

Estimating Housing Unit for Low Income Group of People in Kathmandu, Nepal

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ABSTRACT

The number of slums and squatters are increasing at very high rate. The overall objective of this study was to find out the number of housing units required to fulfill the housing needs for the low-income group. The two squatter settlements: Jagritinagar, Sinamangal and Thapathali, from Bagmati River of Kathmandu valley areas were selected as the samples. Questionnaire survey and interview were conducted with the residents of the study area to assess the current housing scenario. Likewise, the questionnaire survey and interview were carried out with housing experts, planners, implementers and concerned organizations to find out the most important factors influencing the housing need of the low-income groups and to explore the appropriate measures to address their housing problem. Descriptive analysis was carried out to find out number of housing units. Over 70% of the people of the low-income groups in the study area were found uneducated. The improvement in the education level brings awareness, better employment opportunity and consequently improves their economic status and housing condition. Hence, the education is one of the important factors that affect the housing need of the people. Easy access to the market along with the urban facilities contributes towards the employment opportunities eventually uplifting the economic status of the low-income group people living in the study area. There is the requirement of 4520 housing units to meet the housing need of low-income groups in Kathmandu valley. This number is very large, and the location and nature of different squatter settlements are different, so it is most to study on suitability of approach to meet the housing need of the entire low-income groups.

Keywords: slum, education, awareness, facilities

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INTRODUCTION

There is significant increase in the construction of the housing buildings and apartment buildings by several private housing builders, land developers and construction companies in the recent years, they are seemed to be more profit oriented and focused on providing the need of the housing facilities for the rich or the high-income group of people. As a result, the low-income groups of people are more forced far away from the housing facilities in the Kathmandu valley. Now considering

corporate social responsibility and ethical liability, low cost housing should be introduced.

In the urban areas, about 72% families resided in their own houses, 23.5% on rent. 3.8% of the population lived without paying rent and the remaining in other ways such as unsystematic settlements (squatters) in Creswell2003 [2]. But in the case of Kathmandu District this number appears to be increasing surprisingly,

about 35% of the population lives on rent in the Kathmandu District (NSP, 2012) [8].

Whereas in 2011, it appears about 69.2% families reside in their own houses, 26.5% on rent and 4.3% of the population live without paying rent and the remaining in other ways such as unsystematic settlements (squatters) in the urban areas of Nepal [1]. But in the case of Kathmandu District this number appears to be increasing surprisingly, about 51.9% of the population lives on rent in the Kathmandu Valley (NLSS, 2012).

The number of population living on rent has been increased by 3%; the population living without paying rent by 0.4% and in unorganized shelter from 2003 to 2011. The number of populations living on rent and in unorganized shelter is increasing fast since the last decade (Dahal, 2011) [3].

STATEMENT OF PROBLEM

The need of inclusion is advocated in most of the sectors of Nepal, but its implementation is very weak in almost all the sectors. One of the reasons for the weak implementation of the inclusion might be the lack of willingness and commitment of the policy makers and the concerned bodies and the other reasons might be the complication in the implementation process of inclusion. In such a situation, the provision of adequate housing facilities for the poor becomes essential to take initiation towards the inclusion. Housing is the one of the basic needs for all the people and the inclusion must be focused in the process of providing the housing facilities to the people.

Today, the Kathmandu valley is undergoing an urban explosion rather than managed urban growth. Urban areas are expanding at the rate of 6.67% annually at present. About 23% of services like

safe drinking water, proper drainage and sewerage urban population is poor & live irregular and substandard housing with inadequate infrastructure system, electricity, etc. (Rajbhandari, 2009). It is stated in the Directive Principles and the policies of the State in the constitution of Nepal: "The State shall pursue a policy of raising the standards of living of the general public through the development of infrastructures as education, health, housing and employment of the people". The National Housing Plan 2014 has identified that 3,00,000 new housing units will be required till 2030 for the low-income groups only in Nepal based on a guess [6].

