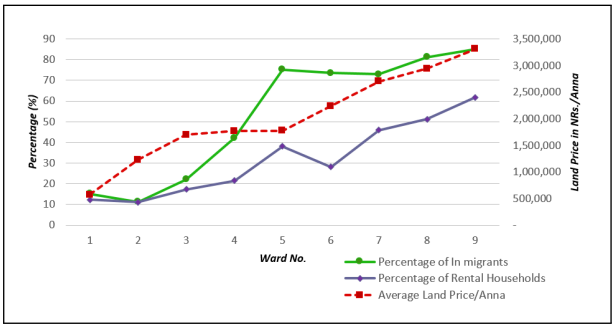

Figure 10: Chart showing ward level percentage of in migrants, rental households and average land price per anna

Source (Figure 7-10): Report - Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive, Danchhi, Kathmandu Source of Land Price: Local Information Sources

Macro level analysis is carried out in ward level where average data of each ward is taken as base of analysis. The average land price is co related with the variables selected as indicators in this research. The indicators selected to analyze the impact of land price on urban form are population attributes, land use configuration and transport infrastructure.

It is seen in the graph that population density of the ward no. 9 is exceptionally higher than other wards. Percentage of in migrant population is relatively higher in ward no. 5, 6, 7, 8, 9. If we consecutively look into the ward level data of rental population, Ward no. 5, 7, 8 and 9 have exceptionally higher percentage of rental households. Population attributes have strong co relations with average land price.

Percentage of Built up in each ward is dependent on the composition of land cover. Ward 9 has the highest percentage of built up in its land cover. Ward 1 and 5 has relatively low percentage of built up because the land cover of these ward consists of ample forest areas which is owned by government. Drastic difference is not seen between the built up percentages of other wards. There is positive but weak co relation between average land price and built up percentage of ward.

Ward no. 1 has higher road density per 1000 population than per sq. km. of area. But it is contrasting in rest of all wards. The difference between road densities increases as we move southwards of municipality. There is abrupt rise in road density per Sq. Km. area between ward 5 and 6. Road density per 1000 population seems to be more strongly co related with Average Land Price than Road density per Sq. Km. of area. Though the co relation between average land price and density per 1000 population is stronger; it is negative co relation.

8.3 Micro Analysis of Indicators

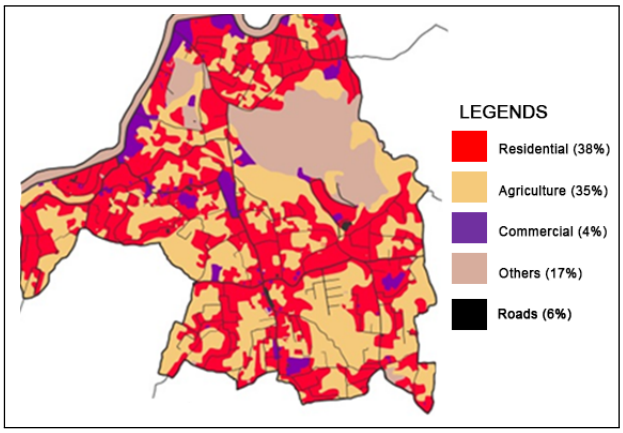

Figure 11: Land cover Map of Ward no.8

For Micro analysis of indicators, Ward no.8 of Kageshwori Manohara Municipality is chosen. The land cover/land use of Ward no.8 is dominated by

built ups/ Residential Land use. Agriculture land is being converted into built ups. The percentage of designated open space is less than 1 percentage of total ward area. Commercial areas are developed along major roads. Land is fragmented into small plots for residential purpose. 41% of total cadastral plots are less than 3 anna or 95 sqm. 82% of total buildings are less than 2.5 storey. Net building density is 3185 building per sq. km area of Residential land. Settlement pattern is organic without centralized planning. Road networks are unregulated with high numbers of cul de sacs. 40% of total road is below 4 meters width.

