

Impact of Gated Communities on Local Mobility

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Abstract

Gated communities are residential areas with restricted access designed to privatize normally public spaces. These secluded clusters of houses form a separate community within its walls. They often have facilities and infrastructures that are not open to the public. Mobility is the ability to move or travel around easily. Kathmandu has seen a surge in the development of gated communities. These communities restrict access and contribute to densification while reducing access. This research aims to identify the legal provisions and restrictions of these gates. It shall look into if and how accessibility is or can be affected. A literature review, and review of legal documents related to housing, public roads and lands confirm that the law for approval and allowance of construction of housing colonies and particularly gates in such colonies are lacking. Direct observation and key informant interviews reveal that accessibility is a growing issue with the increase in densification and opening gates of communities should be an option to increase accessibility and mobility.

Keywords

Gated community, Accessibility, Mobility, Housing colony, Apartment

1. Introduction

Gated communities are residential areas with restricted access designed to privatize normally public spaces. A gated community is a housing development on private roads closed to general traffic by a gate across the primary access. The developments may be surrounded by fences, walls, or other natural barriers that further limit public access. [1]

Kathmandu has seen the emergence and development of many gated communities in the past decade. These include housing colonies, apartment buildings and private group housing. These secluded communities cause various impacts in the surrounding locality. They may be economic, social or environmental albeit not all are negatives.

People, residents go to these communities in search of security and a higher standard of living. These communities play a role in the land usage, land value, urban management of the area. There are meanwhile some restrictions in the development of these privatized public spaces [2]. However it is the absence of these groups from most aspects of city living that creates a wider problem for those concerned with the quality of civic spaces and institutions. [3]

Oxford Learner's Dictionary defines mobility as the ability to move or travel around easily. It says mobility is the ability to move easily from one place, social class or job to another. It iterates how easily and conveniently a person can travel to and from places. It gives an idea of how easily can a person access services and facilities. Gated communities come up and densifies settlements. However, it closes its gates to the general public who happen to live outside the gates. This can cause various issues on mobility and ease of access. A possible alternate path or access way is blocked by the community. Where with densification ease of access should increase, gated communities form barriers to the accessibility of various infrastructure and services.

With rapid urbanization and urban densification in Kathmandu in recent years, people have started seeking housing and residence in the peri-urban areas of Kathmandu. People migrating in from outside cannot afford to buy land in the main city so they move to the outskirts and suburbs, or people traditionally from the core cities move out due to congestions. This trend of gentrification has fueled the boom in the development of gated communities. People seeking affordable housing prefer to avoid such communities, while people seeking comfort,

luxury and security gravitate towards gated communities. This however comes at a premium price. Gated communities reflect an urban entity that is physically and often socially and economically differentiated from the surrounding urban environment. [4]. With this kind of seclusion and isolation, there tends to be a disconnect in status, class, amenities, services, facilities and lifestyle among the locals. These secluded clusters of houses form a separate community within its walls. They often have facilities and infrastructures like parks, department stores, swimming pools, community halls among others. The public or anyone not part of the gated community is not allowed in and not allowed to use any of the amenities. Emergence of these communities challenge the spatial, organizational and institutional order that [5] that has shaped Kathmandu. Likewise, communities that have connections to two or more roads at its boundaries benefit from alternate route options. However, residents excluded from this walled housing cannot use said road and ease of access is compromised and mobility is affected.

Strategies, policies, plans, including land use policies, development strategies, housing byelaws, infrastructure development plans need to take into consideration the impacts these communities have on the surrounding areas to formulate rules, regulations and policies. The thought out strategies thus implemented will help regulate these developments and ensure all parties have equal, easy access to infrastructure and reduce social divide and benefits.

1.1 Research Question

- What are the impacts of gated communities on surrounding communities in the aspect of mobility and accessibility?

1.2 Research Objectives

- To measure impact of gated communities on local mobility using specific parameters
- To examine the bottlenecks created due to restricted access from the gated community
- To review the legality of gated communities and provide possible policies to tackle issues

2. Research Methodology

Ontology is among the main elements of a research paradigm. It is the study of reality. It forms the

understanding of the researcher and helps formulate the progress of the research. Here, the ontological claim is that “Gated communities reduce ease of access while increasing density of a locality”

Epistemology is concerned with the nature of knowledge and ways of knowing and learning about social reality [6]. It is the means or method to be followed to learn or shed light on the ontological claim of a research.

The methodology for the research is defined by the paradigm it is following. Here, this research shall follow a pragmatic paradigm where it will take into account both qualitative and quantitative data to induce conclusions.