RESEARCH OBJECTIVES

The main purpose of the study is to find out the number of populations who are out of reach from adequate shelter and are residing in poor and unorganized shelter such as slums and squatters in Kathmandu Valley and to assess the number of housing units required to meet their housing need.

SIGNIFICANCE OF THE STUDY

This study will be useful to the policy makers, implementers of housing project and NGOs and local bodies for choosing the appropriate ways to address the need of the housing facilities for the low-income group of the people in the Kathmandu Valley, at the reasonable cost.

Moreover, this study will also be helpful tool to the policy makers, implementers of housing project and NGOs and local bodies to focus the inclusion in the process of providing the housing facilities to the people.

METHODOLOGY

Research Process

The group of people with annual income less than 40,933.00 and living in slums and squatters are considered as the low-income groups, since the study is focussed on the

fulfilment of housing needs for the low-income groups who are living in poor and unorganized shelter.

Study Area

There are 51 numbers of informal settlements with slums and squatters, in different pockets of the Kathmandu valley, with about 3,500 households and 17,000 populations. Out of 51 informal settlements, 11 informal settlements are along the Bagmati River with a population of 7040 (i.e. 42%) consisting of 1135 households (33%) and a land area of 12.5 hacters (UN-Habitat, 2010). Hence, the study area of this study has been more focussed along the Bagmati River of the Kathmandu valley.

Thapathali Squatter Settlement (Study Area 1)

There were 201 households in the settlement before the beginning of the construction of the UN-Park along the riverside in this area, and the settlement had covered both sides along the Bagmati River. The settlement is in the linear pattern in maximum three rows. The people began to live in this area since 2005 only, and the main reason for the squatting was the lack of own land and property elsewhere (Figure 1).

With the goal of upgrading the ecosystem of the river and beautifying the city as mentioned in the BAP (2009–2014), the

government initiated the action of constructing an underground main sewerage system, along the Bagmati riverbank, which led to the cleaning up the squatter settlement along the Bagmati river corridor. The Thapathali squatter settlement was taken as the starting point, since it was in the centre of the city. The government called for the registration of all the 258 households of the Thapathali squatter settlement, before removing them. However, only 57 of them went for the registration. The authority came up with the relief support of only \$150, for those registered households, so that they could temporarily shelter themselves till the government look for their alternative relocation. The remaining households were left uncared and they began to reside at 20 m setback from the river corridor, affecting the goal of the beautification of the city. As a result, the goal of the Bagmati cleaning up project was not achieved and the right to adequate housing was also violated due to the unprepared initiative of the government.

All the 258 households were displaced from the Bagmati riverbank of Thapathali, among which only 57 households received \$150 as immediate relief support. But the remaining households who did not received the cash relief, relocated themselves at UN-Park area, which is just 20 m setback from the riverbank.



Fig. 1. Aerial view of Thapathali squatter settlement.

In May 2012, a notice was issued by the government to vacate the land for the proposed UN-Park, which was encroached by the low-income groups. The government had also proposed to provide each household Rs.15,000 as an immediate relief to enable them to pay rent for the period of three months. The settlers refused to vacate the land demanding the alternative area for their adequate settlement. Then, the government tried to rehabilitate the displaced families to Chovar and then to Sundarighat, in the first three months after the Thapathali squatter settlement was evicted. But unsuccessfully, only a few of them moved and 142 households are still residing in the

Thapathali squatter settlement occupying the area of the UN-Park (Figure 2).

Most of the households are unskilled labour; whereas some of them are skilled manpower and other are dependent of small business. Almost all the buildings are single storey and of temporary nature, with plastic and bamboo strut walls and with plastic and tripal sheet roofing.

Jagritinagar (Sinamangal) squatter settlement (Study Area 2)

The Jagritinagar squatter settlement lies along the west side of the Bagmati River (Figure 3).



Fig. 2. Overall view of Thapathali squatter settlement.