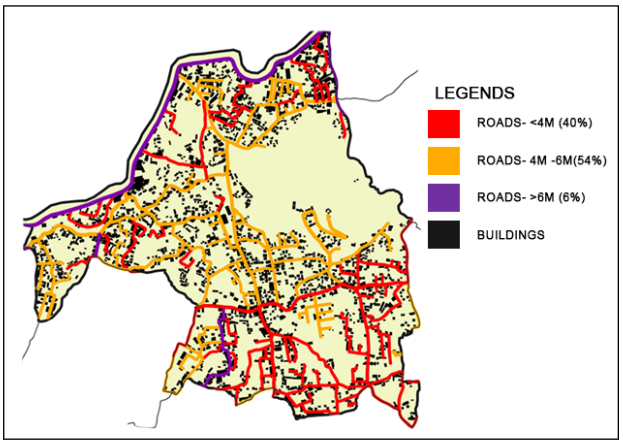

Figure 12: Road Network & Settlement Pattern of Ward no.8

Source (Figure 11 & 12) : GIS Shape Files, Preparation of Urban Base Map and Municipal GIS of Kageshwori Manohara Municipality, Implementing Agency: Kageshwori Manohara Municipality, Office of Municipal Executive

8.4 Analysis of HH Questionnaire Survey

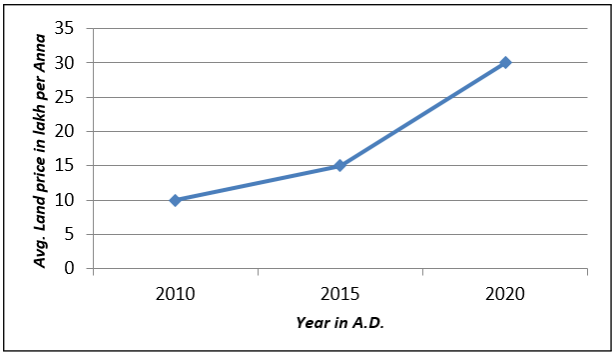

Figure 13: Chart showing average land prices per anna in intervals of 5 years

In the HH questionnaire survey, it is found that there is huge gap in land plot size between indigenous and migrated population. Among the 160 respondents, 40% were indigenous (local) people and 60% migrated from somewhere else. The average plot size of local people is 252.38 Sqm. (0-7-3-3) while average plot size of migrated respondents is 111.28 Sqm. (0-3-2-0). As per the gathered data, Average Land Price has doubled after 2015 A.D.

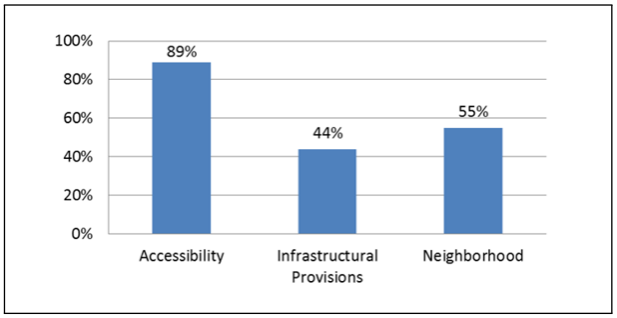

Figure 14: Chart showing locational choices of respondents

In the perception survey, when asked to respondents why they chose particular locality, most answered the following reasons:

- Accessibility to market, school, workplace etc.
- Provision of electricity, drinking water
- Relatives nearby and good neighborhood

Also when asked about the negative aspect of the locality, almost all respondents answered pollution (air and noise) as the major drawback of the area.

9. Discussion

Population density of Ward no.9 is comparable to average density of Kathmandu Metropolitan City - 20,287 Ppl/ Sq. Km. Above 50% population share of ward no 5, 6, 7, 8, & 9 is of in migrants. At early stage of urbanization, internal migration contributes more to urban population growth than natural increase. But high rate of internal migration in absence of sufficient planning creates problems such as squatter settlements, slum areas, traffic congestion, urban poor, urban sprawl, etc.

High percentage of rental household is seen in ward no. 5, 7, 8 and 9. Due to locational attributes of ward no.7, 8, and 9, rental HH is high in those wards. People tend to choose location here as it is near from urban center

and at the same time land price in these wards are high decreasing affordability for many HHs.

