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PROGRAMME



CZECH REPUBLIC  
DEVELOPMENT COOPERATION

“Switch Off Air Pollution” project (2018-2022)



# THE RESEARCH REPORT

## CREATING DATABASE FOR THE MICRO, SMALL & MEDIUM- SIZED ENTERPRISES AND BRIGADES OP- ERATING IN CONSTRUCTION SECTOR OF ULAANBAATAR CITY IN MONGOLIA

ULAANBAATAR, 2019



БАРИЛГЫН ЭРЧИМ ХҮЧ ХЭМНЭЛТИЙН ТӨВ  
BUILDING ENERGY EFFICIENCY CENTER



**“Switch Off Air Pollution” project (2018-2022)**



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SIZED ENTERPRISES AND BRIGADES  
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**THE RESEARCH REPORT**

**CLIENT: “MONGOLIAN NATIONAL CONSTRUCTION ASSOCIATION” NGO**

**EXECUTER: “GREEN INITIATIVE - FUTURE TECHNOLOGY” NGO**



## **Ulaanbaatar, 2019**

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## ABBREVIATIONS

<b>BE</b>	Business entities
<b>MECSS</b>	Ministry of Education, Culture, Science and Sports
<b>MSMEs</b>	Micro, Small and Medium-sized Enterprises and Brigades
<b>MNCA</b>	Mongolian National Construction Association
<b>LLC</b>	Limited Liability Company
<b>NSO</b>	National Statistics Office of Mongolia
<b>NGO</b>	Non-governmental organization

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## FOREWORD

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According to the statistics of 2016, there were registered 88,000 ger residences in ger area, 106,000 house residences and more than 1,800 comfortable apartment residences in the capital city those indicated with the usage of approximately more than 700 thousand tons of coal for heating in every year. The individuals and households migrants moved to Ulaanbaatar city live in their own or their relatives' privately owned land called house residence. The migrants from the countryside build their own houses by using various materials and designs based on their financial capacity. But these kinds of private houses are built with heat loss and technological errors, which affect to increase air pollution caused by coal emissions from the high usage of coal for heating their houses during cold seasons.

There are many different ways of cost solutions to reduce heat loss of private houses in ger area. In particular, for installing insulation in their houses by energy-saving approaches are economically saving method as well as it is crucial for reducing air pollution.

GERES with Mongolian National Construction Association (Hereinafter referred to as MNCA) NGO, People In Need, Building Energy Efficiency Center and Ger Community Mapping Center have started European Union (EU) funded project on "Energy efficiency advisory and financial intermediation for sustainable housing in ger areas in Ulaanbaatar" within 2018-2022.

By 2017, it is necessary to reduce the heat loss of private houses of 160,000 households in the ger areas of Ulaanbaatar city. The aim of this project is to implement maintenance service by offering energy-saving and the heat loss reduction solutions for 1,000 households in these ger areas.

According to the Terms of Reference of MNCA within the framework of this project, "Green Initiative - Future Technology" NGO have completed research study for creating database by analyzing micro, small and medium-sized enterprises, brigades and individuals to reduce heat loss of private houses in ger areas.

We would like to thank to all the staff who cooperated and provided methodical and technical advice to complete our research. We also would like to thank to all the staff of legal entities who cooperated for collecting and providing valuable information on our research work.

### IMPLEMENTED ORGANIZATION:

"Green Initiative - Future Technology" NGO

### CLIENT:

GERES or Renewable Energy, Environment and Solidarity Group and "Mongolian National Construction Association" NGO

## BRIEF INTRODUCTION OF THE SURVEY

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The purpose of the survey is to create and analyze the database of work experience, professional skills, economic indicators, and labour force information of "Micro, Small and Medium-sized Enterprises as known as Brigades" (hereinafter referred to as MSME or brigade) which operate in the construction sector within 6 districts in Ulaanbaatar city to identify the interest of 50 brigades and citizens who willing to work in the construction sector by selecting them with benchmarking process of one and two-stage in accordance with meeting the project goal.

For starting this survey, there was a pilot survey conducted by involving brigades and citizens that actively provide construction work in 6 districts of Ulaanbaatar city.

For creating the database to indicate the capacity and skills of active brigades in the construction sector, there were conducted interviews covering the information of brigades, organisations and entities; their interest in participating and accepting our cooperation offer; if they are interested in installing insulation in houses of ger areas, how many brigades with how many staff they could potentially offer; how do they form their human resource; how do they manage their sustainability. The survey questionnaire was generated and included total 43 questions.

The results of the survey were summarized with 43 questions that split into four questionnaire groups including general information, work experience, skills, interests of the participants, training and financial needs from the citizens who work in construction sector.

Until the 1990s, the workers with construction qualification were at least relied on single construction organization, and the organization was able to deploy their staff into different brigades based on their occupational variants and were able to work conjunctly organized with continuous development and sociable opportunities. The social welfare of the employees had also been implementing through this system. But nowadays, the constructors are not relied on certain organisations or working under unconfined brigades. There have created 12 different types of brigades including bricklaying, carpentry, interior design, electricity, plumbing, welding, clay, Installation of Carcass, exterior facade, armature, roof works, stone and tile. According to the survey, brigades have been working with investors, clients, executant organisations by contracts or without contract, but after complete their work, they are hardly paid on time or even fail to get paid. 89 per cent of respondents said that they have at least three times experience of failures to get paid for the last 3 years. This is because of the weakness on the legal capacity of the brigades and on the other hand, the quality of work on the expectation of the brigade is not meet their

ability to produce exact results.

The survey also shows that brigades do not pay taxes and insurance. Even say it, they use 4 different types of rates and tariffs including foreigners, companies, brigades and individuals when they receive construction work. The difference between these rates depend on work quality as well as whether the work is tax payable or not.

The numbers of the brigades involved in the survey were equally distributed by the indicators consisted of the type of activity, districts where they are operating and the numbers of years worked.

The main members of brigades are usually 3-6 people and if necessary, the brigade operates by hiring additional supporting members. Brigades work more from March to December, while 23 per cent of respondents operate throughout four-seasons in a year.

About 70 per cent of the brigade involved the survey earn up to 30 million Mongolian tugrugs annually. This is closely connected to the purpose of the project to identify micro and small-sized executors. In other words, it is related to the aim to avoid from large-sized executors and to involve the contracted brigades with them.

And the income level of brigades is not dependent on their status or LLC, whether they are construction-licensed LLC, or unlicensed. Even the brigade's revenues are not dependent on the number or size of its members. It is related to their ability to work with their acquaintances or new orders from their previous clients.

48 percent of brigade members are from rural areas. By studying the social status of the brigade members, 37 percent of them live in gers and 38 percent of them live in houses at ger areas.

And also these brigades have identified that the most significant problems they face are financial, lack of human resource, and reliable contracts. It is very important for brigades' social life, the matter of their training and development, providing legal skills, ability to work under the quality and standard, perform by business principals and learning to be executed.

Besides the results of the survey covered brigades, there were 96 brigades and 97 citizens defined under certain methodology and determined by the first stage of selection who was capable of installing insulation for the houses in the ger area. After inviting and interviewing them for the second round of the selection stage 2, there were selected 33 brigades and 19 citizens.

## CHAPTER 1. SURVEY METHODOLOGY

### 1.1. Survey goals and objectives

The survey aims to create database system that includes workforce experience, professional skills, economic indicators and capacity as well as workforce of the “Micro, Small and Medium-sized Enterprises and Brigades” (hereinafter referred to as MSMEs) engaged in operation of construction sector at 6 central districts of Ulaanbaatar city. Conducting selection of operation of 50 MSMEs, they were mostly sophisticated into the factors of the project goals, based on analysis and evaluation of database system.