Fig. 3. Aerial view of Jagritinagar squatter settlement.

Most of the households in this settlement are dependent on the wages rather than the regular based salary. The people in this settlement are mostly skilled manpower and some of them are unskilled labors; whereas a few of them are also dependent on their own small business as the main source of their family income.

Almost all the buildings in the settlement are single storey with CGI sheet roofing. The bricks and concrete blocks are used for

walls with mud mortar and cement mortar, in most of the buildings of this squatter settlement. There is a well in this settlement area. Most of the households in this settlement use this well and public water tap for the drinking water. Most of the households use electricity by hooking rather than taking individual electricity supply. There is individual toilet of pit latrine type or directly drained to the river of almost every household (Figures 4 and 5).



Fig. 4. Houses in Jagritinagar squatter settlement.



Fig. 5. Front view of housing in Jagritinagar squatter settlement.

Table 1. Selection of the low-income groups.

S.N.	Squatter Area	Population Size (N)	Minimum Required Sample Size (n) = $n_0/1 + (n_0-1)/N$	Selected Sample Size	Remarks
1	Thapathalisquatter settlement	142	58	65	Selected Sample Size > Minimum required
2	Jagritinagar, Sinamangalsquatter settlement	86	46	50	Sample Size (n) $n_0 = z^2 pq / e^2 \dots$

Table 1. Organizations involved as respondents for the questionnaire survey.

S.N.	Organizations	No. of Respondents
1	Department of Urban Development and Building Construction, Division Office Kathmandu (DUDBC, DOK), Babarmahal, Kathmandu.	2
2	Department of Urban Development and Building Construction (DUDBC, 2007), Housing Section, Babarmahal, Kathmandu.	6
3	Department of Urban Development and Building Construction (DUDBC), Urban Development Section, Babarmahal, Kathmandu.	5
4	Lumanti Support group for shelter, Thapathali, Kathmandu.	2
5	National Housing Company, Pulchowk, Lalitpur.	1
6	UN Habitat, Pulchowk, Lalitpur.	1
7	NEST Pvt. Ltd., Anamnagar, Kathmandu.	2
8	Urban Governance Development Project, Babarmahal, Kathmandu. (Shrestha, 2011)	2
9	National Reconstruction Authority, Central Level Project Implementation Unit, Babarmahal, Kathmandu.	3
	<i>Total</i>	24

Since the low-income group of people started to live in this squatter settlement, from a long time (58 years ago), many buildings in this squatter settlement have been changed from temporary to semi-permanent type. The study population, sample selection and sample size of the low-income groups for the study have been summarized in Table 1.

The name of organizations and number of respondents involved in the questionnaire survey are given in Table 2 [9] [11].

Descriptive Research

The descriptive research was helpful to find out the number of housing units required to be built for the fulfilment of the housing need in Kathmandu Valley which are given in Table 3.

RESULTS AND DISCUSSION

Characteristics of Low-Income Groups

The characteristics of the low-income groups of the study area has been studied and analyzed.

Household size and Population

There are total 142 households in Thapathali squatter settlement. Considering the sample size 65, the chart shows that the maximum households are having 3 to 5 persons per household. The maximum number of people living in a house is 13, and the minimum number of people living in a house is 1. The average household size is 4.55 persons per household. There are 661 people living in this squatter settlement. The household size of Thapathali squatter settlement and Jagritinagar squatter settlement is shown in Figure 6.

In Jagritinagar squatter settlement, there are total 86 numbers of households. Considering the sample size 50, the chart shows that the maximum households (68%) are having 3 to 5 persons per household. The maximum number of people living in a house is 11, and the minimum number of people living in a house is 2. The average household size is 4.28 persons per household. There are 368 people living in this squatter settlement.

Table 3. Summary of research process.

