



**“INCREMENTAL DEVELOPMENT MANUAL: DEMONSTRATING  
A MODEL FOR GER DISTRICT UPGRADING” project**

**Market research report**

**February 2020**

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## INTRODUCTION

### Scope of work

The Asia Foundation (TAF) was contracted by the Hong-Kong University (HKU) on October 3, 2019 to carry out a market research as part of the project titled “Incremental Development Manual: Demonstrating a Model for Ger District Upgrading”. The scope of work for this market research was:

#### Market Research - **market research document and establishment of clear financial potential**

- write clear questionnaire about financial status, credit record, affordability, and the Plug-in,
- conduct interviews with 50 families
- compile report and present clear data sets from findings

### Survey methodology

TAF developed the first version of questionnaires and shared with HKU. The final set of questionnaires were elaborated by both parties. The market research interviews were conducted on weekends of November 9, 10, 17, 23, and 24<sup>th</sup> from 11 am to 6 pm.

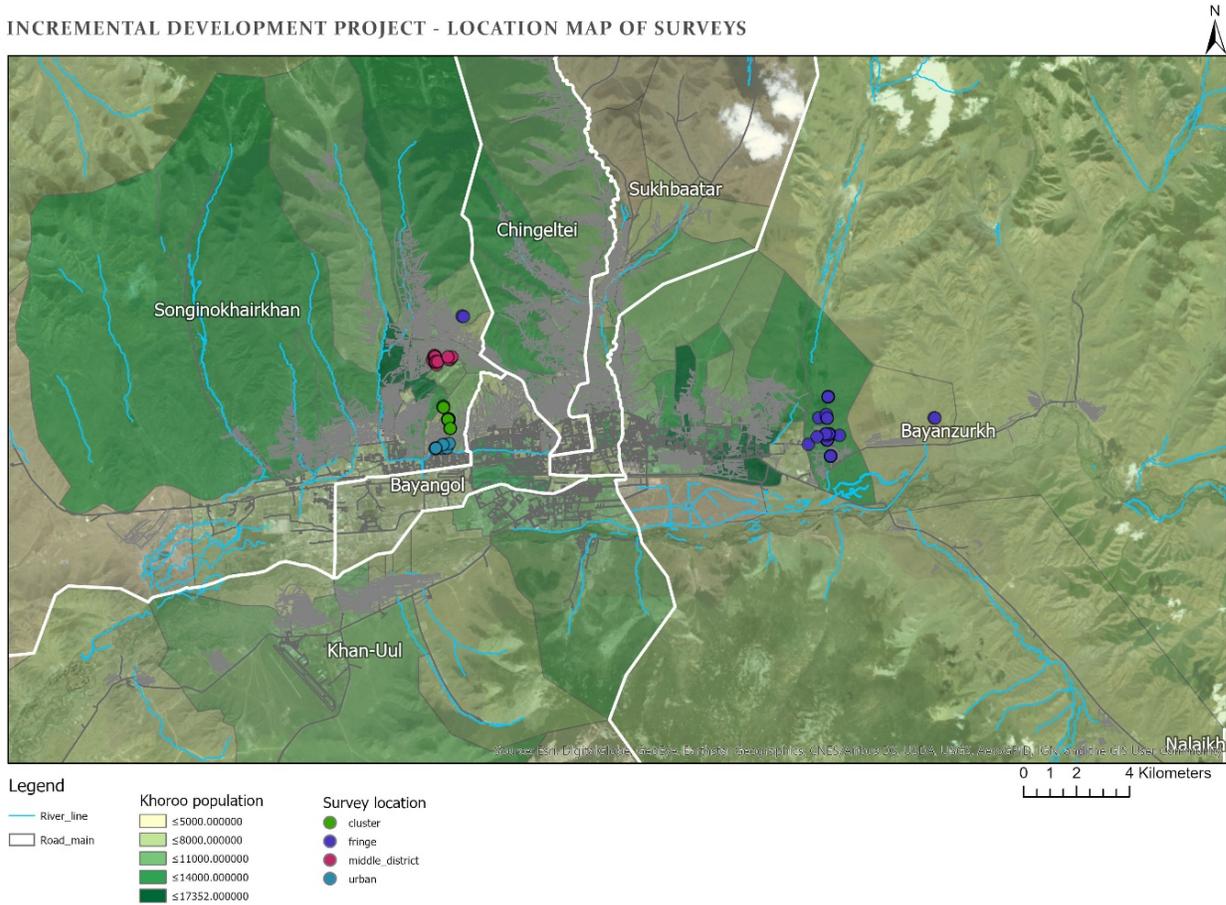
Simple random sampling method was used in the survey. It was agreed to sample a total of 50 families in three different geographical area for the market research, fringe, middle area and urban area.

### Limitations

- Age group of respondents. The survey takers intended to collect responses from the working groups by conducting the surveys on weekends. However, most of the survey respondents were older than 51 (39%).
- Age distribution. The age distribution may not be representative of the ger district residents.
- Due to the weather conditions, people were reluctant to be part of the survey.
- Many respondents first asked about the cost of the plug-in, and their interest would drop after they hear the initial investment put into the pilot plug-in. Concrete information on the costs need to be shared to receive concrete answers to the questions on plug-in preference.
- Some of the financial questions were sensitive to ask face to face and would be better done anonymously over the internet or through mail to acquire honest response.

## GEOGRAPHICAL AREA

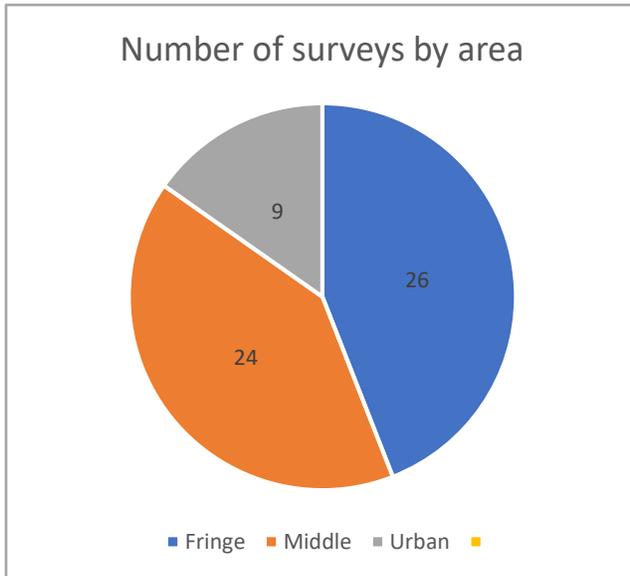
INCREMENTAL DEVELOPMENT PROJECT - LOCATION MAP OF SURVEYS



Total of 59 surveys were conducted in three different geographical areas to understand the characteristics and interests of residents in each location. The geographical areas of urban, middle, and fringe, were selected based on the communication between HKU and TAF. The main area of interest was in Songinokhairkhan district.

### Urban area

This area is located 6.5km away from the city center and apartment district. The proximity to the main road creates an advantage, as the collector roads are all paved in this urban area. Only 9 surveys were collected from urban area as it is the most well-established area located close to the public facilities and infrastructure. Also, people were more reluctant to take a survey in this area.



### Middle area

The middle area is located about 8-10km away from the city center. In comparison to the urban area, this part lacks access to public infrastructure, such as transportation, water kiosk, schools and kindergarten. Prior to the survey, HKU selected 12 families as potential project collaborators and these households were considered as middle area residents. Even though these families are located closer to the urban area, the high slope, difficulty to access by cars, lack of access to public transportation affects it to be considered under the middle area. 24 surveys were collected from 2 locations under the middle area.

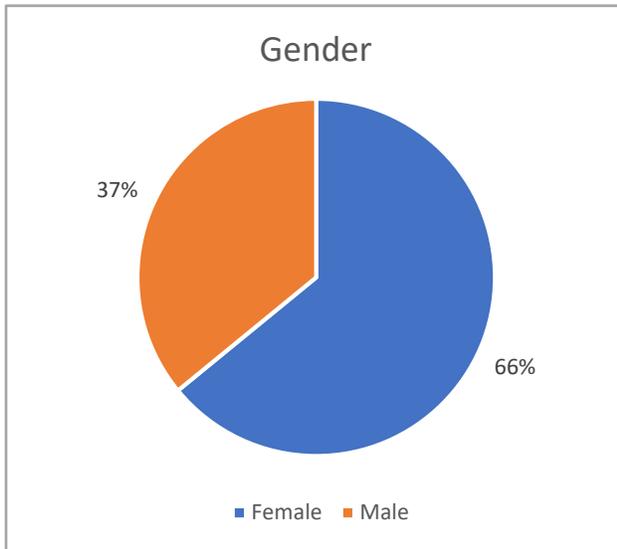
### Fringe area

Under the fringe area, the survey was conducted in 2 distinct locations. The first location was in Songinokhairkhan district, which is close to the existing plug-in. Only 2 surveys were collected from this area, because (1) it is close to the development project by the Asian Development Bank (AHURP and GADIP), thus the residents expect to be relocated in the coming years or expect their homes will connect to trunk infrastructure, and (2) the area is home to temporary settlers, who were relocated as a result of the project.