This research is conducted based on the inductive approach.

Inductive approach generally means the bottom up approach which starts with observation and ends in theory or conclusion. In this logical framework, the observations are made first. This can lead to patterns and regularities shall be abstracted. Following that hypothesis are proposed and tested. After that a theory or conclusion is drawn in relation to the initial ontological claim. In short, inductive approach is starting with a statement, observing patterns and ending with generalization.



Figure 1: Inductive Approach

However instead of perfect induction, the inductive approach will be based on imperfect induction. This shall be Inductive Approach based on limited observations with generalizations, and a wide use of the principle of probability. Nonetheless, efforts will be geared towards making more findings and collecting data so that there is a higher likelihood that the generalization made at the end of the study would be closer to reality.

3. Policy Review

The Government of Nepal has prepared various laws and legislation regarding Housing and group housing. The following legal documents are prepared related to community housing, land and joint ownership.

3.1 The Lands Act, 2021 B.S. (1964)[7]

As per Chapter 3, Section 7, Sub-section (1) the upper ceiling of land allowed to be owned by a landowner, in any way, is not more than 25 Ropani in Kathmandu valley. Moreover, as per Section 7, Sub-section (2), notwithstanding anything contained in, Section 7, Sub-section (1), any person or his or her family as a land owner may own, not exceeding the upper ceiling of, 5 Ropani of land in Kathmandu valley for their housing purposes in addition to the land referred to in Section 7, Sub-section (1).

Section 12, iterates the provision for exemptions from the upper ceiling contained in Section 7. The 8th amendment of the act in 2076 B.S. (2020 A.D) Section 12, Sub-section (g) and Section 12A mentions land owned by a company or association as the landowner, exempt from the upper ceiling specified in Section 7, provided that the land ceiling is not sufficient or is inadequate for the company or association to run its operations and acquires special permission from the government of Nepal for the ownership of such land.

According to this lands act any landowner shall not own land more than 30 Ropani for any foreseeable purposes in the Kathmandu Valley.

3.2 Public Roads Act, 2031 B.S. (1974)[8]

Chapter 3 Section 18 describes the power of the Government of Nepal or the Department of Roads to remove goods causing obstruction to movement on public roads. Section 18 Sub-section (4) states that in addition to any goods left, placed or thrown on the public road, anything including any arm or branch of a door, tree or wire, that is held, installed or made with a house or wall on either side of a public road as to project towards the road and causes obstruction to the movement on the road, the Department of Roads may issue an order to the concerned person to remove such obstruction or arrange the goods in a manner not to cause obstruction within a reasonable period of time as specified in the order.

Chapter 3 Section 19 states the prohibition on doing any act on public roads or road border without obtaining permission. According to Section 19 Sub-section (1) no person shall build an access road joined to a public road or dig or demolish a hole or ditch on a public road or within the road border or install or place barrier, peg or fort on the public road or build a house or shed thereon or cultivate a land within the road border or do any other similar act

without obtaining the permission of the Department of Roads.

As this act defines public roads as roads not subject to personal possession by any individual or family. This implies that when a road is used for access or otherwise by more than one household or parcel of land, it is deemed public road. The act prohibits any person, individual or group to obstruct movement on these public roads in any way. It also prohibits any individual, family or landowner from doing any act as to barricade, obstruct or damage the area within the road border without permission from the Department of Roads or the local authorities. Failure to do so shall give the Department of Road, the authority to carry out the removal or demolition of the said obstruction, by their own employees or others on a contract basis.

3.3 The Ownership of Joint Housing Act, 2054 B.S. (1997)[9]

Chapter 5, section 16, mentions that an apartment owner has right over collective areas and facilities such as land of joint housing, the structure of the building with its services (sewerage, fire escapes, way in and way out), amenities (basement, solar, courtyard, garden, parking lots and go-down), generator post and guard post, facilities like electricity, gas, parts arranging, making of cold and hot water and parts of the building used for heating and air conditioning. An owner is also subjected to the rights to items of collective use such as elevators, pump, tanks, motor, fan and garbage container. As per section 17, no division of these collective areas and facilities are allowed. While Section 18 states that an apartment owner shall pay the promotor or committee for maintenance, cleaning and upkeep of Collective areas and facilities, Section 19 denies the right to refuse to pay for them. In case of non-payment issue, Section 20 gives the right to the promotor or committee to withhold the use of any collective area and facilities and also prevent transfer of such apartment to any other person in any manner.