S.N.	Objectives	Information required	Data Collection	Data Analysis
1	To find out the number of populations who are out of reach from adequate shelter and are residing in poor and unorganized shelter such as slums and squatters in Kathmandu Valley and to assess the number of housing units required to meet their housing need.	Scenario of population of the low-income groups in Kathmandu Valley.	Questionnaire, Interviews and Observation and Focus Group Discussion through Government Bodies, NGOs, INGOs and residents	Descriptive Analysis.

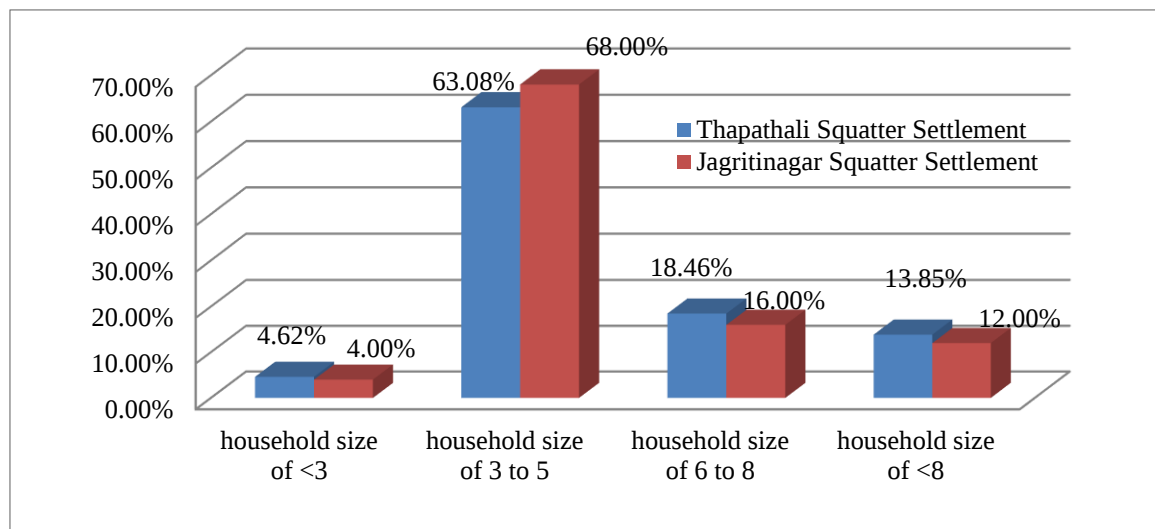


Fig. 6. Household size.

Ethnic Composition of the Settlement

The people living in these squatter settlements are Brahmin, Chhetri, Dalit, Gurung, Lama, Madhesi, Magar, Newar, Rai, Limbu, Tamang, etc. There is the majority of Dalit (14%), Chhetri (14%) and Rai/Limbu (13%) in the Thapathali squatter settlement. In the Jagritinagar squatter settlement, there is the majority of Rai/Limbu (19%), Tamang (15%) and Dalit (14%).

The pie-charts show that there are mixed ethnic groups and castes of people living in both the squatter settlements. It also shows that the people living in these settlements have capacity to live together with different ethnic groups and castes and can adapt their social and cultural practices. However, there are the majority of Dalit and Chhetri in both the squatter settlements.

Occupation

Most of them work as construction labor, mason, painter, carpenter etc. Some of the households also work as informal works such as cleaning, cooking and washing in the others' houses, whereas some of them are also dependent on small business such as grocery shops, and 6% of the households work as service in regular basis.

There are most people engaged in daily wages-based works especially as unskilled labor in both the settlements. During the field survey shown in Figures 7 and 8, it was found that the place of their occupation was easily accessible from their settlement area for most of the people. So, Easy access to the occupation is also an important factor affecting the housing need for the low-income groups [12].

Economic Status

Most of the households (44.62%) of Thapathali squatter settlement have average monthly income of NRs. 10,000 to NRs. 15,000. 36.92% of the households have monthly income of NRs. 5,000 to NRs 10,000 and 13.85% of them have monthly income less than NRs. 5000; whereas only 4.62% of them have monthly income more than NRs. 15,000.