Therefore, people in this area were hesitant to make any improvements to their gers or houses. The second location of the fringe area was conducted in a ger district located in Bayanzurkh district. 24 surveys were collected from the area.

## DEMOGRAPHICS

### Age and gender



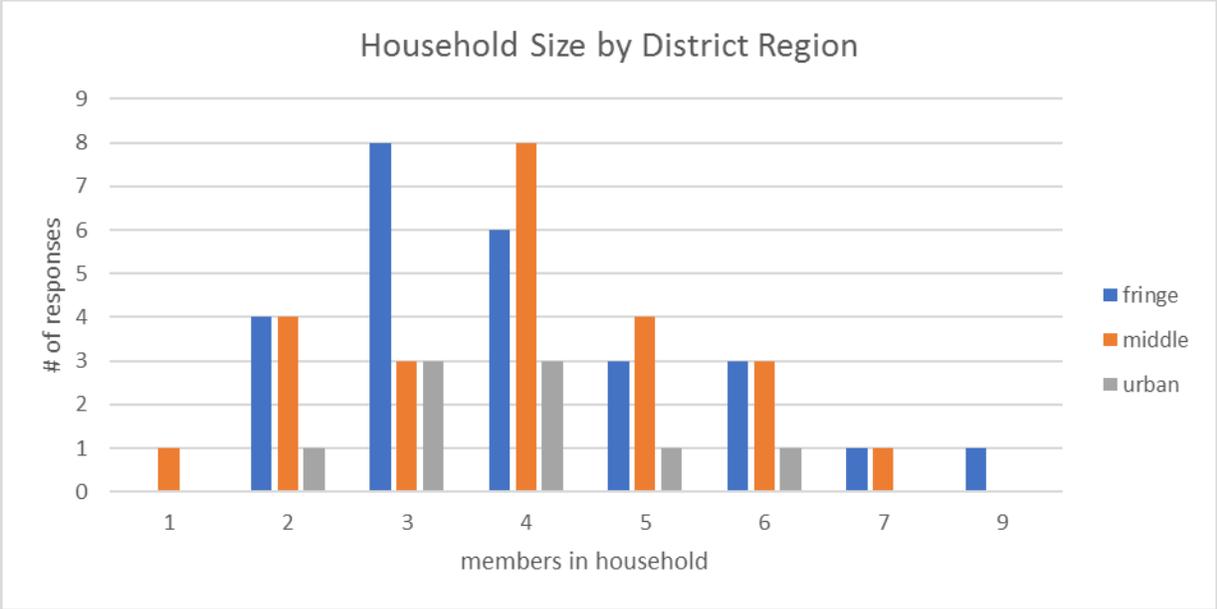
A significant majority of respondents are women (n=39) compared to men (n=22), a trend that was evenly distributed across geographic areas. Overall, respondents were mostly over the age of 51 (39%) while the rest were nearly evenly distributed across the age groups 20-30 (19%), 31-40 (25%), and 41-50 (17%) with the average age being 42.6.

### Education level

The age groups with the highest education levels were under the age of 40 with 10 of 14 reported bachelor's degrees. Education level of the primary income earner varied significantly based on geography with 65% of respondents in the fringe areas reporting their primary income earner's highest level of education as high school, while 75% of middle district residents reported their primary income earner's highest education level as secondary school, and 44% of urban ger area residents reported bachelor degrees as their primary income earner's highest education level. This outcome may be the result of residents equating high school and secondary school, as they only differ by two years of school.

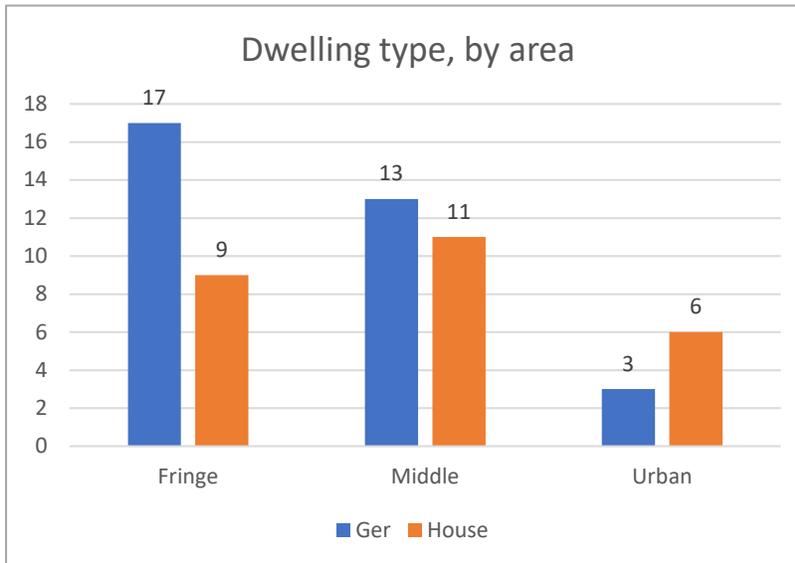
### Household size

Household size averages at four individuals across districts, with urban families generally being a little smaller with an average size of 3.8. The size of the family did not impact whether they lived in a ger or a house. If residents live in a ger, usually it is a 5 lattice ger (n=23).



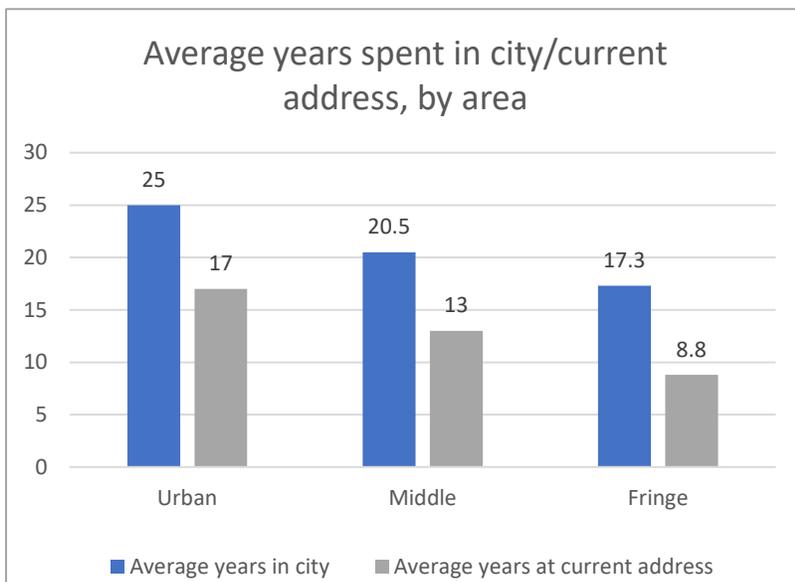
## CURRENT HOUSING SITUATION

### Dwelling type



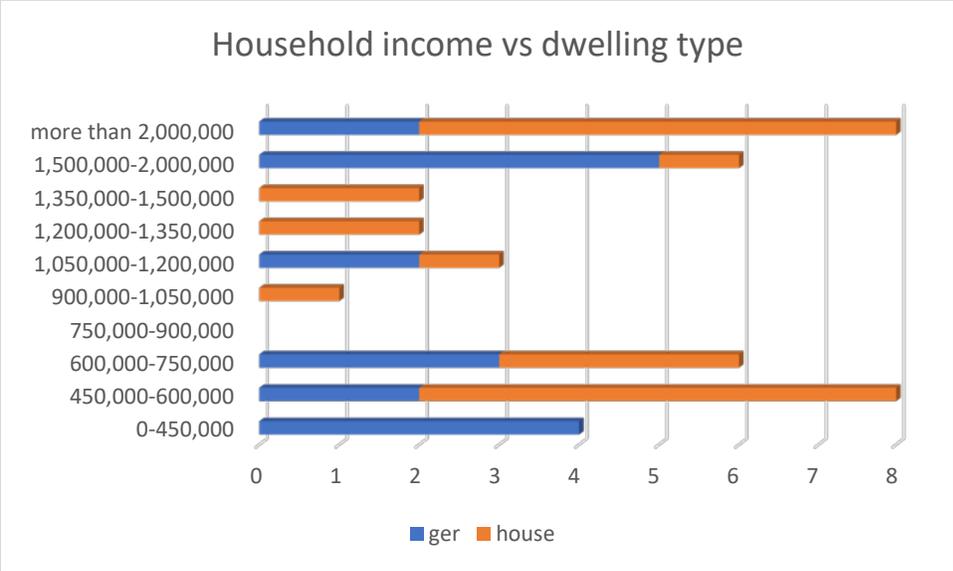
Overall, 33 respondents lived in a ger and 26 lived in a house. As shown in the graph, more people from the fringe area lives in a ger, while the difference is not significant in the middle district. More respondents lived in a house in the urban area. Even though the urban sample is small, we believe the result is true as these dwellers lived in the city for an average of 25 years in the area.

Most residents had lived in the ger district for between 10 and 20 years (n=38) with the average being 19.9 years. The fringe households spent 17 years in ger district and had the lowest number of years spent at their current address.