In case of the complete destruction of joint housing in any manner, Section 22 subsection 1 states that the land area of the housing will be divided among all the apartment owners proportionately.

Chapter 6 Section 23 states that protection, repairs and maintenance of the building and collective area and facilities is the duty of the promoter. In case the promoter is to sell all his apartments owned or is

unable to perform his duties, Section 24 mentions that the duties under promoter is to fall under a committee formed among the apartment owners with everyone's consent. The promoter is liable to raise charges and fees for his duty as fixed in agreement according to Section 25.

Competent authority can issue directives to promoter or the committee which must be complied with according to Chapter 7, section 33. The government of Nepal may make rules for carrying out the objectives of this Act as stated in Section 35.

The Act does not cover any provisions for housing colonies where the owner buys a particular piece of land and an individual house. The definition of "joint housing" under the Ownership of Joint Housing Act only mention about the apartments and the rights and duties of an apartment owner, its promoter and the committee formed by a unanimous decision of the owners. An apartment complex is a building or a cluster of buildings with common collective spaces, and facilities. These spaces and facilities are shared by the apartment owners collectively and equally. The Act does not allow use of collective space for any private purpose. It does not allow the demarcation and prohibition of land. The apartment owners do not own parcels of land within the complex privately. They get a share of the land only in case of complete destruction of the apartment buildings. This is not the case for group housing colonies. In a housing colony, each house owner owns their parcel of land separately. There are roads providing access to each land or house. These houses do not conform with the definition of joint housing or apartment explicitly mentioned in the act. The only common spaces in these gated housing colonies are roads and small community spaces. So, the act does not particularly cater for gated housing colonies.

4. Study Area Overview

Bhaisipati is growing as a posh, luxurious residential settlement. It is a part of Lalitpur Metropolitan city. Lies in the southern outskirts of the city outside the ring road. With such development comes land use change, demand for infrastructure, rise in the number of people using facilities and services. Various communities (gated or otherwise) is emerging in this location. Some gated communities reflect the growing range of choices available to consumers in the postmodern city. The affluent can move to gated

enclaves in search of privacy and exclusivity, and in flight from fear, closing themselves off from the dangers outside.[10]

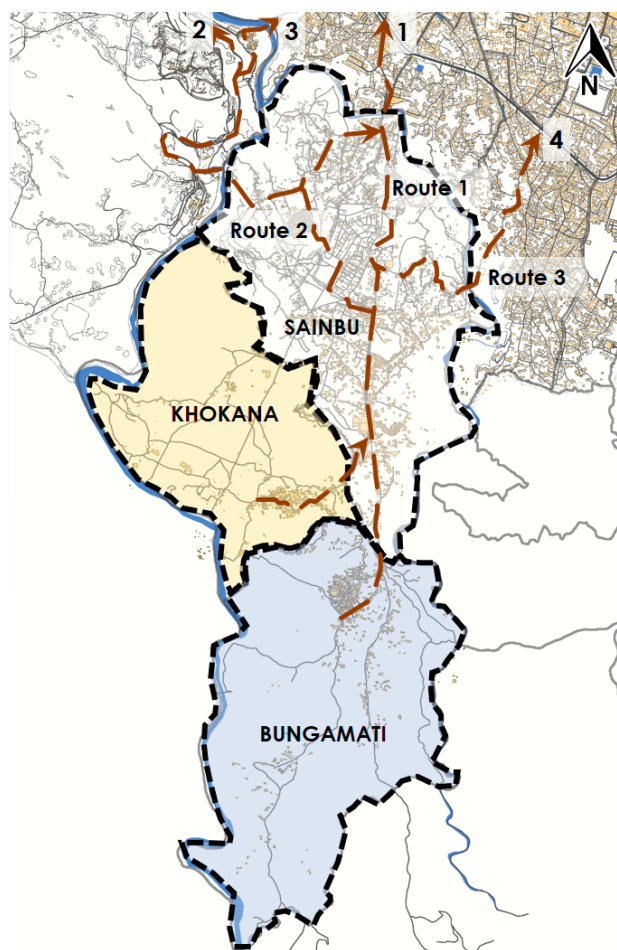


Figure 2: Routes to the City

It being in the outskirts of the city many people residing there have jobs in the city and commute to and from the city every day. Although there are 3 routes (Figure 2), most of Sainbu, Khokana and Bungamati area has only one primary access to and from the city, i.e. via. Nakkhu road (Route 1). Among the other routes, Route 2 (Figure 2) goes through Vinayak Colony and is restricted for non-residents of the community. This route can access Chobhar, Balkhu and Dhobighat areas. Route 3 (Figure 2), which links to Mahalaxmasthan is long, narrow, rough gravels and rarely used. Thus, traffic count of Route 1 is conducted for the study purpose.