In Jagritinagar squatter settlement, most of the households (56%) have average monthly income of NRs. 10,000 to NRs. 15,000. 34% of the households have monthly income of NRs. 5,000 to NRs 10,000 and 6% of them have monthly income less than NRs. 5000; whereas 4% of them have monthly income more than NRs. 15,000. The monthly incomes of the households of both the settlements are shown in Figures 9 and 10.

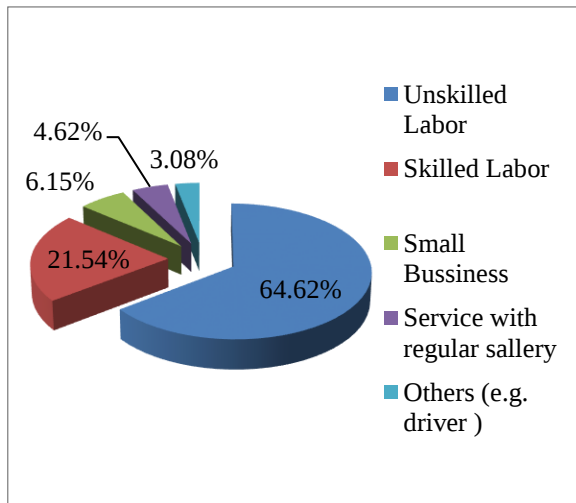


Fig. 7. Occupation of Thapathali squatter settlement.

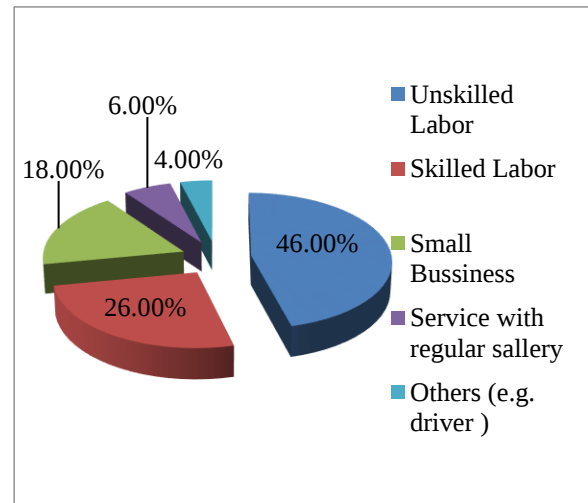


Fig. 8. Occupation of Jagritinagar squatter settlement.

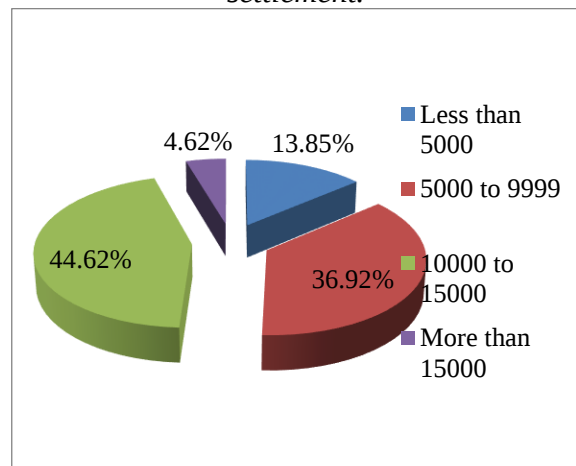


Fig. 9. Economic status of Thapathali squatter settlement.