There is a correlation between the likelihood of living in a ger versus a house and the region in the ger area a resident lives. In fringe areas most people surveyed live in gers (65%), in contrast to around half of middle district residents (54%), and only one third of urban district residents (33%). This correlation is directly related to the landscape of

the ger district areas, where the urban areas are located on relatively flat land compared to the middle and fringe areas.

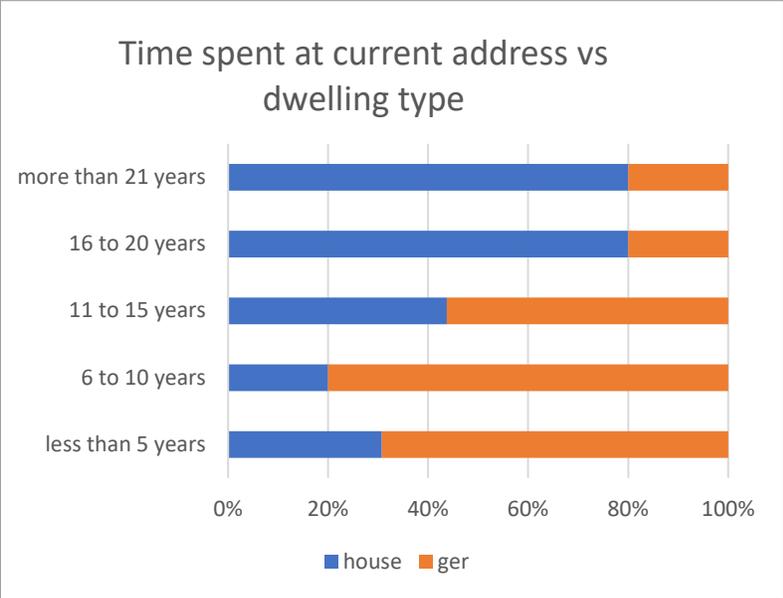


Age and housing did have a correlation for respondents over 51, who made up more than half (52%) of the people living in gers, despite only representing 39% of the respondents. Based on local context, this could be because many older people reportedly prefer living in a ger and living traditionally. The

graph above shows that 80% of people surveyed between the age of 41-50 lived in house, while 74% of those above 51 years old lived in a ger. The younger generations did not show significant difference related to their dwelling type.

Household income did not show a direct impact on the type of dwelling the household lives. In the top half of the salary range, 9 households live in a ger and 12 live in a house. In the lower half, also 9 households live in a ger, while 10 live in a house.

Time spent living in the ger area and housing choice varied significantly across geographic regions. In the fringe areas, when comparing residents who had lived there for more than 20 years, more people lived in gers. More people lived in gers if they lived at the current address for less than 5 years. The percentage of house owners increases as the years spent increases.



All of the houses were built all at once and in the fringe area, they take 2.8 months to construct and average in size at 49.7m<sup>2</sup>. None of the houses here had an indoor toilet, but one home did have an indoor shower.

There is a stepped distribution of time spent in the district with people in the fringe district primarily living there less than 20 years, while people in the middle district living there 6-25 years and people in the urban district had lived there 16-30 years in most cases. For the middle district, gers and houses are nearly even, up until residents have lived

there for more than 24 years, when houses become the significant majority with an average price of MNT10 million and taking 7.1 months to build. In the middle area houses were both built all at once (n=6) and in phases (n=4) with an average size of 46.8m<sup>2</sup>. Middle district house owners had one indoor toilet reported and two indoor showers. In urban areas, none of the respondents who had lived there less than 20 years had a house, but after that point houses become the norm with an average price of MNT20 million and taking 3.3 months to build. Here homes average in size at 63.1m<sup>2</sup>. Urban area homes are typically built all at once, but one in three houses are built in phases. Here no one reported having an indoor shower, but one family had an indoor toilet.

### Cost of house

The average house cost varied across districts between districts, noting that respondents referred to the price when their house was built. The below table shows the average cost for house reported by the respondents, not taking inflation and year built into consideration.

For houses that were built within the last 5 years, the average cost was 17.4 million MNT, around 345,678 MNT per square meter. When taking inflation and year built into account, it equals to 21 million MNT and 426,912 MNT per square meter.

<b>Region</b>	<b>Avg House Cost</b>	<b>Avg House Size</b>	<b>Avg Construction Time</b>
<i>Fringe Area</i>	17,428,571 mnt	49.7m <sup>2</sup>	2.8 months
<i>Middle Area</i>	10,444,444 mnt	46.8m <sup>2</sup>	7.1 months
<i>Urban Area</i>	20,833,333 mnt	63.1m <sup>2</sup>	3.3 months

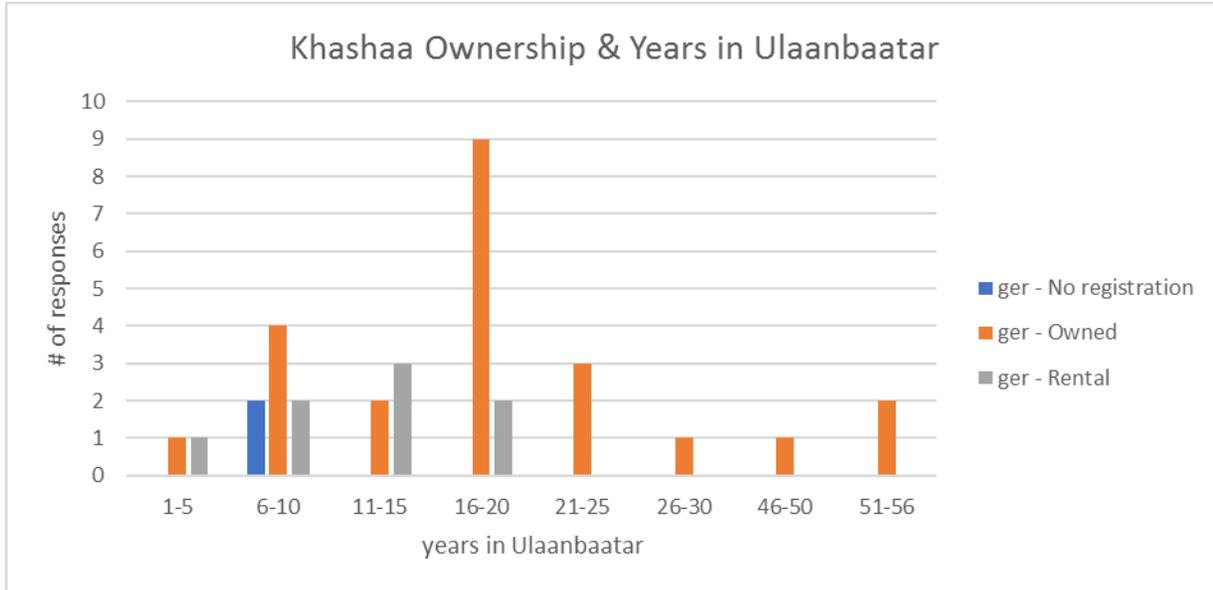
The following table shows the house of cost after inflation and the year it was built. These costs do not reflect the current market price of the houses, but their initial investments in present value.

<b>Year built</b>	<b>Within last 5 years</b>	<b>5-10 years ago</b>	<b>10-15 years ago</b>	<b>15-20 years ago</b>
<i>Total cost of house</i>	17,400,000	14,000,000	12,700,000	14,333,333
<i>Cost of house per sqm</i>	345,678	346,095	198,611	270,833
<i>Inflation adjusted</i>	<b>Within last 5 years</b>	<b>5-10 years ago</b>	<b>10-15 years ago</b>	<b>15-20 years ago</b>
<i>Total cost of house</i>	21,489,000	25,522,000	30,746,700	39,488,332
<i>Cost of house per sqm</i>	426,912	630,931	480,837	746,145

### Land ownership

Land ownership was common throughout the geographic regions but was most common in the urban area. In this area all respondents owned their land except one person who was renting it. Renting was most common in the fringe district (n=5), and the ownership rate was 73% and 83% for the fringe and middle district respectively. There were three total respondents across the middle and fringe districts who had no registration at all, even though two had been in the district for 6-10 years and the other had been in the district for 51-56 years. Though this may be the result of these residents living in the lower half of the income brackets (<600,000mnt per month). However, this is not immediately clear because plot

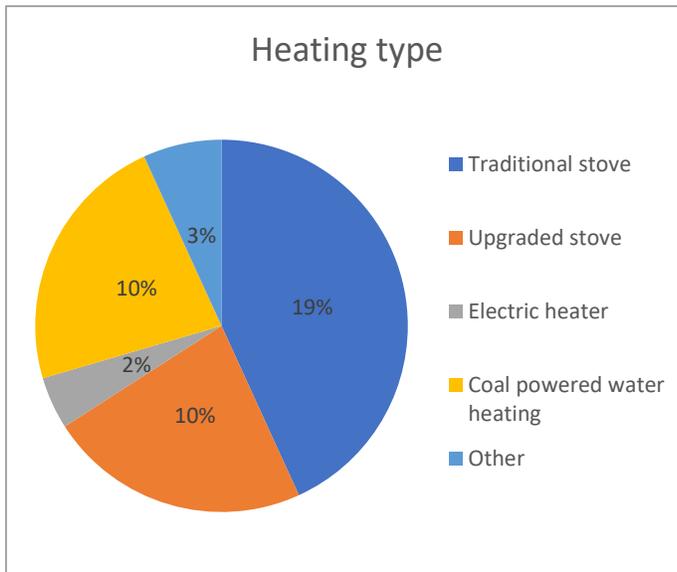
ownership is nearly evenly distributed across income ranges. Khashaa size did not vary based on geography and tended to be 700m<sup>2</sup> (n=23) or between 400sqm (n=6) and 500m<sup>2</sup> (n=6). Generally, a khashaa is occupied by a single family, but in some cases extended family may also live in the same khashaa. In such cases, extended families do not pay any rent for staying in the same khashaa. If they own a house, they are likely the people who built it (88%).