The junction where Nakkhu-Bhaisipati road and Nakkhu-Chobhar road meet is quite narrow. This paired with the fact that it is the only route causes a lot of congestion during rush hour.

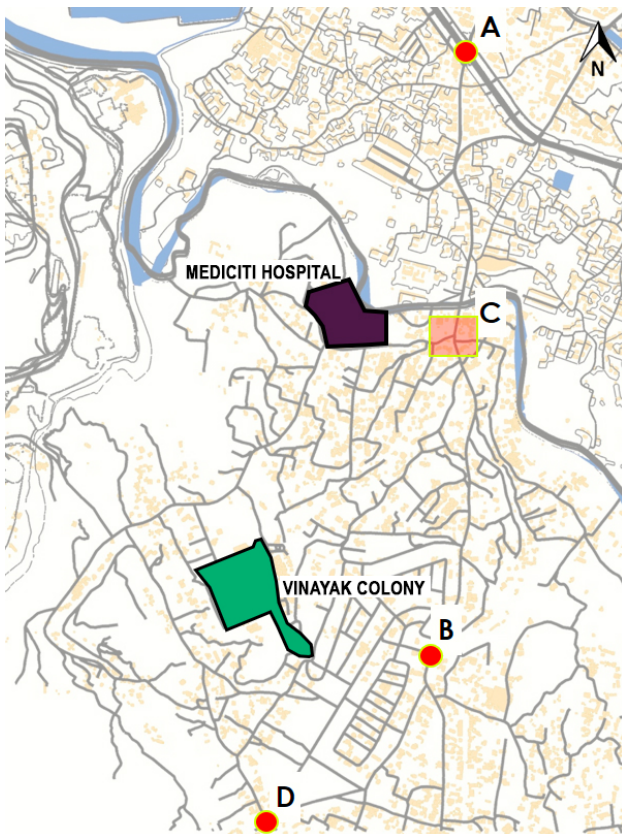


Figure 3: Context of Study Area

In Figure 3, Point 'A' is the Ekantakuna junction at ringroad. Point 'B' is the entrance of Bhaishipati away to the south of Vinayak colony. Point C is the bottle neck junction. Traffic count is taken of this junction of number of vehicles going in different direction. Point 'D' is the Magar gaun junction.

The distance between A and B is 1.8 Kms. This stretch of road, i.e. A-B is the most frequently used as most people living in Bhaishipati, Sainbu, or even Bungamati have to commute via this road to access the city.

Rush hour time sees a lot of traffic jam at junction 'C' thus time taken to travel from point A to B and vice versa was recorded during rush hour on week days and an average was taken. The time taken to travel the same distance on weekends or holidays was also taken to gauge the difference in travel times.

As the junction sees a lot of congestion average stopping time and the average number of times a vehicle has to stop to cross the junction while travelling from A to B or vice versa was recorded and average time lost is calculated.

Then as a hypothesis, the time taken to travel from point B to Point A via Vinayak colony, assuming there is little to no congestion in junction 'C' based on the

distance and base average speed is calculated.

After all this data and assumptions are compiled, interpreted and based on the policy review and the interpretations, discussions and possible solutions or measures to be taken is suggested.

5. Data and Analysis

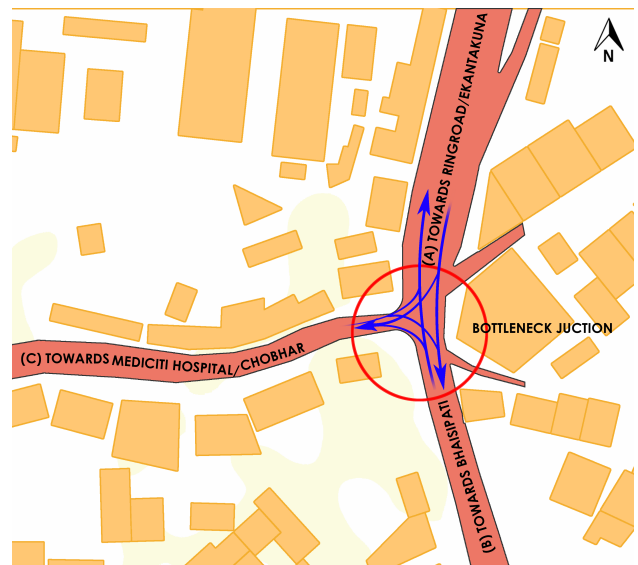


Figure 4: Bottle neck Junction

Figure 4 of the bottle neck Junction 'C' shows that the junction has 3 main roads connecting to it. From 'A' Ekantakuna, from 'B' Bhaishipati and from 'C' Mediciti / Chobhar. Here there is a lot of cross flowing traffic as vehicles move from all three sides to all three sides. This makes traffic management a compulsion.