**First objective:** Create database system for the MSMEs involved in the survey, includes their general information, workforce, professional skills, economic and financial factors, work experience. The questionnaire within framework of survey for creating database system will be tested on MSMEs and developed as follows:

- 1.1 To indicate database structure of MSMEs operate in construction sector
- 1.2 To develop survey by pre-testing the questionnaire for gathering information of enterprises those to be involved in the survey
- 1.3 To define survey methodology and form resources for human resource and other resources to be used in the survey
- 1.4 To provide survey guidance and information for the researchers. To develop appropriate plan for the survey, conduct survey, monitor and advise
- 1.5 To insert information of survey questionnaire into the database system
- 1.6 To report the process of survey’s database gathering.

**Second objective:** After analysing the gathered data within survey database system, there will be selected 100 MSMEs that meet the requirements ordered by Client as follows:

- 2.1 To define the options of the reports gathered from database in accordance with client’s requirements
- 2.2 To indicate the correlation of registered information and data according to the requirements and complete database.
- 2.3 To introduce a comprehensive analysis on cumulative data gathered by the survey. To evaluate the influencing factors and develop the report.
- 2.4 To introduce integrated data of 100 MSMEs those meet requirements set by the Client
- 2.5 To define introduction and methodology for selecting 100 MSMEs those meet requirements set by the client
- 2.6 To introduce integrated data of 100 MSMEs those meet the requirements.
- 2.7 To provide descriptive information to the 100 MSMEs those to be interviewed.

**Third objective:** After selecting 100 MSMEs, they will be invited for the 2<sup>nd</sup> round questionnaire survey and group interviews in order to identify 50 MSMEs meet the requirements set by the Client and will be involved in further practical training of construction work and business management, which will be organized within framework of the project activities as follow:

- 3.1. To pre-test and develop questions and questionnaires for additional necessary information from 100 MSMEs selected by database system
- 3.2. To examine developed questionnaires and questions by the Client
- 3.3. To provide information to participants for group interviews
- 3.4. To plan and organize group discussion
- 3.5. To introduce the report of database about 50 MSMEs' information that meet the requirements set by the Client
- 3.6. To submit the descriptive report of integrated survey in both soft and hard copies that meet the requirements set by the Client.

### Expected outcome:

- 1.1. As a result of the survey, there will be identified MSMEs that meet the requirements within the project framework on "Energy efficiency advisory and financial intermediation for sustainable housing in unplanned areas in Ulaanbaatar"
- 1.2. To create database that provides possibilities of the resources, capacity and interest of MSMEs in the construction sector
- 1.3. To select the first 100 MSMEs
- 1.4. To select final 50 MSMEs

## 1.2. Work plan of the survey

Duration of the survey: 22/10/2018-21/01/2019

**Table 1 Work plan of the survey**

No	Activities	1	2	3	4	5	6	7	8
<b>1</b>	<b>Preparatory work</b>								
1,1	Sign a contract with the Client								
1,2	Set up survey team, assign their tasks and organize								
1,3	Re-develop detailed survey proposal								
1,4	Define and develop survey methodology / workforce experience, professional skills, economic indicators and information of workforce of MSMEs/								
1,5	Develop survey tools /questionnaires, guidelines of interviews, document analysis, guidelines of focus group discussion/								
1,6	Develop related handbooks and guidelines								
<b>2</b>	<b>Identify methodology for mapping and tracking MSMEs in construction sector</b>								
2,1	Contact with construction companies								
2,2	Contact with brigades who work in construction sector								
2,3	Contact with social-workers of selected khoroos and contact to registered citizens who are willing to work and collect survey								
2,4	Gather data about members of MNCA								
2,5	Advertise survey through central markets where sell construction materials and collect survey								
2,6	Select target groups through advertising websites, application and social media								
2,7	Advertise survey through massmedia, newspapers, news agencies and websites. To be contacted according to advertisements.								
2,8	Identify brigades those to be involved in the survey								

<b>3</b>	<b>Identify first and second stages' criteria /selection of 100 and 50 MSMEs/ that meet the requirements set by Client</b>								
3,1	Meet and unify ideas and opinions with all stakeholders and IPs of SOAP project regarding to the following matters: Solutions of insulation, scope of insulation works, scope of work of each brigade, numbers of workers needed, wage of workers and etc.								
3,2	Define terms of selection of brigades and include it in the questionnaires and forms of focus group discussion								
3,3	Improve survey questionnaire that has already been developed, incidentally with the criteria of the brigade selection								
3,4	Arrange meetings with experts								
<b>4</b>	<b>Develop and organize pilot testing of survey</b>								
4,1	Acquire equipment and supplies, select data gathering staffs								
4,2	Organize personal training for surveyers and human resources for preparing survey materials and manuals								
4,3	Print pilot survey questionnaires and create database in SPSS program								
4,4	Run pilot survey								
4,5	Analyze findings of pilot testing								
4,6	Report errors and mistakes of the pilot survey to the Client and make decisions on the changes related to the questions in order to improve questionnaire								
4,7	Final questionnaire will be approved by all parties and preparation of survey collection will be implemented and survey questionnaires will be printed								
<b>5</b>	<b>Organize and conduct the survey according to the approved questionnaires and templates</b>								
5,1	Implement monitoring and supervising activities for the quality of data during survey collecting process								
5,2	Implement data collecting process								
5,3	Create computerized data entry model according to the survey questionnaires								
5,4	Insert information of survey into the database system								
5,5	Do comprehensive analysis in compiled database								
<b>6</b>	<b>Organize 1<sup>st</sup> round selection criteria, develop findings by integrating the results</b>								
6,1	Develop methodology for 1 <sup>st</sup> round selection process								
6,2	Organize 1 <sup>st</sup> round selection criteria								
6,3	Invite selected brigades to the 2 <sup>nd</sup> round selection process and organize focus group discussion among them								
6,4	Prepare certificates								
<b>7</b>	<b>Organize 2<sup>nd</sup> round selection criteria, develop findings by unifying the results</b>								
7,1	Develop methodology of 2 <sup>nd</sup> round selection process								
7,2	Organize 2 <sup>nd</sup> round selection by focus group discussion								
7,3	Issue certificates to the selected brigades and provide trainings by guidelines for further activities								
7,4	Integrate the results of selection processes and include it in the report								
7,5	Create related database								
<b>8</b>	<b>Integration of the survey results</b>								
8,1	Process survey report								
8,2	Prepare database that given to the Client								

8,3	Include methodology of 1 <sup>st</sup> round selection process and its findings into the report								
8,4	Include methodology of 2 <sup>nd</sup> round selection process and its findings into the report								
8,5	Prepare database for 1 <sup>st</sup> and 2 <sup>nd</sup> round selection process								
8,6	Inegrate methodologies of 1 <sup>st</sup> and 2 <sup>nd</sup> round selection process and its activities into the survey report according to the questionnaires								
8,7	Process survey findings and results on Power BI program								
<b>9</b>	<b>Write report, report and submit the results</b>								
9,1	Write report-I of the acitivities								
9,2	Submit report-I of the activities								
9,3	Stakeholders discuss about the documents and contracts for financial report and evaluation								
9,4	Write report-II of the activities								
9,5	Submit report-II of theactivities								
9,6	Write final report								
9,7	Submit financial report of the survey								
9,8	Submit database of the survey								
9,9	Conduct trainings on methodologies of the 1 <sup>st</sup> and 2 <sup>nd</sup> round selection process and its database								
9,10.	Discuss and finalize the final report								
9,11	Submit final report to the Client								