Overall, only three people said they were happy with their current housing. In urban areas, answers were distributed across the array of options provided, but in fringe and middle areas most people (n=30) were interested in improving their current housing and staying in the khashaa. Improvements were usually building a house, building on to their current house for more space, or improving their fencing. All respondents except one said they always wanted a fence or wanted a stronger fence than they already had. Of these 30 individuals, most expected to make their improvement within three or 5 years and would require a loan to complete their plan. The average respondent estimated improvement cost is 15 million MNT with a broad range of 1,000,000 to 30,000,000 MNT.

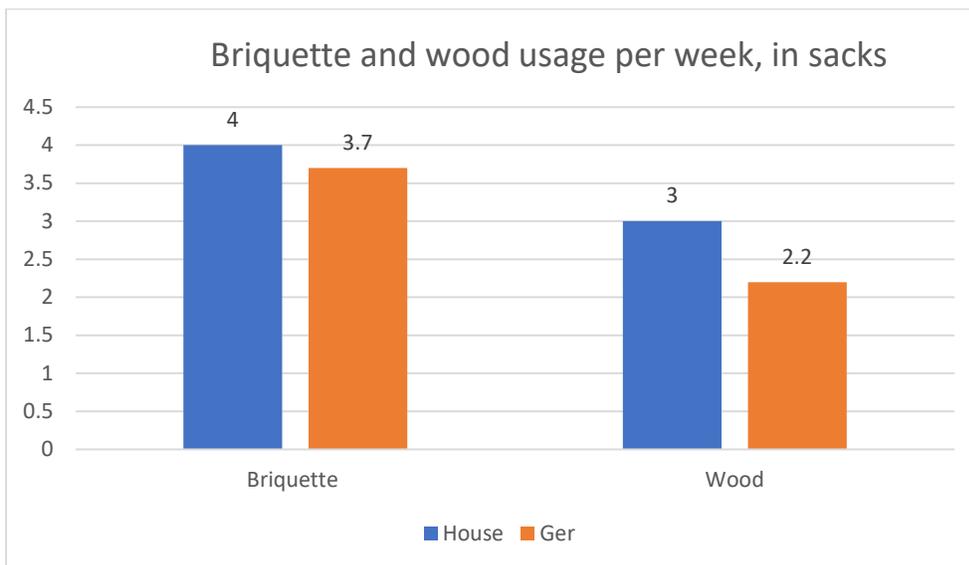
## CONSUMPTION

### Heating



House heating does not vary based on location and it is primary done with a traditional stove (n=11), with 6 respondents each using coal water heating and upgraded stoves. On average, households used 2.9 tonnes of raw coal for the last winter, which costed around 400,000 MNT. The raw coal usage ranged from 1 to 6 tonnes, costing between 120,000 MNT to 1 mIn MNT.

Ger dwellers consumed on average 2.5 tonnes of raw coal, while house dwellers used 3.3 tonnes, last winter. The average raw coal cost was at 360,000 MNT for ger dwellers and 460,000 MNT for house dwellers. The briquette and wood usage per week are also lower for ger dwellers as shown in below graph.



### Electricity

On average electricity cost per month was at 44,000 MNT. The amount of money ger residents pay is slightly lower being 39,000 MNT per month. Whereas, the average cost for household residents was 52,000 MNT.

Most residents do not share their electricity bills with other households (69%), but almost one third do. In most cases, these households are relatives living in a shared khashaa.

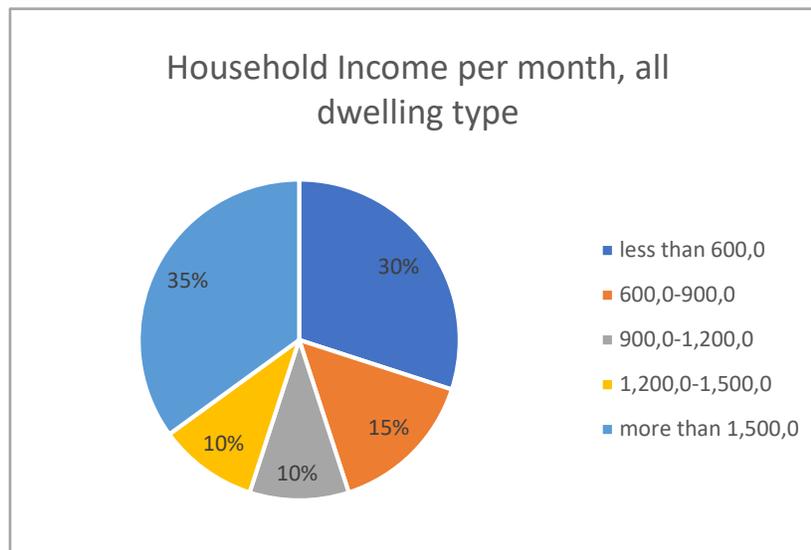
## Water

Water collection does not vary based on geography and nearly all residents collect water one to three times per week. Each round trip takes most people (42%) 5-10 minutes with many others (29%), mostly in the fringe and middle areas, having to spend 20-30 minutes on this chore. The average round trip takes 12 minutes. The average weekly water use increases from the fringe area (206 liters) to the middle (232 liters) and urban area (240 liters). This aligns with the statistics of ger district person per day water usage of 6-10 liters.

Water usage per week was 283 liters for house dwellers and 173 liters for ger dwellers.

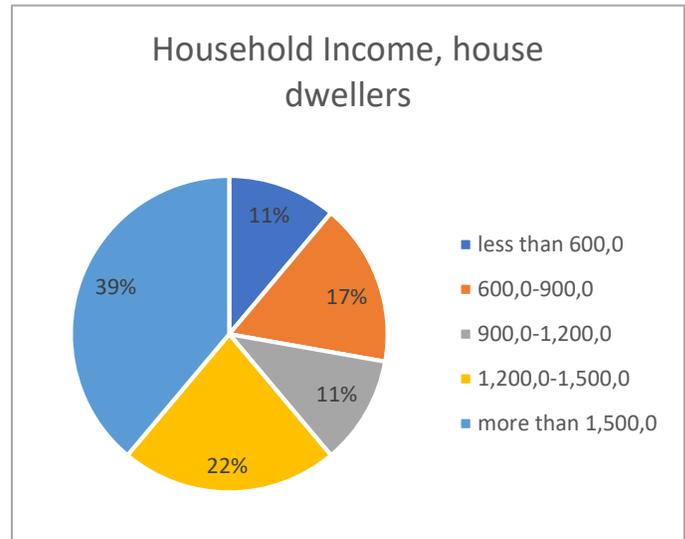
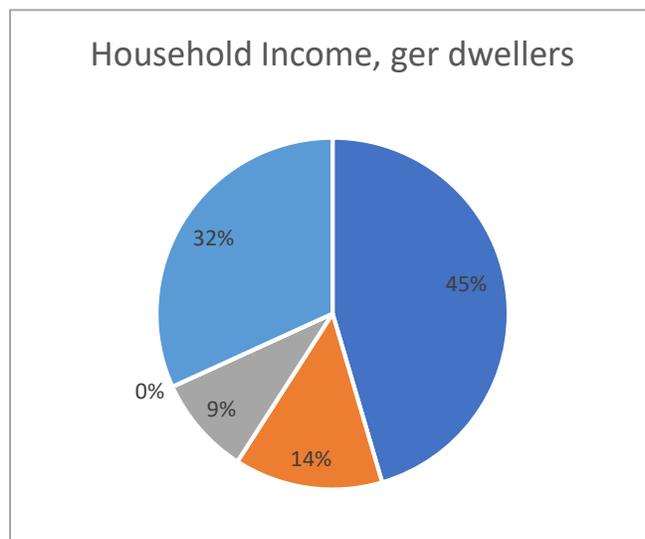
## FINANCIAL SITUATION

### Household Income



Household income was evenly distributed across geographic regions. 68% or 40 respondents said their income did vary seasonally and their income averaged at 1,157,500 MNT per month.