Built up percentage is higher in wards with high average land price. Ward no 9, 8, and 7 are more accessible than other wards. Distance from city center or accessibility is one of functions of Willingness to pay (WTP) of consumers/buyers. When WTP is higher, the land use of area is dominated by residential land use. In absence of government's intervention on land market, other land use will not be feasible.

The micro analysis of ward no.8 is the representation of urban form that is being developed in the municipality. The edge between urban and rural areas has become undefined as open spaces and agriculture land gets encroached by settlements. The leapfrog or dispersed development pattern has resulted in many pocket spaces trapped between the built ups. The evolving urban form is increasing private vehicle dependency and longer commuting distances resulting more traffic congestion and air pollution. It also substantially increases the per-user costs of providing public services such as water supply, sanitation and road.

Ward no 9 has highest number of building per sq. km. of ward area, highest percentage of cadastral plots below 3 anna and buildings above 2.5 storey. Likewise ward no. 8 and 7 have high percentage of cadastral plots below 3 anna area suggesting land fragmentation. Micro analysis of ward no.8 shows the Prevalence of low height buildings relating to low density development. Ironically, the faster growing cities, while having more sprawl, will actually be denser in those areas that are actually developed. More land will be withheld from development, land values will be higher, and the densities in developed areas will be higher. Consecutively, land fragmentation will increase in surrounding region of developed area due to price hike fueled by speculation. One of key informant has indicated that commercial activities are growing in ward no 9. In the municipality, Ward no.9 is developing as urban sub center and its peripheral effect is seen most in ward no. 8 and 7.

Ward no. 9, 8, 7 and 6 has high road kilometers per square kilometers of ward area. It can be clearly seen that population increment in those wards caused increment in built up area which in turn induced road network development. These wards also have highest population density amongst the wards of Kageshwori Manohara Municipality. This can explain less road kilometer per 1000 population in these wards. Population growth increases travel demand and if the transport infrastructure cannot sufficiently respond to the travel demand, traffic congestion is inevitable.

Road network of municipality is highly unregulated with severe lack of interconnectivity. Maintaining road alignment and road width is very challenging. Major percentage of road is below 4m of width which cannot address trip generation. As land prices are very high, maintaining R.O.W of road is nearly impossible. Due to settlement pattern and road network, other infrastructures such as sewerage and water supply have high development costs.

10. Conclusions

The major effect of land price is seen on land management and development. Municipality is facing discontinuous scattered development. Agriculture field are being fragmented into residential plots. Due to land price, people can afford in average 3 to 3.5 anna of land which is affecting regulation of building setbacks and R.O.W. Due to development pressure Municipality is facing problem to designate large open spaces. Roads are narrow and meandering with poor interconnectivity as most of roads are developed privately just to sell the land. Concerned authorities find it hard to implement plans and policies such as MTMP due to haphazard settlement development.

The dominant factor that determines the price of land is the locational attribute of plot. Land price is high in wards that are more accessible and near to urban center. From the perspective of urban planning, land price has impacts on urban form via urban density, settlement pattern and efficient infrastructural services. Within spatial planning, the efficient management of urban growth is essential to promote compact, well planned city forms. Effective and innovative Land development tools based on participatory approach is necessary for beforehand land management in areas susceptible to sprawl. If urban sprawl towards northern ward can be controlled, ample agriculture land can be protected and urban agriculture can be introduced. Government must intervene in land market through rules, regulation and policies to control the sky rocketing land price and channel the urban growth in desired path.

11. Recommendations

The main strategy of local and provincial government should be control of sprawl. First of all, land use zoning of municipality needs to be done. Agriculture areas need to be protected by introducing and subsidizing urban agriculture. Urban consolidation and Land use Intensification is necessary for areas that are already engulfed by urban sprawl. For this Government should carryout necessary strategies and policies for infill development. FAR can be increased on the basis of development intensity. As road widening is major challenges for implementation of MTMP, innovative approaches such as density bonuses can be applied. Concerned authorities should focus on increasing mix use development to reduce dominance of residential land use in wards with high percentage of built ups. For proper planning of areas with immediate risk of sprawl, participatory and innovative land development program must be initiated.

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