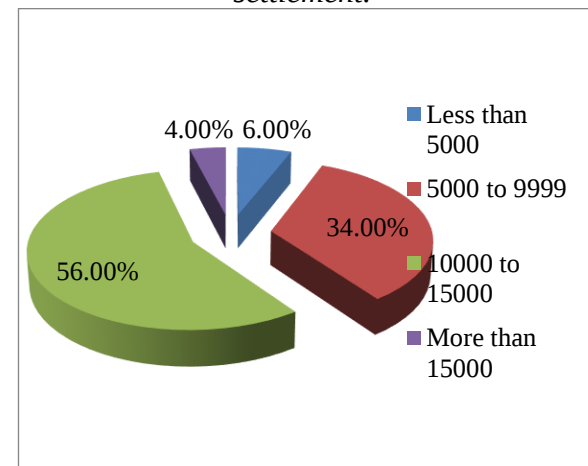


Fig. 10. Economic Status of Jagritinagarsquatter settlement.

In this study, the people living in slums and squatters and having monthly income Rs.3411.00 per person have been considered as Low-Income groups of people. The average household size is 4.5 in these settlements. So, the household with monthly income less than Rs.15000.00 (i.e. Rs.3411.00 X 4.5 = Rs.15350.00 ~ Rs.15000.00) and residing in these squatter settlements are Low Income Groups. So, more than 95% of the households in these squatter settlements are Low Income Groups.

Status of Occupancy

In Thapathali Sqatter Settlement, most of the households (63.08%) are living for 10 years to 14 years ago, while some of them

(24.62%) are living for 5 years to 9 years ago, while few households (7.69%) are living since less than 5 years ago.

In Thapathali Sqatter Settlement, most of the households (42%) of Jagritinagar squatter settlement are living for 10 years to 14 years ago, while some of them (32%) are living for 15 years to 20 years ago, while few households (8%) are living since more than 20 years ago. So, it can be concluded that Jagritinagarsquatter settlement is older than Thapathalisquatter settlement. As a result, the housing condition of Jagritinagarsquatter settlement is better than that of Thapathalisquatter settlement.

Migration

Although Government of Nepal had tried to displace the low-income groups of Thapathalisquatter settlement for the implementation of Bagmati Action Plan (BAP) and for the construction of UN-park in 2012, only few of the low-income groups displaced from this settlement and many of them who did not get any immediate relief, again settled in this squatter settlement area.

The major reason for the migration to this settlement is that the people can live in this settlement without paying any rent. The people feel that the amount of saving from rent can be used for other daily necessary activities and children's education,

although many of them are suffering from communicable diseases due to their poor housing conditions. The main reasons for the migration of the low-income groups to the squatter settlements are shown in Figures 11 and 12.

Housing Condition

Most of the houses (95.38%) in Thapathali squatter settlement are in poor condition. The houses are finished with mud flooring. There is a lack of adequate ventilation in the houses and the people are living in an unhygienic condition. Most of the houses have poor infrastructure services such as safe drinking water, drainage, sanitation etc.

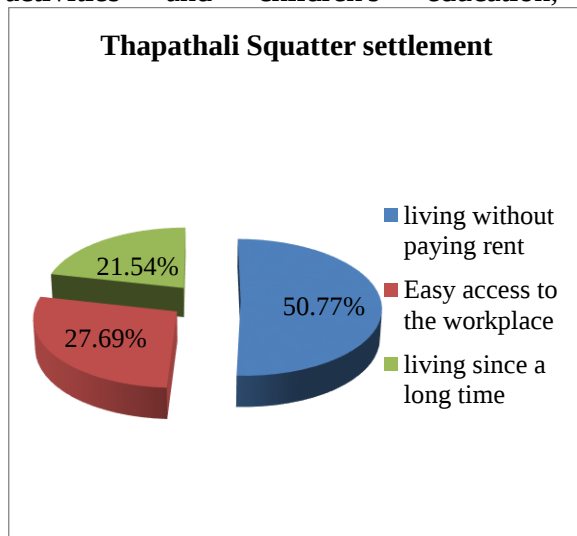


Fig. 11. Reasons for the migration of the low-income groups to Thapathali squatter settlements.