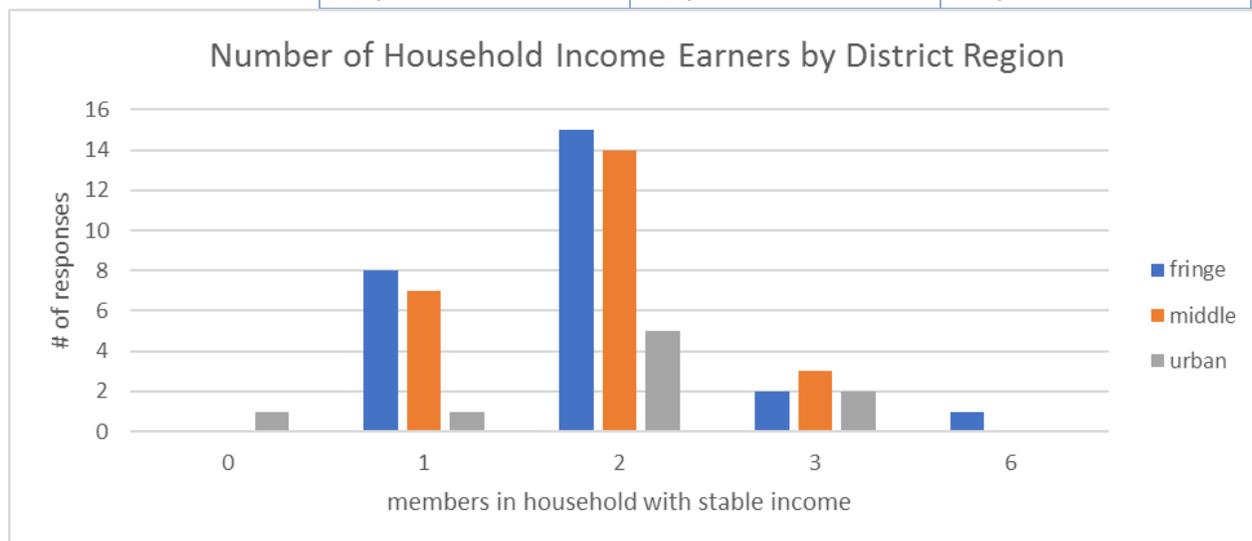
Out of the 40 respondents, 65% were divided into the highest and lowest income brackets. 35% had a household income of more than 1.5 million MNT and another 30% had income of less than 600,000 MNT.



When household income is displayed by the dwelling types, almost half or 45% of all ger dwellers' income are less than 600,000 MNT and the lower 2 income brackets combined makes up 59%. On the other hand, 61% of house dwellers are in the highest 2 income brackets and only 11% earns less than 600,000 MNT.

There is also an intersection between housing style, district location, and average monthly income displayed in the table below. Urban ger residents had the lowest average income while fringe house residents had the highest monthly income. This could be due to the characteristics of the selected fringe area, as it was a well-established settlement area.

	Fringe Area	Middle Area	Urban Area
<b>Accommodation Type</b>			
<i>Ger</i>	900,000-1,050,000 mnt	1,050,000-1,200,000 mnt	450,000-600,000 mnt
<i>House</i>	1,350,000-1,500,000 mnt	1,200,000-1,350,000 mnt	1,200,000-1,350,000 mnt

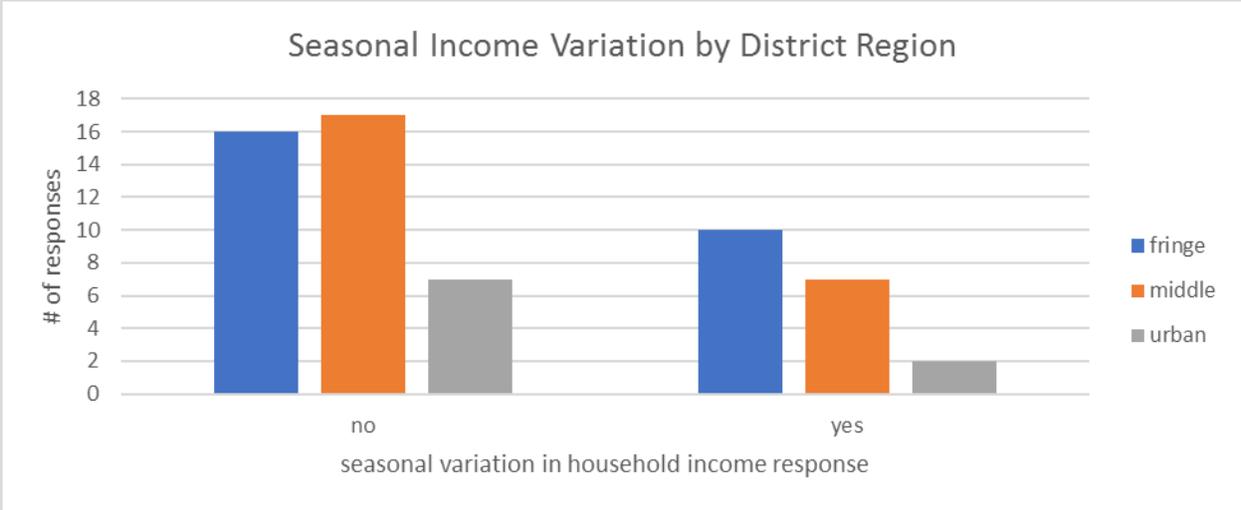


## Jobs

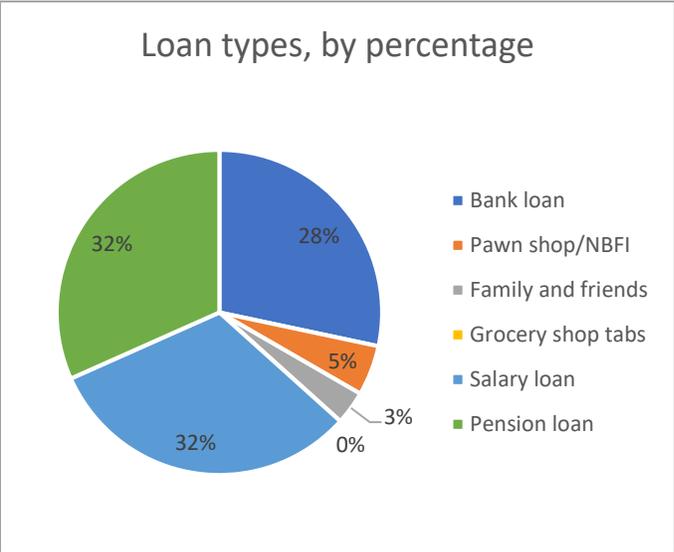
The primary income earner typically has finished high school and either works in construction, the service sector, or is retired. The number of income earners did not vary significantly based on geography, but usually included more than one person in a household with a stable income. This is most often both parents, but can also include in-laws, sons, and daughters.

## Seasonal Income Variation

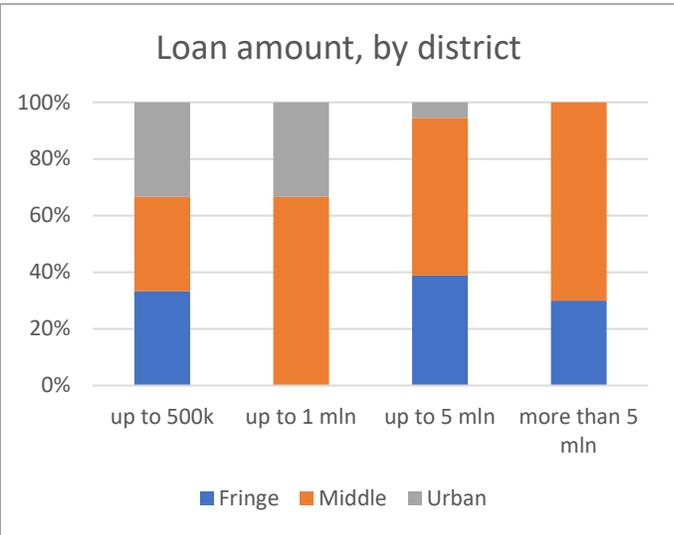
Generally, people said that their income did not vary based on season, but this rate varied based on geography with people in fringe areas most likely (38%) to have seasonal variation and those in urban areas least likely (22%) when housing style is not considered. However, when housing style and geography are compared together with seasonal income variation, two of the three residents living in gers in the urban area reported seasonal variation, in contrast to three of 13 residents in the middle district and 6 of 17 residents in the fringe area. When comparing house owners, there are no residents in the urban district reporting variation, while four of 7 middle district residents and four of 9 fringe district residents did experience income fluctuation. When geography is not compared, 31% of house owners and 33% of ger residents reported seasonal income variation. When income variation is a factor, the average monthly income between November and April is 1,151,316 MNT compared to May to October's average of 1,348,684 MNT. It is interesting to note that even when income is seasonally low, it is only slightly less than the average income of 1,157,500 MNT for individuals who don't report seasonal variation.