### 1.3. The structure of the survey team and work allocation

**Table 2. Allocations of work**

№	Role	Full name	Position	Responsibilites
1.	Project leader	A.Selenge	Director	Responsible for managing overall research, analyzing data, developing reports and in charge of contacting with the Client, and responsible for the submission of survey and its archive.
2.	Team leader	B.Oyuntungalag	Doctor, senior Professor of School Civil Engineering and Architecture, Mongolian University of Science and Technology	Responsible for creating database and analysis data, data gathering and its monitoring, developing related reports
3.	Researcher	N.Munkhuu	Doctor, senior Professor of School Civil Engineering and Architecture, Mongolian University of Science and Technology	Responsible for developing method and methodology, collecting survey, analyzing gathered data and developing the report
4.	PR manager	D.Gerelt-Od	Content developer	Responsible for cooperating with massmedia and monitoring the data collecting procedure
5.	Specialist for Social media	A.Ernkhemsai Khan	Designer for Social Medias	Responsible for developing contents, designing flyers and contents, inserting and processing gathered data
6.	Researcher	M.Nyamkhuu		Responsible for creating database on Power BI program and inserting database into this program



7.	Researcher	B.Udval	MA	Collect data, monitor and insert data into the system
8.	Research assistant	M.Azzaya	MA	Collect data, monitor and responsible for distributing survey information
9.	Research assistant	S.Chimedtseren	MA	Collect data, monitor and responsible for distributing survey information
10.	Research assistant	D.Delgermurun	MA	Collect data, monitor and responsible for distributing survey information, insert data into the system, develop survey report, support for organizing 2 <sup>nd</sup> round selection process
11.	Interviewer	B.Mendbayar	MA	Collect survey and monitor
12.	Interviewer	T.Azjargal	MA	Collect survey and monitor
13.	Interviewer	B.Munkhchimeg	MA	Collect survey and monitor
14.	Interviewer	Z.Ariunzul	MA	Collect survey and monitor
15.	Interviewer	B.Sanchir	MA	Collect survey and monitor
16.	Interviewer	A.Oyunnomin	MA	Collect survey, monitor and insert data into the system
17.	Interviewer	B.Enkhzul	MA	Collect survey, monitor and insert data into the system
18.	Interviewer	T.Tuvshinzaya	MA	Collect survey, monitoring and insert data to the system
19.	Interviewer	L.Munkhbaatar	MA	Collect survey, monitor and insert data into the system
20.	Interviewer	M.Odonkhuu	MA	Collect survey, monitor and insert data into the system
21.	Interviewer	B.Ariuntuya	MA	Collect survey, monitor and insert data into the system
22.	Operator	T.Yanjindulam	MA	Insert data into the system
23.	Operator	B.Khongorzul	MA	Insert data into the system
24.	Operator	N.Ulziinyam	MA	Insert data into the system
25.	Operator	G.Enkhzul	MA	Insert data into the system
26.	Operator	B.Oyunkhand	MA	Insert data into the system



## 1.4 Survey challenges

The study has a shortage of choosing uncomfortable time period. In other words, the weather was cold and most of the construction work were stopped simultaneously. Therefore, it is necessary to organize research work with as many people as possible.



**Picture 1. Survey filling procedure of the brigades during the lunch time**

On the other hand, the work condition in the construction sector is impossible to stop longer and there was always inadequate situation to be safe at the workplace for surveying and getting proper results. Therefore, depending on the time of day, the only suitable time zones to access the construction object are lunch hours, before start work or at the end of work.



**Picture 2. Survey filling procedure of brigades's members**

#### 1.4. Scope of the survey and sampling method

The survey was conducted in 6 districts of Ulaanbaatar city by covering 300 MSMEs in accordance with the requirements of the client, even further there are 500 citizens can be involved who are interested in the construction sector.

If looking at similar projects completed in other countries besides brigades which are operating in construction sector, it is likely to be cheaper and more sustainable workforce by involving citizens who are interested in construction sector in the future. In Mongolia, the most of the construction workforce is formed by individuals with low labor costs. According to the base of discussion with project clients, the possible target group defined for the better outcome of the project and participated in the survey are citizens with work experience of construction work.

Thus, the research team has expanded the scope of the survey by publicizing advertisements and project presentations on social medias, FM radios, daily news and newspapers, clients' and information websites in the marketplaces where could get more targets. There was formed convenient environment to involve more citizens who were willing to learn about technological solutions to reduce heat loss in the ger areas and to express their fulfilment to work on voluntary basis.

The legal entities of the construction sector involved in the survey were selected by multi stratified sampling method.

#### 1.5. Training procedure of preparing research assistants

The main activity for gathering real data is to prepare the researcher. Therefore, there were conducted training about research methodology, guidance, sampling and questionnaires method, how to start research and supervise before start study.



**Picture 3. Training procedure of survey methodology to the Research assistants**

The training included wide range of issues such as gathering research data, understanding the basic content of the questionnaire to be collected from the survey participants, the methodology for collecting research data, techniques, the nature of the survey questionnaire and its concept.

The training for the leaders and researchers about collecting data of pilot survey and main research was conducted on the 5th day of November 2018 in the training hall of Advanced University in Business of Mongolian University of Science and Technology.

### 1.6. The structure of the survey questionnaires and interview

The survey questionnaire was developed based on the interest and the work results of the stakeholders. The questionnaire paper was renewed and amended by the suggestions of project stakeholders in GERES Mongolia organization, consultants who were previously worked on the same projects in different countries as well as reflecting the conditions.

#### 1. The questionnaires for indicating the resource, capacity and interests of the brigades or MSMEs operating in the construction sector

The questionnaire consists of total 43 questions. The survey questionnaire is divided into the following sections. These include:

- 1) Information about brigade and organisation;
- 2) The interest of the participation in work that we offer;
- 3) If interested in installing insulation in houses in ger areas, interviews from the leader of the brigades.

The pilot survey were conducted in accordance with questionnaires above and as a result of the pilot survey, there were made some amendments in the survey questionnaires according to the experimental study.



**Picture 4. Training procedure about the methodology and pilot survey to the researchers**



## **2. Survey questionnaire from the citizen / interested in working in the construction sector /**

The questionnaire consists of 43 questions (Annex 3). The survey questionnaire splits into the following four groups. These are:

- 1) General information;
- 2) Working experience and skills;
- 3) The interest of the participant;
- 4) Training and financial needs;

The pilot survey were conducted in accordance with questionnaires above and as a result of the pilot survey, there were made some amendments in the survey questionnaires according to the experimental study.

### **1.7. The structure of the pilot survey and its procedure**

The pilot surveys were conducted as a small sample of the main survey and strictly followed the methodology proposed to the baseline of the main survey. The sampling for the pilot survey was covered 10 brigades and 20 individuals' targets in the construction sector in Ulaanbaatar city. The data gathering of the pilot survey was carried out by the questionnaires, and the questionnaire was focused on improving the questionnaires through individual interviews.

#### **1.7.1. Implementation of the data collection process**

A survey researcher (interviewer) surveyed the targeted population by the questionnaire based on statistical methodology. The researcher asked the approved questionnaire questions from the participants individually and filled in on the questionnaire. (Picture 5-6)



**Picture 5. Survey collecting process with approved questionnaires**

The pilot survey were conducted from 25 to 26 of October, 2018. The gathered information were checked after completion of each survey at the same time and were 100 percent monitored by the phone.