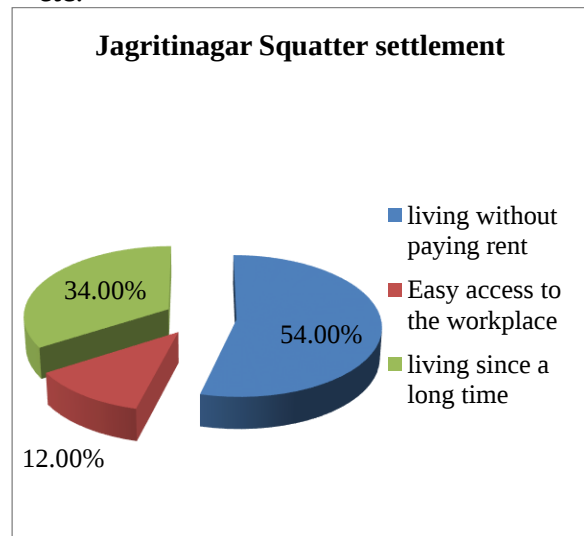


Fig. 12. Reasons for the migration of the low-income groups to Jagritinagar squatter settlements.

62% of the houses of the Jagritinagarsquatter settlement are in poor condition; whereas 36% of them are in fair condition and 2% of the houses of Jagritinagarsquatter settlement are in good condition.

The housing condition in Jagritinagarsquatter settlement is slightly better than that of Thapathalisquatter settlement because the people are living in Jagritinagarsquatter settlement area since

long ago compared to that in Thapathalisquatter settlement.

Education

In Thapathalisquatter settlement, 70.77% of the households are uneducated; 18.46% of them are under SLC and only 10.77% of them are above SLC.

In Jagritinagarsquatter settlement, 64% of the households are uneducated; 24% of them are under SLC and only 12% of them are above SLC. More than one third of the

people in both squatter settlements are uneducated and only about 10% of them are educated above SLC. It shows that education is also one of the important factors that influence the housing need of the people. More the people are educated, more they are aware of their housing need and live in better housing condition or seek for it. The improvement in the education level brings awareness, better employment opportunity and consequently improves their economic status and housing condition too. Hence the education is also one of the important factors that affect the housing need of the people.

Housing Type

All the houses (100%) in Thapathalisquatter settlement are of temporary type. The houses are covered with plastic sheets and finished with mud flooring and plastic sheets and tripal are used for the walling materials for the houses. Most of the houses (52%) in Jagritinagar squatter settlement are temporary structure while 46% of the houses are load bearing structure and only 2% of them are frame structure. Many houses of the Jagritinagarsquatter settlement are changing from temporary type to semi-permanent type and a few of them are also changing to permanent type too because this squatter settlement is older than Thapathalisquatter settlement.

Roofing Materials of the Houses

Most of the houses (95.38%) in Thapathalisquatter settlement are covered with plastic sheets while only 4% of them are covered with CGI sheet. In Jagritinagarsquatter settlement, 52% of the houses are covered with plastic sheets and 46% of them are covered with CGI sheet; while only 2% of the houses are covered with RCC slab. The housing conditions of both the squatter settlements are poor and the people are living in these settlements area in an unorganized condition facing many problems. So, improvement in their housing condition is very important.

Estimation of Population and Housing Units

Some studies have already been done regarding the housing scenario of the low-income groups in Kathmandu Valley, by different NGOs and policy makers such as Lumanti, UN-Habitat, DUDBC etc [4]. The total numbers of households of low-income groups of people as per the study of Lumanti and DUDBC in 2010 are given in Table 4 [5] [10].

Table 4. Number of households and population.

S.N.	Organizations	Total no. of Households	Population
1	Lumanti	2689	12835
2	DUDBC	2660	

(Source: DUDBC, 2011)

There were 17 informal settlements and about 4000 low income group of people living in those squatter settlements of Kathmandu valley in 1987. In 2006, the number of squatter settlements increased to 45 and the people residing in those squatter settlements increased to 13,243. The numbers of households of the low-income groups were 2844 in 2006. In 2010 the number of squatter settlements reached to 51 and the households living in those squatter settlements increased to 3500 and the number of populations of low-income groups reached to 17000 [13]. The numbers of squatter settlements, households and population as per the study of UN-Habitat in the 1987, 2006 and 2010 are shown in Table 5.