**Loan**



Only two people out of 45 had experience taking out a mortgage or construction loan across district areas. Many households are already in debt with 82% of respondents in debt saying they owed more than 1,000,000 mnt. The most common debts across respondents were pension loans (n=11), salary loans (n=11), and other types of bank loans (n=10). Many individuals on the pension loan responded that their partner is also on a pension loan. Loans were linked to geography, with 83% of people in middle areas having debt, followed by 46% of fringe residents, and 33% of urban residents. Debt was not linked to housing type with 16 of house dwellers having a loan and 19 ger dwellers. Most people had either up to one year (n=20) to pay back the debt or up to 5 years (n=13).



The loan amount and number of households (n=20) on debt was particularly high in the middle district. Whereas the urban district only had 3 households on debt and fringe district had 10 households on different debt brackets.

## BACKGROUND ON AVAILABLE LOANS FOR GER DISTRICT RESIDENTS

Currently, there are 13 commercial banks that are providing loans. They offer 15 to 20 types of loans to the customers. Amongst them, most common loan types for ger district residents are, salary loan, household loan, pension loan, tuition fee loan, home loan for building houses, home renovation loan, and 8% mortgage loan.

For home improvements, pension loan, salary loan, home loan for building houses, home renovation loan can apply.

<i>Type of loan</i>	<i>Loan amount</i>	<i>Annual interest rate</i>	<i>Loan period</i>	<i>Requirements</i>
<i>Salary loan</i>	Max 40 million	18%-20.4%	Up to 30 months	Employed in an organization with cooperation agreement
<i>Pension loan</i>	Not exceed 70% of the annual pension	10%	Up to 12 months	Registered with SI Agency as pensioner
<i>Home loan (for building/buying private house or unfinished house in ger district)</i>	Up to 50 million	15.6%-18%	Up to 84 months	Down payment – 20%
<i>House renovation loan (for connecting house into trunk infrastructure)</i>	Up to 20 million	19.2%	Up to 60 months	The bank will directly pay the renovation company

Source: [www.khanbank.com](http://www.khanbank.com)

The loan amount of interest rates varies from bank to bank, the information on the above table shows the requirements and conditions of Khan Bank.

If a resident got a salary loan of 30 million MNT at 20.4% annual interest rate for 30 months, the monthly repayment will be at 1,510,000 MNT. This is higher than the average monthly household income of 1,157,500 MNT.

Starting from January 2020, the average pension was set at 409,000MNT per month<sup>1</sup>. If an elderly with the average pension wish to apply for a pension loan, the total loan amount available for her/him will be 3.4 million MNT.

<sup>1</sup> <http://www.mnb.mn/i/198071>

## GREEN FINANCE IN MONGOLIA

### Mortgage loan

Significant green finance projects have been implemented for the better part of a decade in Mongolia, focusing on increasing the heating efficiency of gers and providing assistance to low income families transitioning to apartments. In the early 2010s, this took the form of the Government of Mongolia’s “100,000 Apartments” Program and has evolved into public private partnerships with developers who are granted contracts to build affordable housing while being allowed to build excess apartments that they can then sell<sup>2</sup>. For households interested in buying apartments, there are three primary government interventions based on income level: the below market rate 8% mortgage loan, loan guarantees, and subsidies on loan down payments<sup>3</sup>.

Income Decile	Monthly HH Income (thousand MNT)	% of Income for Housing	Typical Loan Terms	Affordable Loan Amount (thousand MNT)	Total Aff. Capital (thousand MNT)	Best quality HH can afford? <sup>20</sup>
90 % +	2,800	45	8% 20yrs	151,000	215,000	New apt - 3 room Old Apt - 4 room
70 - 89 %	1,490	45	8% 20yrs	80,000	115,000	Old apt - 3 room New apt - 2 room
40 - 69 %	950	25	8% 20yrs	28,000	41,000	Winter house ger area Old - apt - 1 room in fringe area
20 - 39 %	640	20	19% 3yrs	3,500	5,000	Good quality ger
< 20 %	470	15	19% 3yrs	2,000	3,000	Ger

Source: published by Affordable Housing Institute

### Green financing on development projects

Housing improvement projects are generally framed as air pollution mitigation efforts and take the form of government initiatives or partnerships between the government and organizations such as The World Bank, The Asian Development Bank (ADB), UN-Habitat, Japan International Cooperation Agency, and

<sup>2</sup>Amnesty International 2015, ‘Falling Short The Right to Adequate Housing in Ulaanbaatar, Mongolia’, <https://www.amnesty.org/download/Documents/ASA3049332016ENGLISH.PDF>.

<sup>3</sup>Affordable Housing Institute 2014, ‘Affordable Housing Strategy for Ulaanbaatar’, <http://www.usip.mn/uploads/reports/en/Affordable.pdf>.

German Agency for Technical Cooperation<sup>4</sup>. ADB began a \$570 million USD Green Climate Fund project in 2018 that will continue until 2026 that offers khashaa owners an option to trade their khashaa for one of 5,500 apartments in eco districts built in their areas<sup>5</sup>. The Ger Plug-in could contribute to this ADB project by providing a method to house more families per khashaa, assisting in sequential upgrading. This approach shifts households out of one zone while it is developed and continues this process zone by zone until an area is redeveloped<sup>6</sup>. The Plug-in could provide intermediate housing while development of eco districts displaces residents.

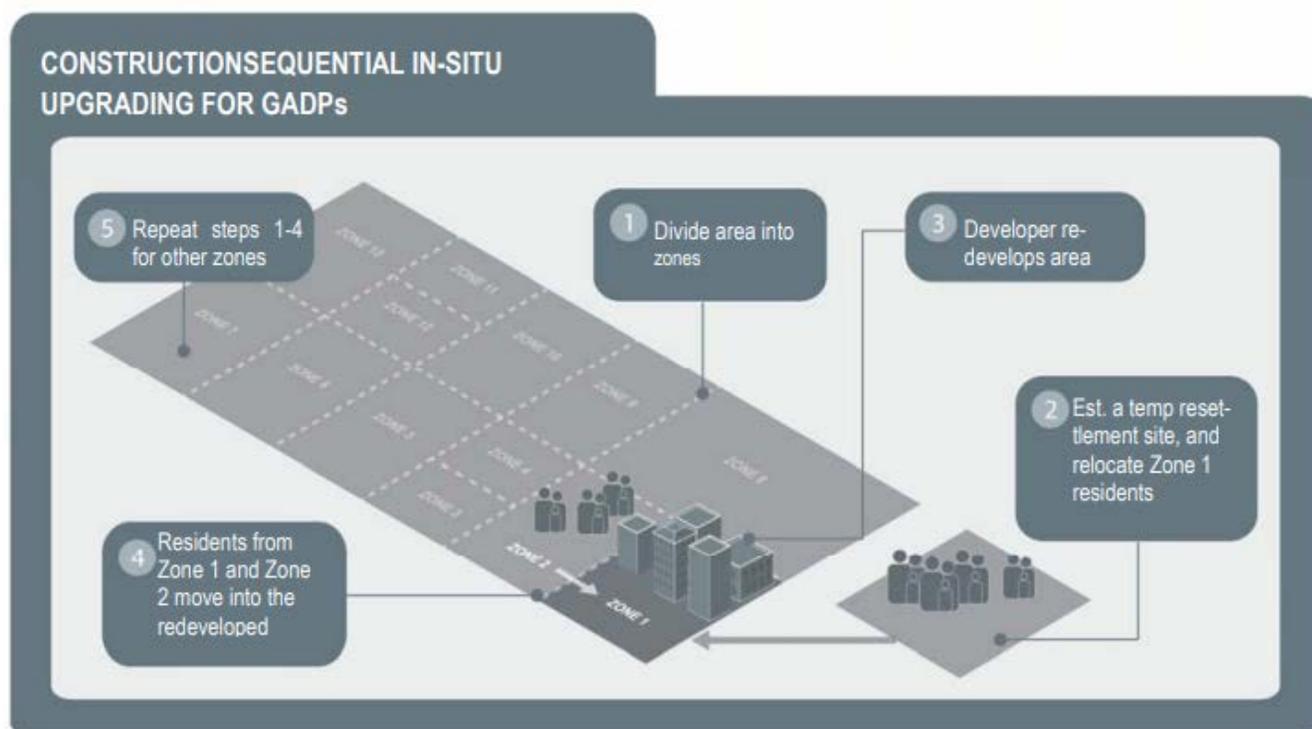


Figure 1 - Published by the Affordable Housing Institute

The leader of green finance in Mongolia for the last decade is XacBank. They have been working with Citi Group, Gateway Development Mongolia, Geres, and the Dutch Development Bank to provide microloans and subsidies for low emission stoves, improved ger insulation, and mortgages for first home buyers<sup>7</sup>. The stove (136,000 sold) and insulation (17,000 sold) sales were able to generate 1.17 million tonnes in carbon credits that were purchased by Citi in 2013<sup>8</sup>. XacBank is the lead accredited entity for the Energy

<sup>4</sup>Amnesty International 2015, 'Falling Short The Right to Adequate Housing in Ulaanbaatar, Mongolia', <https://www.amnesty.org/download/Documents/ASA3049332016ENGLISH.PDF>.