Number of vehicles travelling from A to B, A to C, B to A, B to C, C to A and C to B is recorded and calculated. Traffic count on this junction is done for 3 days during rush hour traffic in the morning and evenings.

Two wheelers, small vehicles (3 or 4 wheelers) and heavy vehicles are counted. Other miscellaneous vehicles such as tractors or rickshaws are included as well.

The data so collected is presented in a bar graph in Figure 5 and Figure 6

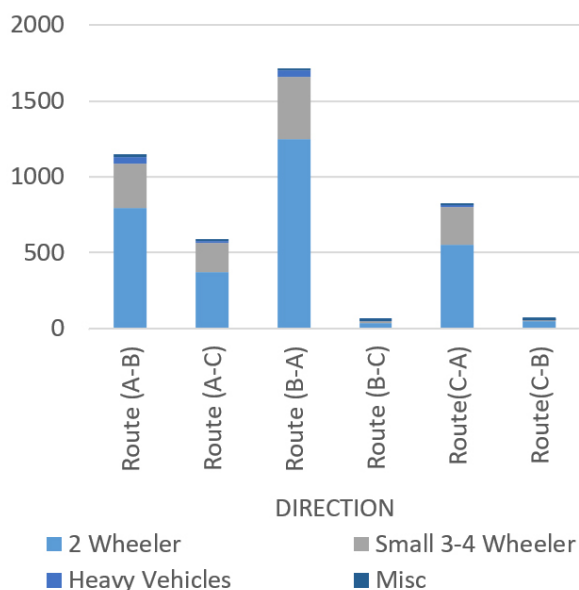


Figure 5: Traffic Count at Bottleneck Junction (Morning 9:30 AM - 10:30AM)

Figure 5 shows the morning traffic count. The highest number of vehicle is the two wheeler at this time of the day. An average of 3060 two wheelers cross this junction on a daily basis as per the data recorded. While small vehicles are seen to pass this junction on an average of 1157 in numbers while heavy vehicles and other vehicles are seen less than 130 in number. On an average 4342 vehicles pass this junction in an hour during the morning rushhour traffic. Further, it can be seen that majority of the commute is from point A - B and from point B - A. An average of 1133 vehicles from A to B and 1704 vehicles from B to A. This shows that most of the vehicles are traveling either from Ekantakuna towards Bhaisipati or from Bhaisipati to Ekantakuna. The data shows that commute between Bhaisipati and Mediciti is minimum at this time of the day.

Figure 6 shows the traffic count of the evening. The highest number of vehicle is the two wheeler at this time of the day. An average of 3080 two wheelers cross this junction on a daily basis as per the data recorded. While small vehicles are seen to pass this junction on an average of 1141 in numbers while heavy vehicles and other vehicles are seen less than 150 in number. On an average 4360 vehicles pass this junction in an hour during rush hour traffic. Further, it can be seen that majority of the commute is from point A - B and from point B - A. An average of 1558 vehicles from A to B and 1307 from B to A. This shows that most of the vehicles are traveling either from Ekantakuna

towards Bhaisipati or from Bhaisipati to Ekantakuna. The data shows that commute between Bhaisipati and Mediciti is minimum at this time of the day.

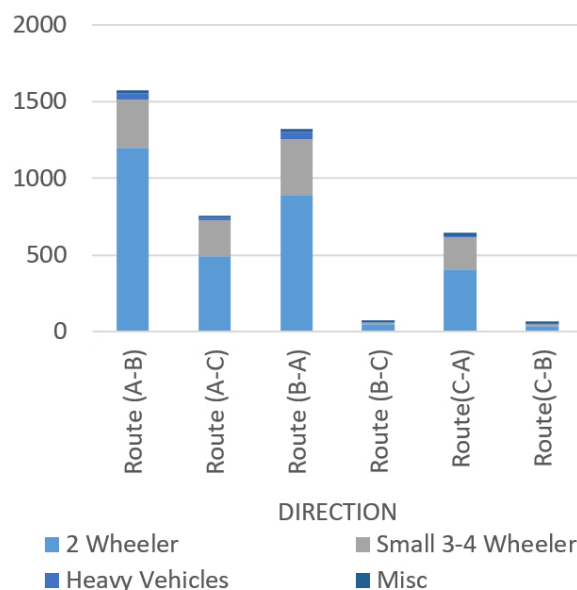


Figure 6: Traffic Count at Bottleneck Junction (Evening 4:30 PM - 5:30 PM)