***Picture 6. Survey process***

#### 1.7.2. Data processing

The data was inputted on SPSS 22.0 (Statistical Package for the Social Sciences) statistical program. The data was inputted with the support of using tools of latest data entering tools of statistical SPSS program and data examining tools. The examination of data inputting process had been done by the following methods. (Picture 7-8)



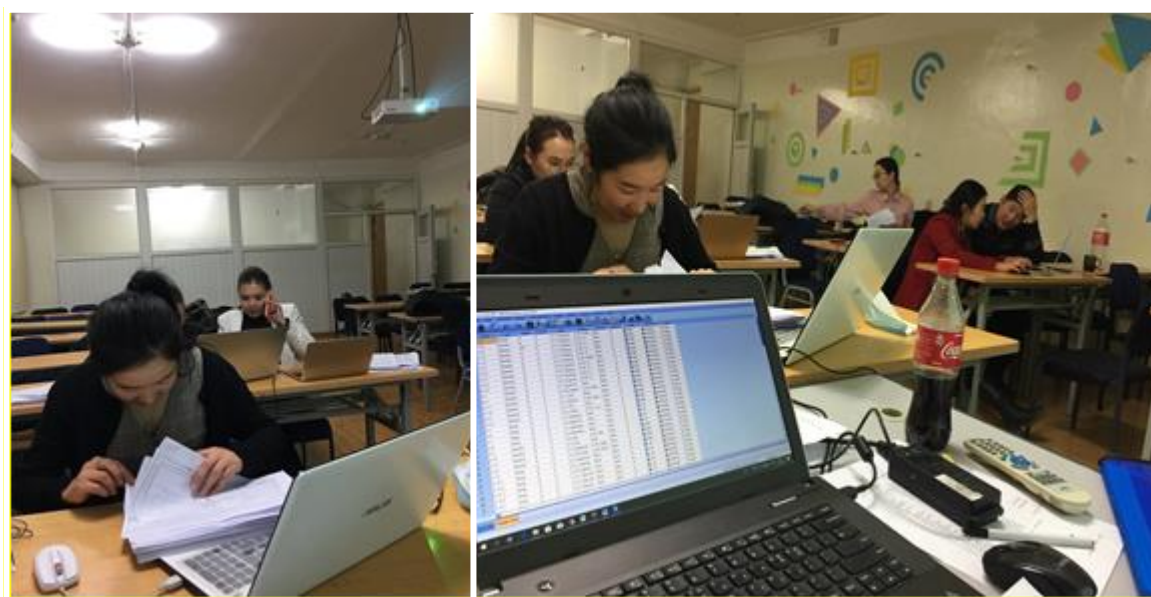
***Picture 7. The procedure of preparing database and providing guidelines to the researchers and operators***

1. To remind to enter a response on each question in order to prevent from omitting answers;
2. To remind when input data with code that is not included in the response or the value input is exceeded from the limit.

After inputting data, the examination process had been done by using tool of indicator of SPSS errors as the following:

1. **Basic test:** Ensure all questions are fully answered and check if the bound is correct;
2. **Testing of probability of the values:** Test the value whether there is significant value exceeded from the possible bias;
3. **Correlation and logical tests based on statistical analysis:** Test the correlations of values, logical correlation and examine if the summary of the value equal to the total score;
4. **Testing the data inputting program:** Basic test, computing probabilities of the values and correlation test will be included;
5. **Examining the testing program:** Examining the testing program and other additional testing will be included.

After the completion of data inputting into SPSS 22.0 program, the data will be created and analyzed in Power BI program. (Picture 8).



*Picture 8. The process of computing gathered data and its monitoring*

## CHAPTER 2. THE RESULT OF THE SURVEY INVOLVED MSMEs (Brigades)

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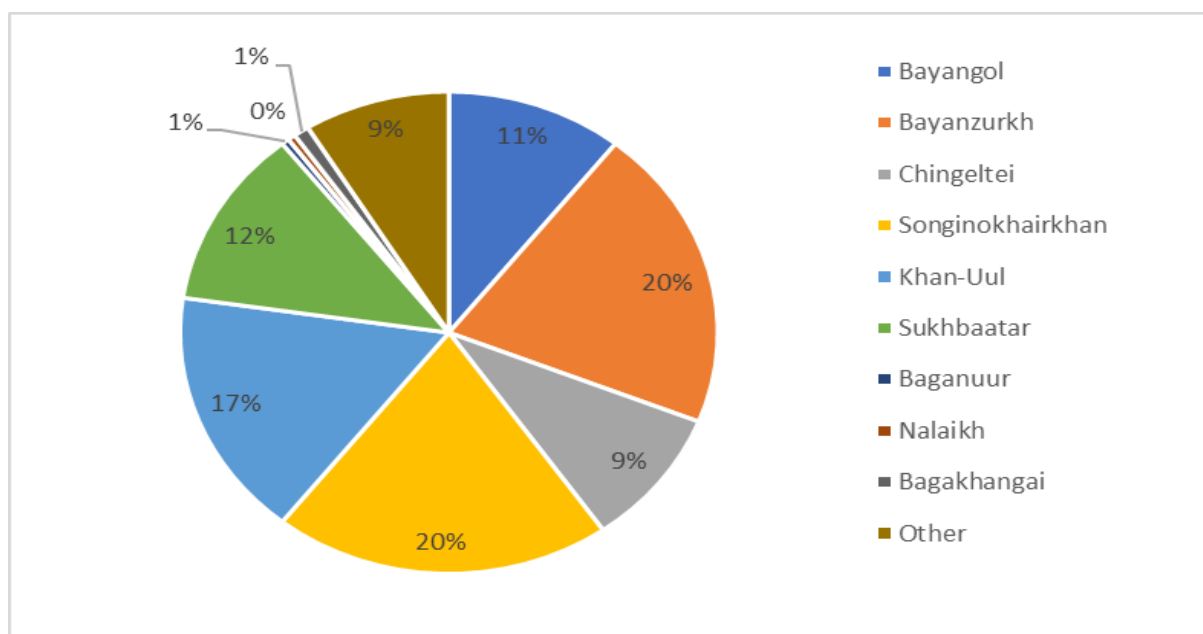
Until the 1990s, the workers with construction qualification were at least depended on a construction organization, and the organization was able to deploy their staff into different brigades based on their occupational variants and were able to work conjunctly organized. But since the transition into the market economy, Mongolian contractors have been split into small sectors, uncertain dependance and created unconfined brigades. According to the unofficial sources, nowadays, there are 22,000 skilled workers of construction and more than 10 thousand of the main construction building brigades have been building construction spreadly without any supervision across the country.

During the process of the survey, it was common that brigades have worked with contracts or without contract with investors, clients, executant organisations, but after complete their performances, they are hardly paid on time or even fail to get paid. 89 (41 percent) of respondents said that they have at least three times experience on unable to get paid for the last 3 years. Also, in most of the contracts made with brigades addressed that brigades shall be responsible for their own wages, workplace safety and protection uniforms. In addition, the survey has proved that brigades do not pay any taxes to the government such as social insurance, health insurance, accident prevention insurance, and income taxes.