<sup>5</sup>Asian Development Bank 2018, 'Mongolia: Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project', [https://www.adb.org/sites/default/files/project-documents/49169/49169-002-rp-en\\_0.pdf](https://www.adb.org/sites/default/files/project-documents/49169/49169-002-rp-en_0.pdf).

<sup>6</sup>Affordable Housing Institute 2014, 'Affordable Housing Strategy for Ulaanbaatar', <http://www.usip.mn/uploads/reports/en/Affordable.pdf>.

<sup>7</sup>XacBank n.d., 'XacBank and Gateway Development Mongolia agrees to joint effort to promote energy efficient housing in Mongolia', <https://www.xacbank.mn/article/657?lang=en>.

<sup>8</sup>XacBank n.d., 'Citi to purchase 1.17 million tonnes of carbon credits in innovative microfinance deal with MicroEnergy Credits and Mongolia's XacBank', <https://www.xacbank.mn/article/672?lang=en>.

Efficient Consumption Loan Program running from 2019 and 2029 funded partly by the Green Climate Fund, which will lead to \$21.5 million usd additional funding for affordable improved stoves and insulation<sup>9</sup>. The Ger Plug-in may be considered for a first home mortgage, as well as climate change mitigation from the improved stove and insulation. By meeting all three of the actions that XacBank is involved in within green financing, the Plug-in may be well positioned to partner with them.

A new green finance organization is emerging in Mongolia known as the Mongolian Green Finance Corporation. This organization will develop renewable energy sources while also investing in energy efficiency project to reduce pollution<sup>10</sup>. This new bank was announced in 2019 and is expected to work with the Green Climate Fund. Further details and projects from this organization are still emerging as it was only recently launched.

## Green Loan

The Government of Mongolia (GoM), the Ministry of Environment and Tourism, in cooperation with National Committee on Environment Pollution Reduction, announced the initiation of Green Loan. The Green Loan can be used to fund green, environmentally friendly electric heaters, insulating gers or houses, and installing eco-toilet/sewage facilities. Households and green businesses can apply the green loan at 8-9% annual loan interest rate. Currently, three banks are providing green loans, State Bank, Khan Bank, and Xacbank.

State Bank is implementing “Eco education campaign” and “Sustainable Financing” program. State Bank’s “environmentally friendly, interest discounted project” provides loan at 1.5% monthly or 18% annual interest rate. The GoM subsidizes 9% interest rate and the other 9% will be paid by the customer.

Khan Bank is providing maximum of 15 million MNT loan at 8% annual rate for a 30-month period to fund purchase of equipment for a ger or house. Tourism businesses can apply for a loan of up to 200 million for a 60-month period at 8% annual interest rate.

Xacbank is providing “Eco Consumption Loan” which can be used to fund purchase of electric heaters. The customers can only purchase from the 7 suppliers in contract with the bank. <sup>11</sup>

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<sup>9</sup> Green Climate Fund 2018, ‘SAP004’, <https://www.greenclimate.fund/project/sap004>.

<sup>10</sup> Green Investment Group 2019, ‘Developing Mongolia’s new Green Bank’, <https://greeninvestmentgroup.com/news-and-insights/2019/developing-mongolia-s-new-green-bank/>.

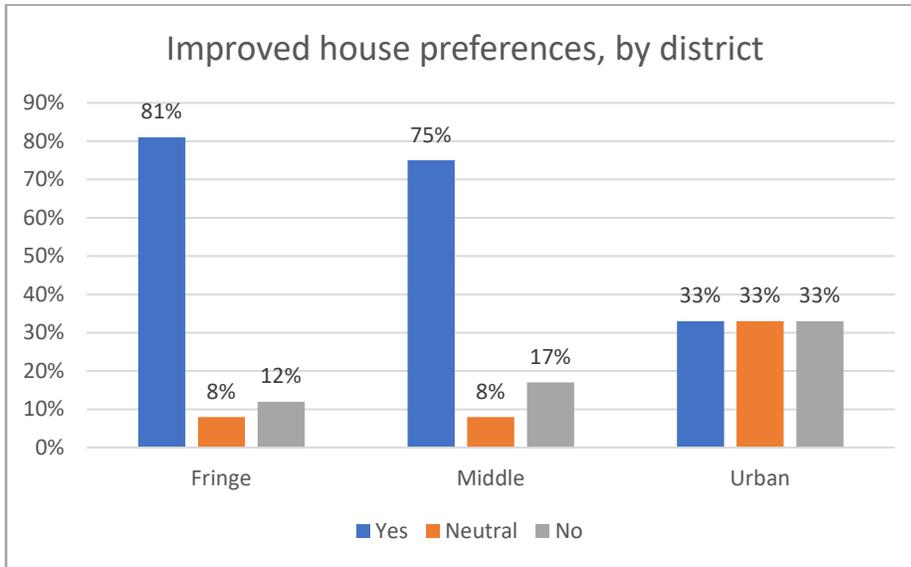
<sup>11</sup> The Ministry of Environment and Tourism, <https://www.mne.mn/?p=9909>

## PLUG-IN AND ENERGY EFFICIENT HOUSING

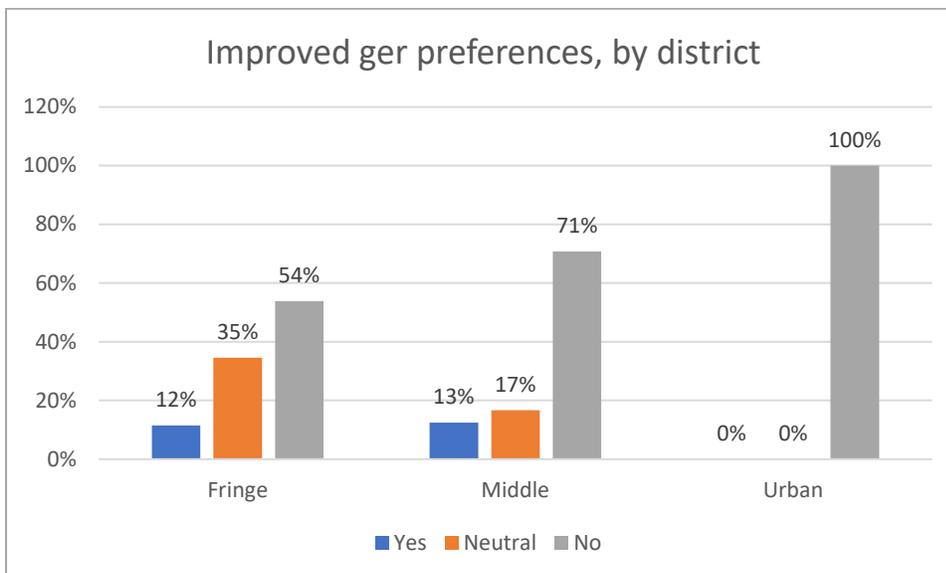
### Improved house and ger preferences

*Improved house or ger refer to those with built in toilet, shower and electric heated without coal.*

While the idea of a home that had a toilet, shower, and electric heating was appealing to 81% of fringe area residents and 75% of middle district residents, respondents in the urban areas were evenly divided across interested, neutral, and uninterested.

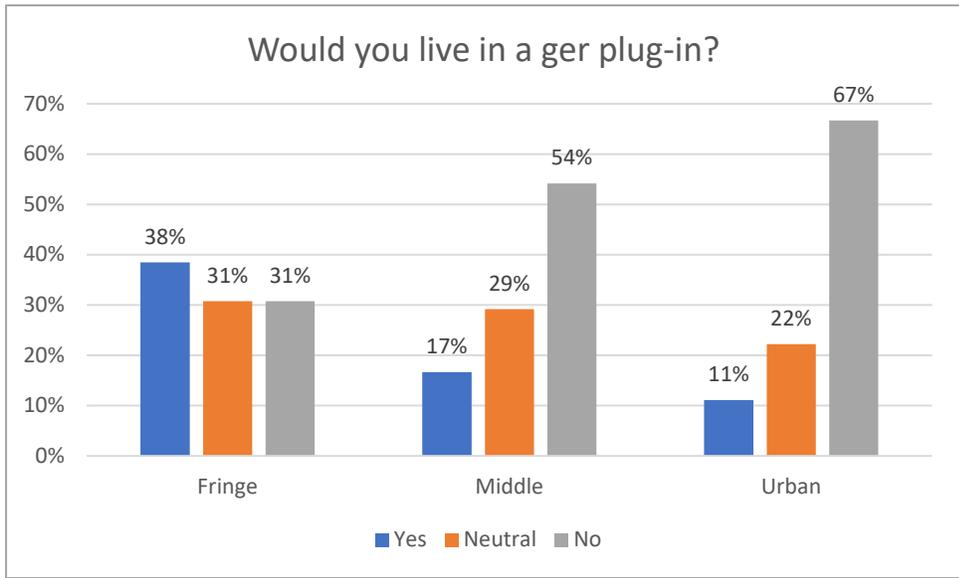


When the same question was asked about a ger with these amenities, the responses flipped with 54% of fringe residents becoming uninterested, 71% of middle district residents being uninterested, and all urban district residents becoming uninterested.