Table 5. Number of Squatter settlements and population in 1987, 2006 and 2010.

Year	No. of Squatter Settlements	No. of Households	Population	Household growth rate
1987	17		4000	
2006	45	2844	13243	
2010	51	3500	17000	4.23

(Source: UN-Habitat, 2010)

The numbers of households of the low-income group in Kathmandu Valley in 2010 NEST, was 2660 according to the

study of Lumanti and 2689 according to the study of DUDBC, whereas this number is 3500 according to the study of UN-Habitat. This difference has been occurred because some squatter settlements have not been considered by Lumanti and DUDBC, due to various reasons. If we consider that those households were existed in 2010, the total numbers of households become 3463 and 3325, from the study of Lumanti and DUDBC respectively, which are closer to the numbers of households of low income groups, from the study of UN-Habitat, in 2013. So, for this study, the total number of households and population of the low-income groups has been considered as 3500 and 17000 respectively, in 2010. Based on the number of households in

2006 and 2010 the growth rate of households is 4.23 (using formula, $G = (P1/P0)^{1/n} \times 100$).

Table 6. The estimated population and the households of low-income groups for 2020.

Year	Population of LIG	Households of LIG
2006	13243	2844
2010	17000	3500
2020 (Estimated)	25726	5301

Based on the growth rate 4.23 for the low-income groups in Kathmandu Valley, the estimated population and the households for 2020 are 25726 and 5301, which are show in Table 6.

Table 7. Number of housing units needed by 2020.

1	Housing units needed by 2020	5301
2	Rental housing for urban poor, Dhobighat, Lalitpur by Lumanti Support Group for Shelter.	24
3	Rental housing for urban poor, Hattiban, Lalitpur by Lumanti Support Group for Shelter.	24
4	On-site upgrading program for urban poor at different squatter settlement (e.g. Thecho, Thankot, Machhegaun, etc.) by Lumanti Support Group for Shelter in support of other agencies.	500
5	Ichangu Housing Project (Phase-1), Ichangu; by Government of Nepal	130
6	Ichangu Housing Project (Phase-2), Ichangu; by Government of Nepal	103
7	Net Housing units needed by 2020	4520

So, the number of housing units needed for low income group by 2020 is 5301. But there are also ongoing projects to address the housing needs for the low-income groups, which are carried out by the Government of Nepal and other NGOs. The different land development programs such as site and service, land pooling etc. are also ongoing in which Nepal Government has made the provision to provide 10% of the developed land to the low-income groups to construct houses on their own cost [7]. These projects will meet the housing needs for low income groups to certain numbers and reduce the need of housing units, which are show in Table 7.

Hence, the number of housing units needed to be constructed for the low-

income group in Kathmandu Valley till 2020 is 4520.

CONCLUSION

By 2020, the number of population and households of the low-income groups in Kathmandu Valley will reach to 25,726 and 5301 respectively. 5,301 numbers of housing units will be required for the low-income groups till 2020. Among them, the need of 781 housing units will be fulfilled by the different ongoing housing projects, and 4520 housing units will be still needed. Among different factors, the most important factors influencing the housing need can be expressed as 4E; they are Employment opportunity, Easy access to the market area and urban infrastructures, Economy in price of land and construction materials and Education. Many low-

income groups of people do not want to move to the fringe area due to difficulty in easy access to their employment opportunities. The people in the study are resides in these squatter settlements because their work place is easily accessible from their settlement area. So, the employment opportunity is one of the most important factors which affect the housing need for the low-income groups. Along with the employment opportunities, easy access to the market area and the urban infrastructures and services is the other influencing factor for meeting the housing need of the low-income groups since it contributes towards the employment opportunities eventually uplifting the economic status of the low-income groups.

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