Time taken for a vehicle to travel from point A to B and B to A is recorded. These recordings are taken in different times of the day on different days. This includes normal work day during the rush hour traffic time when there is a lot of vehicles, normal work day in the time when there is no rush hour traffic and on a holiday when there is minimum traffic. This helps in the understanding of extent of delay which directly correlates to the accessibility and mobility in the area. The average time taken on various scenarios is calculated and tabulated in Table 1

From Table1, the following observations can be made. During holidays on an average it takes 3:42 minutes to travel the distance of 1.8 Kms via 'Route 1' (Figure 7) from point A to B and 3:34 from point B to A. This indicates than an average speed of around 30 Kmph is achieved. On working days during non-rush hour times, when there is moderate traffic, the travel time for moving from A to B increases by 1.36 times and from B to A increases by 1.61 times. On working days during rush hour time, with maximum vehicles, the travel time is significantly increased when moving from B to A as a vehicle typically has to stop for 2.5 times for an average total of 3:27 minutes. Here the travel time from B to A is increased by 3.76 times the normal travel with minimum traffic. The travel time

for moving from A to B increases by 1.89 as it does not require stopping at the junction.

S.N	Direction		
	Work Day (Rushhour Traffic)	Work Day (Normal Traffic)	Holiday (Minimum Traffic)
Time Taken From A-B			
1	6:41	5:12	3:46
2	6:48	4:53	3:41
3	6:51	5:03	3:39
Avg.	6:46	5:02	3:42
Time Taken From B-A			
1	11:23	5:26	3:33
2	12:59	6:04	3:39
3	14:32	5:48	3:32
Avg.	12:58	5:46	3:34

Table 1: Time taken to travel between A and B

If a vehicle were to travel through 'Route 2' (Figure 7) of 2.6 Kms distance, taking an average speed of 30 Km/h, the time to travel from point B to A via route 2, i.e. through Vinayak colony is 5:12 minutes. Which is still faster than sitting through congestion and traffic of the bottleneck junction.

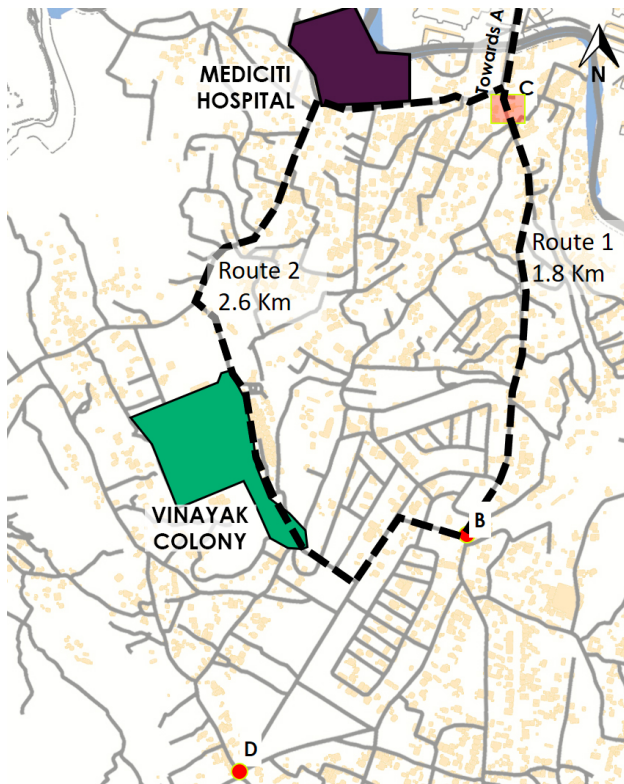


Figure 7: Route Options from point B to A

6. Discussion

The settlement of Bhaisipati is growing rapidly. The growth rate of Sainbu observed from 2001 to 2011 is 14.5% (Figure 8). If the population increases at the same rate, it will reach up to 3.6 lakhs by 2031 (Figure 8) making the density of Sainbu 87,520 people per Sq.Km.