The surveying procedure of the brigades operating in Ulaanbaatar city started from 12th November 2018. This is due to the cause of simultaneous action with the running down period of construction work, there were participated and surveyed brigades in 6 districts of Ulaanbaatar city in accordance with contract such as Bayangol, Sukhbaatar, Bayanzurkh, Khan-Uul, Songinokhairkhan, Chingeltei and even other districts as broadening the research area as well as involved some other brigades operating in other feasible provinces. On the other hand, with the reason of unclear situation to collect enough data from the brigades (due to short-term and seasonal stops), the research teams had discussed and agreed to involve citizens in the survey who interested to work in the construction sector. All of this is aimed to provide a sustainable workforce for installing insulation in the ger areas.



The survey was covered 224 brigades and 217 of them were valid. A database with valid brigade's survey was computed on SPSS and POWER BI programs (Picture 53-64)

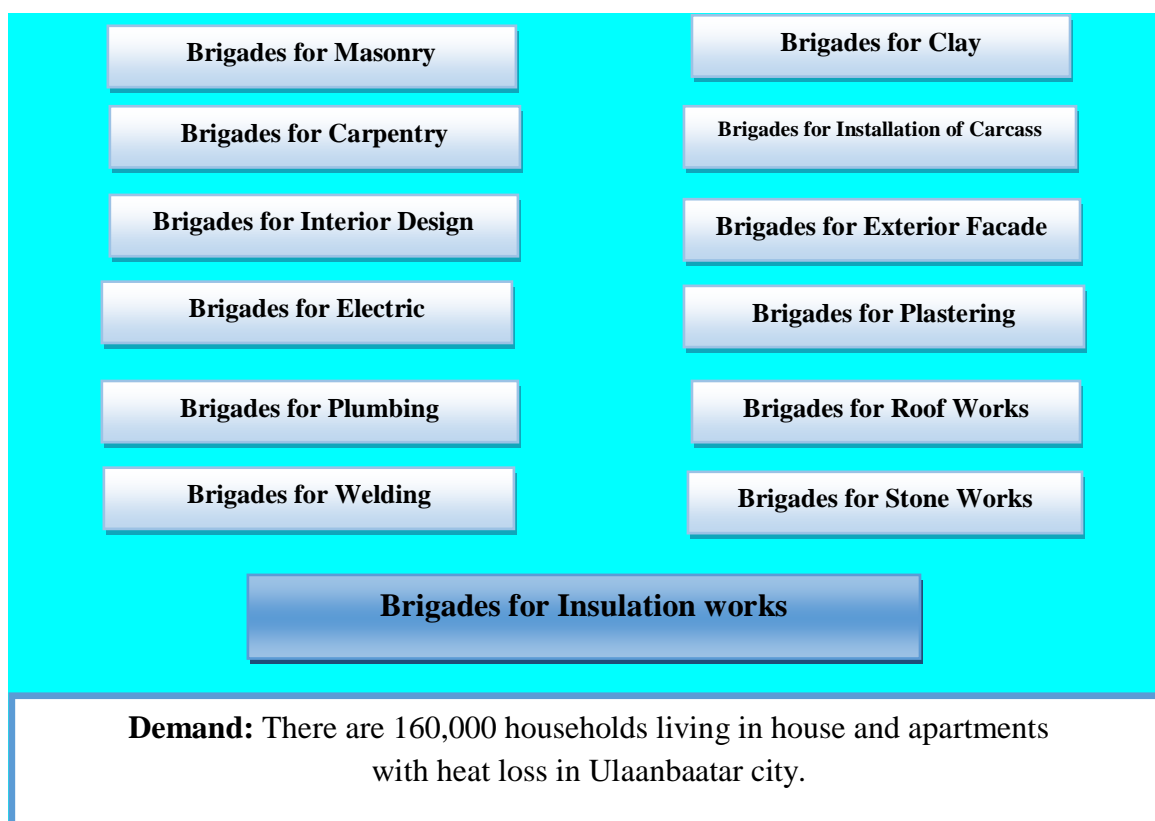


**Picture 9. Locations of the brigades' operations by districts**

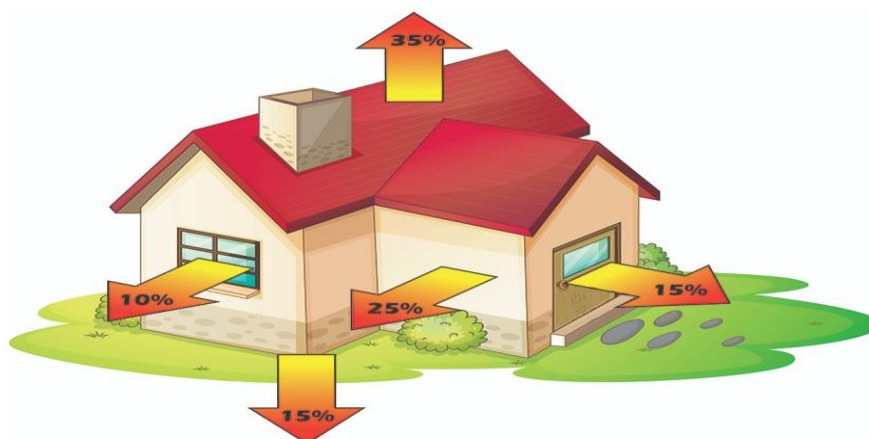
44 brigades out of 217 valid surveys or 20 percent of the total survey population were operating in Bayanzurkh, 44 (20 percent) in Songinokhairkhan, 36 (17 percent) in Khan-Uul, 26 (12 percent) in Sukhbaatar, 23 (11 percent) in Bayangol and 20 (9 percent) in Chingeltei district were involved (Picture 9). With the reason of hardly finding population from those, who were working in the brigades go to anywhere if there is available work, there were involved brigades from Nalaikh, Baganuur, Bagakhangai besides 6 districts and from other countryside area for preventing the risk of less population than confirmed numbers in the study; and on the other hand, the duration of the study coincided with the running down season of the construction. It accounts for about 11 percent of the total study.

Today, there were total 12 types of brigades operating in the construction sector. The number of brigade members has been observed to be variable in terms of work size. According to the survey, one brigade has an average of 4 permanent members and can be expanded working feasibly with 10-20 people, even more up to 140 people. In other words, it is based on 4 permanent members of the brigade with more people hired by an ad for their execution in the brigade.





Within our target tasks, households evaluated as heat lossing provide tailored solutions for them that creates new workplaces and opportunities to increase incomes of brigades and individuals by training and coaching technical solutions for MSMEs.