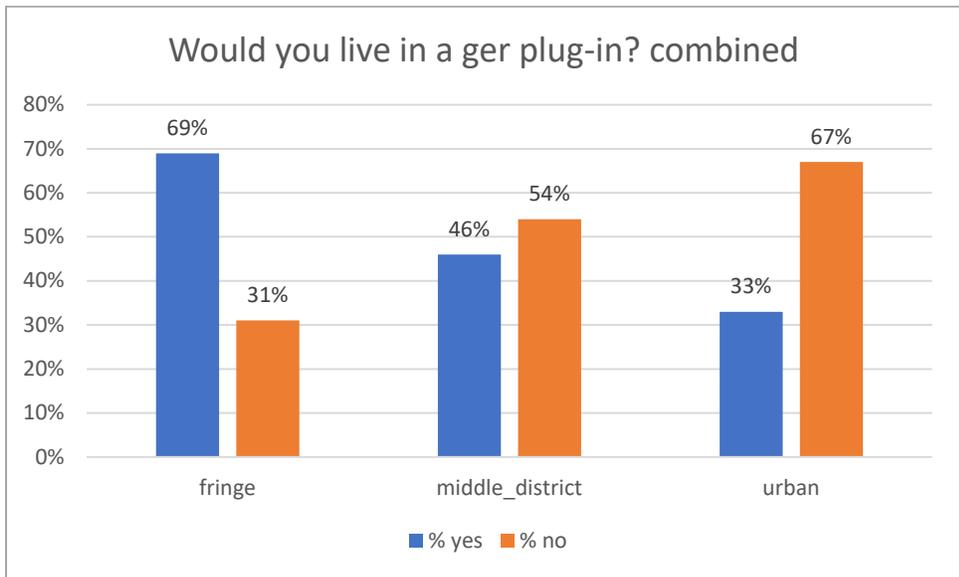


Concluding from the discussions, these responses are shaped by the fact that traditional gers often require lot of work at the time of transition between seasons. Even though the researchers explained about the

characteristics of plug-in which does not require changing insulation seasonally, respondents said they prefer house as it provides separate rooms and more privacy.



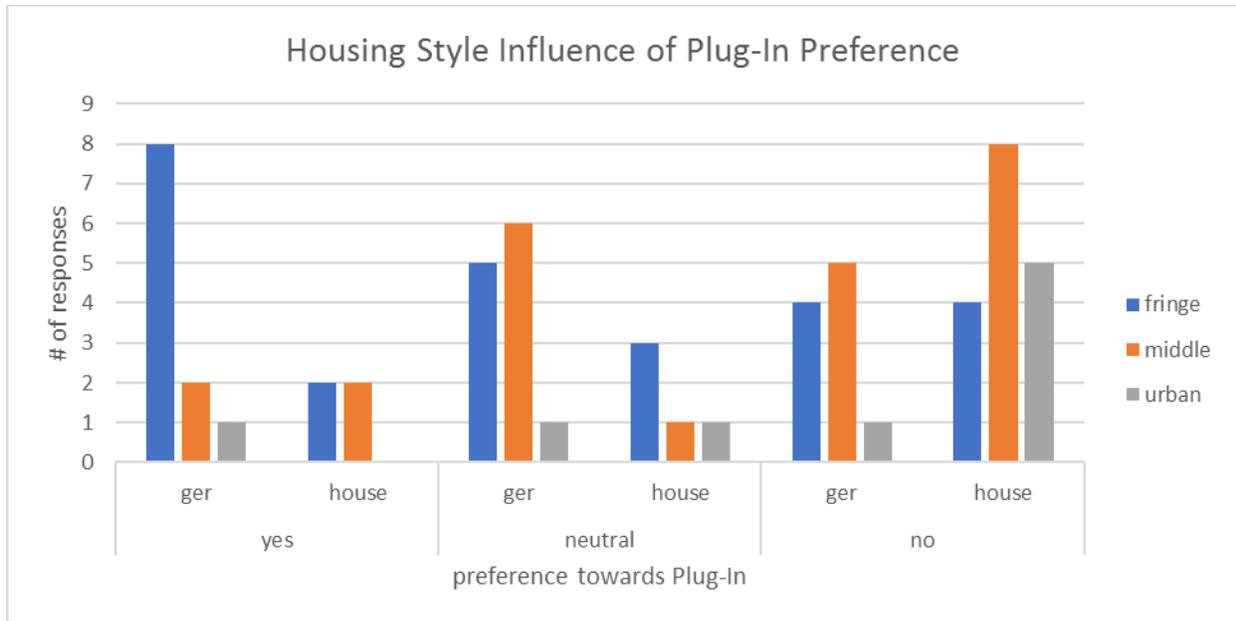
The photos and information about the ger plug-in were shared with the respondent and asked if they would live in a ger plug-in. Fringe district residents were most interested as compared to the two other districts. If more concrete information is shared and visible changes would appear in the area, it is possible that the neutral preference about the plug-in would shift. The below graph shows how the result will be changed if those neutral answers were shifted.



### Housing style influence of plug-in preference

District location played a significant role in people’s perceptions towards the ger plug-in as well as their housing style. People in the fringe district living in a ger were by far the most interested in the plug-in with 47% reporting they would prefer the plug-in. People living in houses in the fringe areas were also the most receptive of homeowners with 22% of them reporting they would prefer the plug-in. Outside of the

fringe district, approval of the plug-in typically fell. In the middle district residents living in gers and houses both reported low approval at 15% and 18% preference respectively. In the urban district, ger residents were evenly divided between preferring the plug-in, feeling neutral, and not preferring it, while homeowners nearly unanimously did not prefer it (5 out of 6).



### Additional facilities

When asked if residents would like a house that could be easily expanded upon, across districts they evenly supported this idea, did not like this idea, or were neutral to it.

When asked about which additions most appealed to them for their housing, almost all respondents reported an extra bedroom. When asked about sharing facilities, people in the middle and fringe areas were slightly more in favor (47%) of sharing facilities with neighbors than not (39%), but no urban families were open to this.

However, urban families were in favor (67%) of sharing facilities with extended family, an option that was supported by 21% of respondents survey wide. Residents open to sharing facilities almost always supported sharing a septic tank or a water tank, with a few residents open to sharing a toilet and shower.

When asked about sharing their khashaa with other families and receiving payment, only three households said yes, and they were all in the fringe area. Respondents often refer that they would like to have their privacy and keep their matters separate from other families. Responses from the middle (96%) and fringe area (81%) were not in favor of this option, but the urban area seemed slightly more open to the idea with more neutral responses (n=3) and less negative responses (67%).

### Conclusion

Overall, across districts people living in gers were more neutral (n=12) than any other response and often would report they would like to see the plug-in themselves before they made any opinions about it. When specifically considering the participants who responded positively or neutrally to the ger plug-in, there is a significant majority across all districts that averages 85% of people who would be willing to pay less than

20,000,000 MNT for the plug-in. Because houses in the ger district usually cost less than MNT 20 million, they are not willing to pay more than it.

People who were interested in the plug-in within the fringe (67%) and middle (64%) areas were interested in paying for the plug-in with a loan, but no one in the urban district that was interested would have been eligible for a loan with their retirement pension.

People were less certain about whether they would want to use their land as an asset for a down payment on a loan, except in the urban area where the individuals likely would not have qualified for a loan without an option like this. The fringe area was nearly evenly divided between preferring, did not preferring, or feeling neutral about this option, while 45% of middle area resident preferred it and 67% of urban area residents preferred it.

## FUTURE DEVELOPMENT

When people were asked what their biggest concern was for the future of the ger district, people in the fringe and the urban areas ranked affordable housing as their primary concern (N=15), while only two people in middle areas responded this way. The next clear concern was air pollution which was a primary concern for 11 fringe and middle area residents and only one urban resident.

People had a wide variety of features they would like to see more of in their district, and they were similar across study areas. Out of the supplied answers, gardens and outdoor spaces ranked first (n=9), followed by kindergartens (n=5), and public bathhouses (n=3). When residents used the 'other' option to supply their own answers, the diversity of issues facing the ger areas became clearer. Four people said the roads needed to be improved, with one person saying cars can't access their home, and another person requesting streetlights. Three people requested more public transport access and two people said they lack access to most things, including shops. Two more people requested better water kiosk access and one person suggested building a public hot house for winter.

General comments and concerns observed from the residents during the interviews:

- Most residents were concerned about seasonal maintenance of the ger plug-in, because traditionally woolen-layer insulations are changed twice a year for winter and summer seasons.
- Most respondents said to prefer houses over gers for dwelling, mostly referring to the maintenance of traditional gers.
- Due to the income size and their past experiences and pressure of bank loans, many of the respondents said they wouldn't qualify, and/or would not prefer to apply for a bank loan as it creates stress and financial burden. Many of the household income earners were repaying salary or pension loans.
- Without prior physical contact of the ger plug-in, it has been observed that respondents were having difficulty answering some of the questions concerning preferences. Many of the respondents asked for the budget and cost of the ger plug-in in order to answer questions.
- Many households already had a foundation laid for a house and they would be willing to be part of the project if the plug-in can be installed to their new houses.