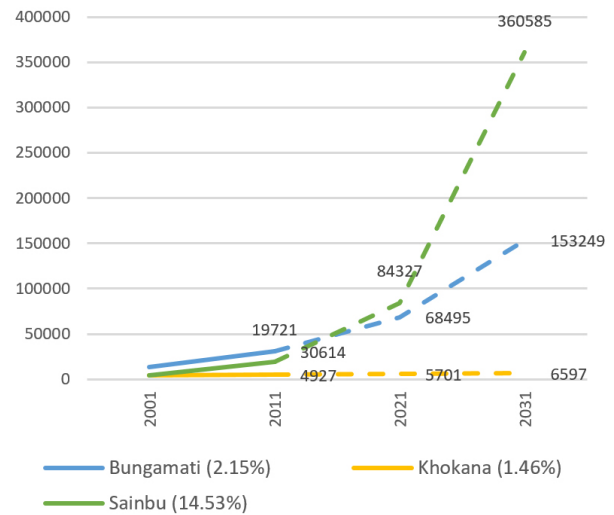


Figure 8: Population Projection for Bungamati, Khokana and Sainbu individually as per current Growth Rate

As Sainbu faces congestion the growth will move further south towards Bungamati and Khokana where the growth rate is comparatively less at 2.15% and 1.46% respectively [11, 12].

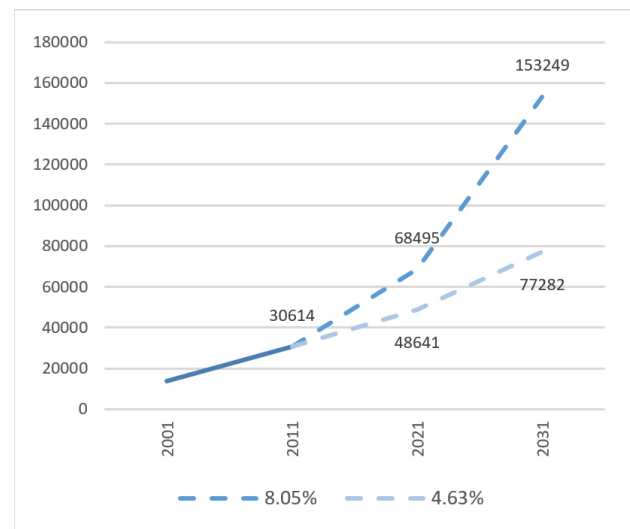


Figure 9: Population Projection for Bungamati, Khokana and Sainbu Area as a Whole

Growth rate of Sainbu, Bungamati and Khokana area 8.05% when the growth of Lalitpur is only 4.63%[12]. Assuming the growth at the rate of 8.05%, the population in this zone reaches to 1.5 lakhs by 2031.

As the settlement in Bhaisipati continues to grow, more vehicles will run on the road. In Bagmati zone alone there was an addition of more than 1 lakh vehicles in fiscal year 74/75 (Figure 10).

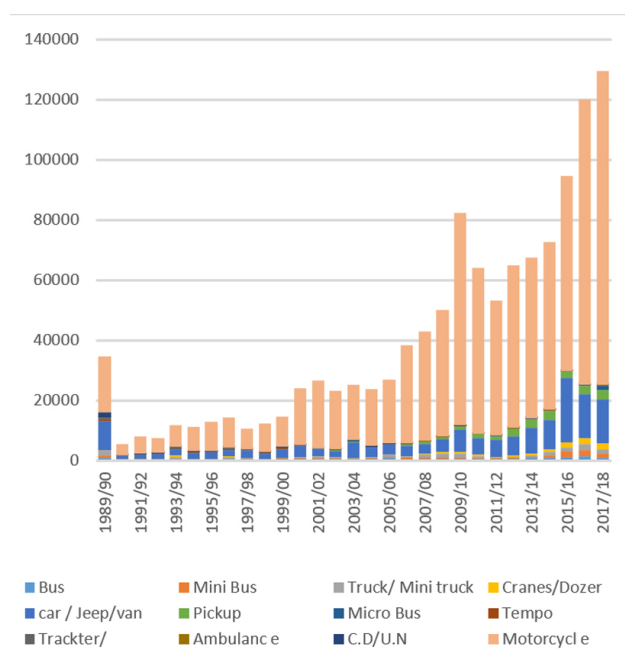


Figure 10: Number of registered vehicles in Bagmati Zone from Fiscal Year 46/47 to 74/75[13]

According to SSP Panta, the majority of the vehicles registered in Bagmati zone ply in Kathmandu valley. Furthermore, JICA has predicted increase in ownership of cars by 2.4 times and bikes by 1.72 times in the valley.[14] However, the increase in vehicles in Bhaisipati could be more than predicted increase in the valley. According to different city models: Burgess's concentric ring model, Hoyt's sector model and Harris and Ullman's multiple nuclei model, the population with a higher economic status tend to move towards the outskirts and suburbs for a better, quieter life as this group can afford to commute to the Central Business District(CBD), in their personal vehicles, on a daily basis. These theories can be observed in the Sainbu-Bhaisepati area as well. Bhaisepati has been targeted as a prime location for luxurious living by many group housing companies. Thus, the number of vehicles in Bhaisipati will be higher than projection for the entire valley.