**Picture 10. Types of heat loss in house**

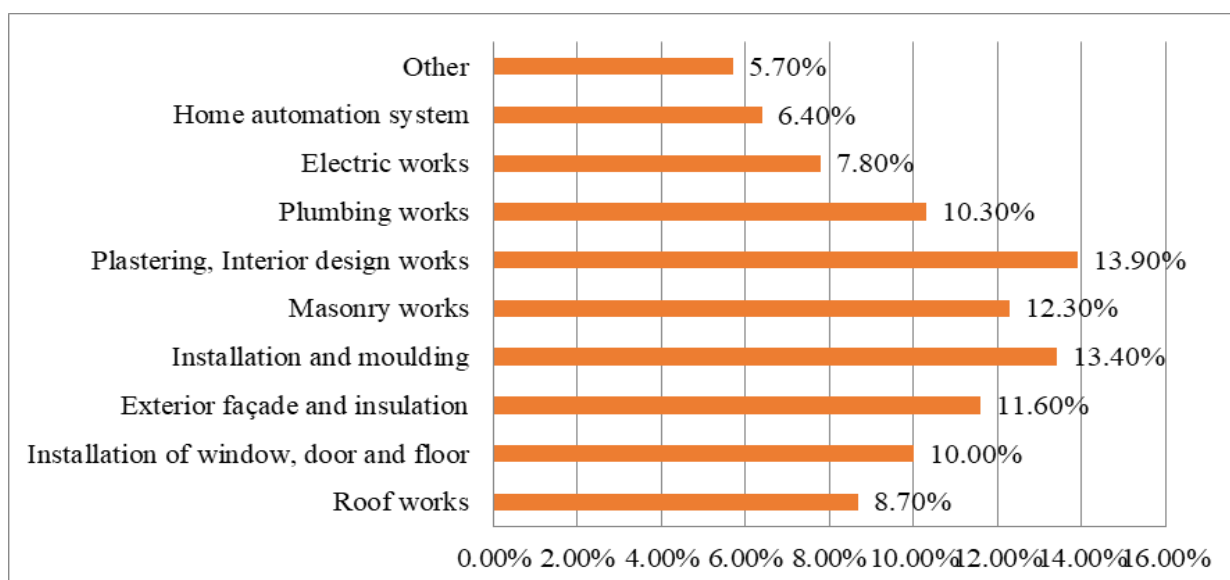
**FOR YOUR INFORMATION:** The worse is the insulation system, the higher heat loss occurs from the building while spending high cost on energy. The private houses are often constructed without architectural design that leads to having not enough heating and therefore, there are many problems associated with the heating and the cost of living and increase the amounts of coal to raise air pollution. The building loses heat in two different ways.

**By transferring warmth.** The loss of heat depends on how well the walls, ceilings and floors are insulated. Glass cotton, foam, felt, mineral sponge and sawdust are good insulation as it transfers warm poorly. Therefore, if using these materials on the insulation system of construction as additional material, it would reduce the heat loss.

**25% of total heat losses are caused by windows, 25% by walls, 35% by ceiling or by pavement, and about 10% by the floor. (Picture 10)**

**By transmitting air.** There would be created many gaps and pits between the main joint assembly (wall-window) caused by selecting poorly qualified structure /especially window/ and incomplete performance on construction compiling or inappropriate technology. Through these gaps and pits, there is cold air coming into the building during the cold season, and it will consume a lot of energy. 25-35 per cent of the total heat loss is related to this reason.

The brigades involved in the study, there were 76 out of them or 36.2 percent of companies had specialized licenses of LLC in construction, 31 or 14.8 percent of them didn't have specialized licenses of LLC in construction, 91 or 43.3 percent of them were unlicensed brigades, and 19 (8.7 percent) of brigade had unknown status to identify. Most of the leaders in the brigades 177 (83.1 percent) are men.

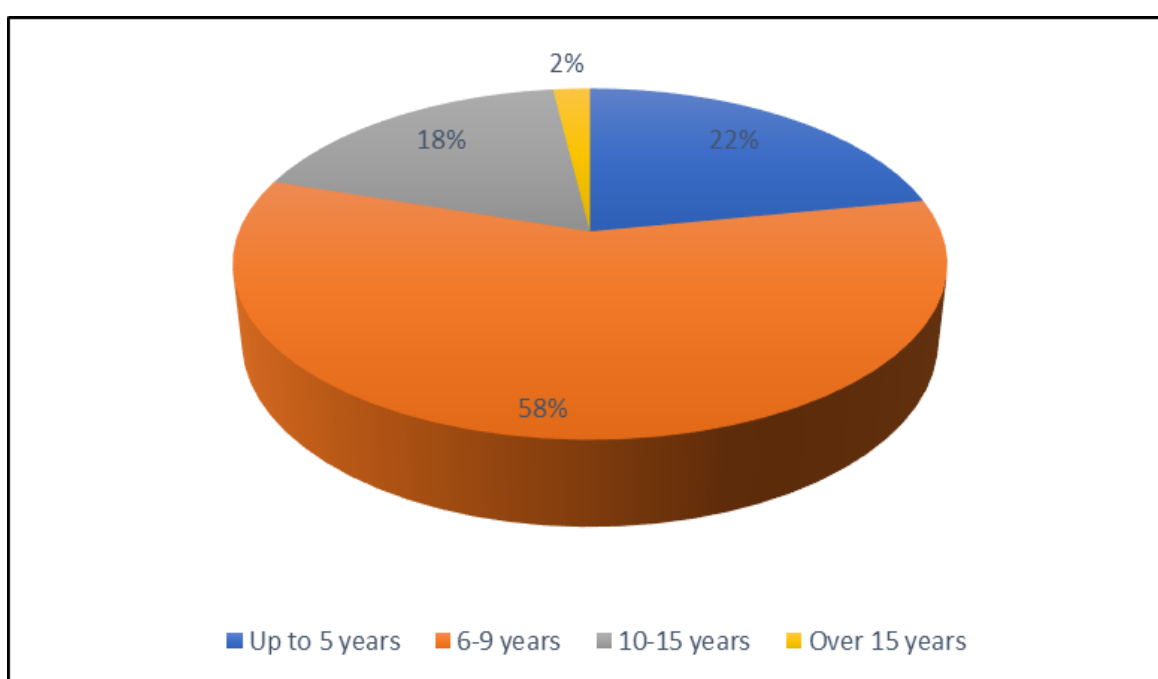


**Picture 11. Types of operations of brigades**

The operations of the brigades were studied in 10 different fields including roof works, installation of door and windows, exterior facade, moulding, masonry works, plastering and interior design, plumbing, electrical work, home automation system and other. The survey shows that brigades operate in several types of activities.

107 or 13.9 percent of the brigade participated in the survey (by the numbers of coincident operations) operate in plastering and interior design, 103 (13.4 percent) of them in installation and moulding, 95 (12.3 percent) of them in masonry work, 89 (11.6 percent) of them in exterior facade and insulation, (10.3 percent) of them in plumbing, 67 (8.7 percent) of them in roof work, 60 (7.8 percent) in electrical work and 49 (6.4 percent) of them in home automation system (Picture 11).

In the survey, there were total 39 (22 percent) of the brigades with up to 5 years experience, 104 (58 percent) of brigades with 6-9 years experience, 32 (18 percent) of brigades with 10 to 15 years experience, and 6 brigades (2 percent) were with over 16 years experience. All brigades participated in the survey had experiences in tconstruction sector.



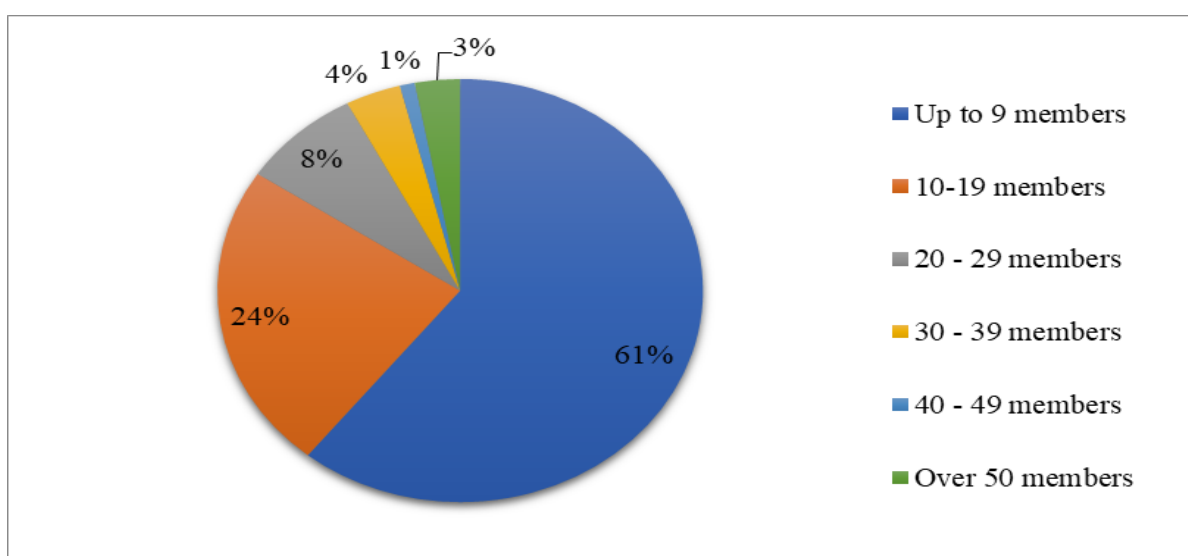
**Picture 12. Work experiences of the brigades in construction sector, by years**

The numbers of brigade members were varies, and 132 (61 percent) of the brigades were with up to 9 members, 51 (24 percent) of the brigades were with 10-19 members, 17 (8 percent) of the brigades were with 20-29 members, 8 (4 percent) of the brigades were with 30-39 members and 8(4 percent) of the brigades were with over 40 members. According to this evaluation, the numbers of brigades' main members usually were 3-6, and if necessary to add more supporting members, the brigade members can be increased up to 140 members. During the survey in November, the most of the construction work were stopped and the period of interior designs started while receiving heat, but the number of members in the brigade closely relied on its work characteristics. (Picture 13, 14).



**Picture 13. Brigades were participating in the survey**

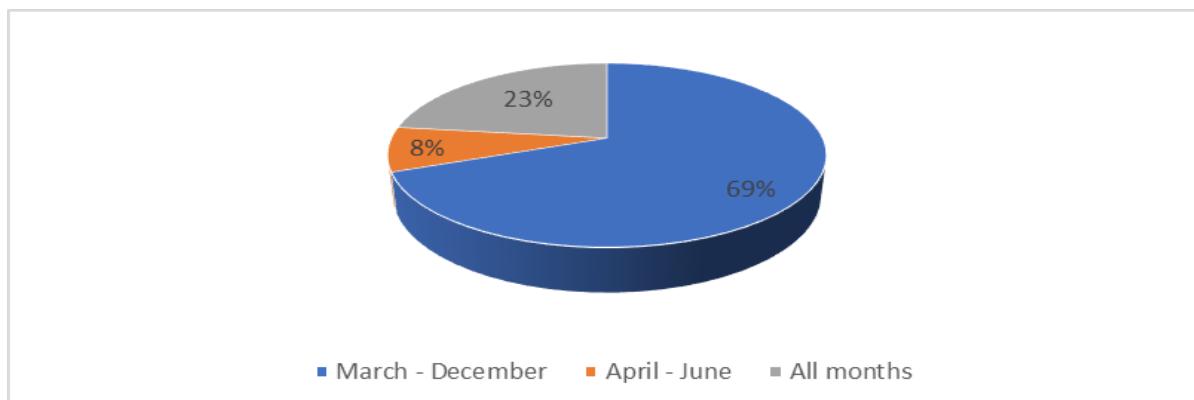
The construction sector is seasonal and brigades typically work during warm seasons from March to December. In other words, 150 (69 percent) of brigades participated in this survey work with more workflow between March to December. Also, 50 (23 percent) of brigades participated in this survey operate throughout four seasons. In other words, construction sector is active during four seasons using modern techniques and on the other hand, it is depends on the brigades operations to involve in other projects for interior works.



**Picture 14. The numbers of permanent members in brigade**

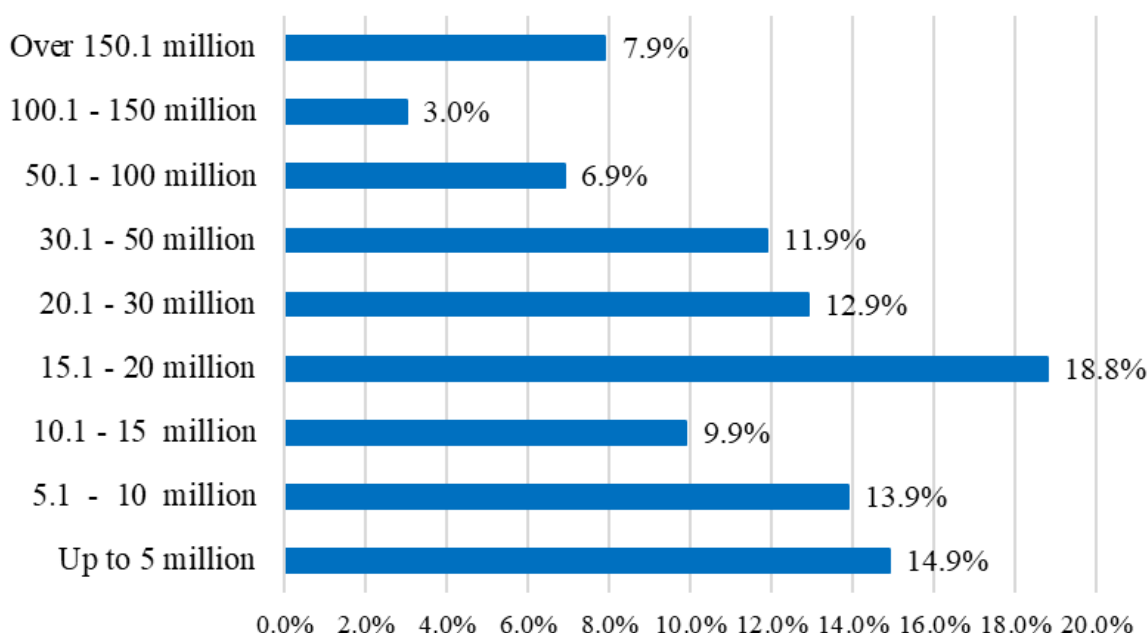
In other words, the brigades were willing to work during four seasons. Also, the survey shows that they would like to involve in training in this area. In this survey, 17

(8 percent) of brigades only work actively from April to June. These brigades are mostly work in roof works (Picture 15).