With only one major access road connecting the area to

the main city, this road will see a lot of vehicles. The junction at Nakkhu is a bottleneck spot and is the main area for traffic jam due to the long wait time while passing through or crossing said junction. We can see the travel time increase by about 3.6 times during rush hour. The area is still in the process of development and densification. If gated communities with an option for thorough fare allow vehicles to pass, an alternate route is provided. This will ease traffic congestion and reduce travel time.

The Ownership of Joint Housing Act defines and describes "joint housing" in terms of apartments. Here, joint housing is defined as a building or group of buildings with multiple floors with different apartment units where two or more families can live in a single building. The building or a cluster of buildings can be within one parcel of land with the open spaces as common collective spaces. The Act does not allow use of these collective space for any private use or demarcation and prohibition of land. The act gives power to the promoters or elected committee of the apartment owners to maintain, protect and repair the collective spaces. However, the apartment owners do not own parcels of land within the complex privately. They get a share of the land only in case of complete destruction of the apartment buildings. In a housing colony, each resident is a land owner and owns their parcel of land separately. There are roads providing access to each land or house. These houses do not conform with the definition of joint housing or apartment explicitly mentioned in the act.

The Public Road Act defines "public road" as roads that is not privately owned. So any road providing access to more than one parcel of land or more than one landowner is considered public road. According to this, the roads in the housing colonies appear to be "public roads". This act prohibits any individual or group from causing any obstruction of movement on these public roads in any way. It also prohibits anyone from performing any act as to barricade, obstruct or damage the area within the road border without permission from the Department of Roads or the local authorities.

The Lands Act describes provisions and prohibitions of ownership of land to any individual, committee, institute or cooperative. It states that anybody, be it individual or group is not allowed to own more than 25 ropani of land in Kathmandu valley. It mentions that the individual or group is allowed to own 5 ropani more for housing purposes. It provides exceptions

to institutes and other groups to own more land by special permission on the pretext that the 25 ropani is not sufficient for the group or individual to run their operations.

Housing colonies are much larger than 25 ropani and thus cannot be owned by the committee. The ownership of joint housing act does not cover the housing colony specifically. Thus, power cannot be given to the committee to control common areas as the common areas in housing colonies are “public roads” as per the public roads act, as opposed to the parks, utility spaces, basements in apartment complexes.

So, from a legal stand point, the gates in the boundaries of housing colonies does not appear to be legal. Thus, if ordered by the Department of Roads or by the local authority, the gate restricting movement shall be removed.

7. Conclusion

The study shows that restricting access in a growing settlement can cause congestion and elongate travel time. Longer travel times means lesser accessibility and mobility. Gated communities with the ability for thoroughfare limit access and contributes to congestion.

Looking at the legal standpoint, there can be seen a gap in the availability of specific laws and regulations regarding gated communities. While there is explicit laws for apartment complexes, on the rights, duties, allowances and prohibitions. The law does not have a provision to allow housing colonies to place a gate and restrict access to the area.

Installing a gate and privatizing these roads means the residents usually take responsibility of protection and maintenance of the areas within the boundaries and the local body does not interfere.

Access should be granted to the public in locations where there needs a thoroughfare and ease congestion. All areas in the process of developing and densification needs adequate roads to access such areas. Strategic planning to provide adequate and accessible roadways is important.

Adequate and relevant laws on the rights, provisions and prohibitions that gated communities, their residents and committee should abide by needs to be formulated. The competent authority should

formulate and regulate proper process of approval to own, construct, sell and run these communities. These policies, regulations and process need to be made clear and readily available.

Thus, accessible roadways should be maximized as far as possible. This shall include opening gated communities or requiring gated communities to provide an accessible road across the enclosed area where necessary. Adequate laws regulating housing colonies and the requirement of access should be formulated. Planning policy and development guidelines should include the need for accessible and inclusive development.

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