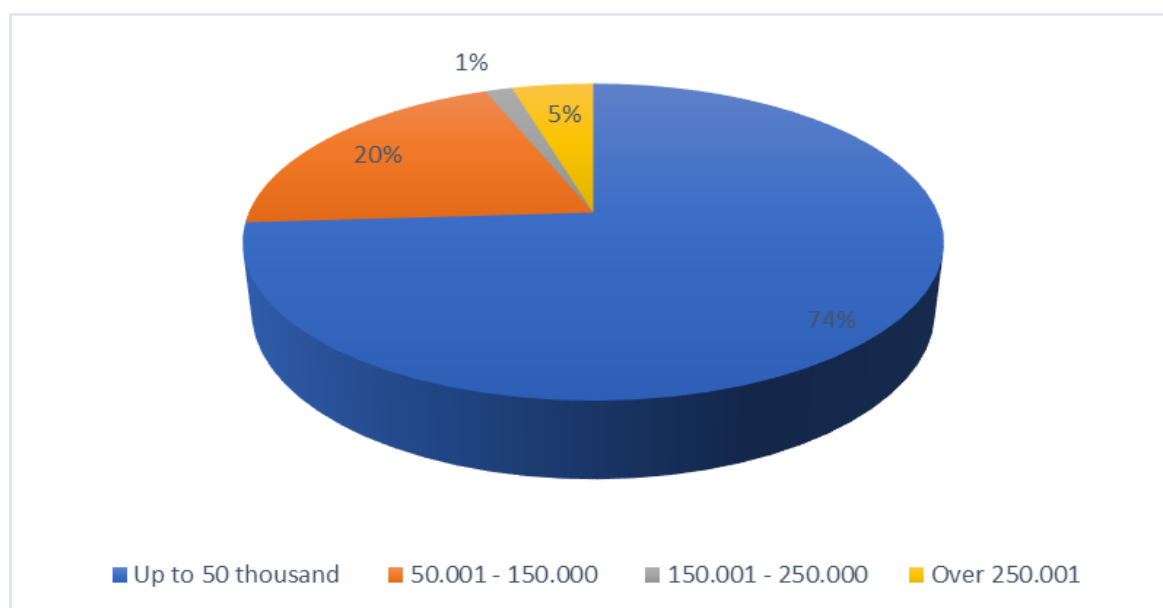
**Picture 15. Active months of brigades' operation**

70 percent of the brigade earns up to 30 million MNT, annually. 15 (14.9 percent) of the brigade responded that they earn up to 15 million MNT annually, 14 (13.9 percent) of them earn from 5.1 to 10 million MNT, 10 (9.9 percent) of them earn from 10.1 to 15 million MNT, 19 (18.8 percent) of them earn from 15.1 to 20 million MNT, 13 (12.9 percent) of them earn from 20.1 to 30 million MNT, 12 (11.9 percent) of them earn from 30.1 to 50 million MNT, 7 (6.9 percent) of them earn from 50.1 to 100 million MNT and 11 (10.9 percent) of them earn over 100.1 million MNT (Picture 16) annually.



**Picture 16. Total annual income of the brigades**

Construction work is often assessed by performance and the case of supporting workers get paid daily. In the survey, 146 of the brigade's member (74 percent) of them earns up to 50 thousand MNT daily, 40 (20 percent) of them earn between 50,001 and 150,000 MNT daily, 3 (1.5 percent) of them earn between 150,001 and 250,000 MNT daily and 9 (4.5 percent) of them earn over 250,001 MNT daily (Picture 17).



**Picture 17. Average wage of members of the brigades per day during the active season**

For looking at annual wage of the brigades by their operation types, it is not dependent on whether they are LLC or not, licensed or unlicensed in construction sector (Table 3), whereas it depends on their work size. There is a probability that there is more opportunity to find work if they are legal entities, but it doesn't affect to their work payment.

**Table 3. Annual income of the brigades, by forms of organization**

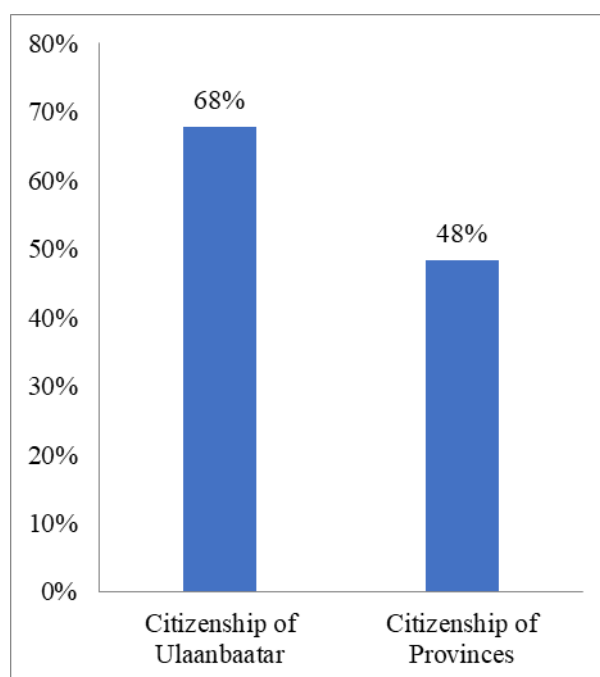
Annual income (Million tugriks)	LLC	Construction licensed	Non-licensed	Unspecified	Total
Up to 5 million	4 (26.7 percent)	5 (33.3 percent)	5 (33.3 percent)	1 (6.7 percent)	15 (15.3 percent)
5.1 - 10.0	1 (7.7 percent)	6 (46.2 percent)	6 (46.2 percent)	0	13 (13.3 percent)
10.1 - 15.0	2 (22.2 percent)	2 (22.2 percent)	5 (55.6 percent)	0	9 (9.2 percent)
15.1 - 20.0	3 (16.7 percent)	7(38.9 percent)	7(38.9 percent)	1 (5.6 percent)	18 (18.4 percent)
20.1 - 30.0	2 (15.4 percent)	6 (46.2 percent)	5 (38.5 percent)	0	13 (13.3 percent)
30.1 - 50.0	0	6 (50.0 percent)	6 (50.0 percent)	0	12 (12.2 percent)
50.1 - 100.0	1(14.3 percent)	3(42.9 percent)	3(42.9 percent)	0	7 (7.1 percent)
100.1 - 150.0	0	2(66.7 percent)	1(33.3 percent)	0	3 (3.1 percent)
Over 150.1	1 (12.5 percent)	5(62.5 percent)	1(12.5 percent)	1(12.5 percent)	8 (8.2 percent)
Total	14 (14.3 percent)	42(42.9 percent)	39(39.8 percent)	3(3.1 percent)	98 (100.0 percent)

If looking at Table below, zero correlation between the numbers of members and the annual income level of brigades are not related to each other. (Table 4 and 5).

**Table 4. Annual income of brigades, by members**

Annual income (million MNT)	Numbers of members in brigades						Total
	Up to 9 members	10 - 19 members	20 - 29 members	30 - 39 members	40 - 49 members	More than 50 members	
<b>Up to 5 million</b>	13(76.5 percent)	3 (17.6 percent)	0	0	0	1 (5.9 percent)	<b>17</b>
<b>5.1 - 10.0</b>	8 (66.7 percent)	3 (25 percent)	1 (8.3 percent)	0	0	0	<b>12</b>
<b>10.1 - 15 .0</b>	4 (40 percent)	4 (40 percent)	0	1 (10 percent)	0	1 (10 percent)	<b>10</b>
<b>15.1 - 20.0</b>	9 (42.9 percent)	10 (47.6 percent)	1 (4.8 percent)	1(4.8 percent)	0	0	<b>21</b>
<b>20.1 – 30.0</b>	8 (66.7 percent)	4 (33.3 percent)	0	0	0	0	<b>12</b>
<b>30.1 – 50.0</b>	7 (70 percent)	2 (20 percent)	1 (10 percent)	0	0	0	<b>10</b>
<b>50.1 – 100.0</b>	5 (62.5 percent)	1 (12.5 percent)	2 (25 percent)	0	0	0	<b>8</b>
<b>100.1 – 150.0</b>	1 (50 percent)	0	1 (50 percent)	0	0	0	<b>2</b>
<b>Over 150.1</b>	3 (37.5 percent)	3 (37.5 percent)	1 (12.5 percent)	1(12.5 percent)	0	0	<b>8</b>
<b>Total</b>	<b>58</b>	<b>30</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>100</b>

68 percent of the brigades' members not only citizenships of Ulaanbaatar, especially there are many of citizens from countryside for supporting workers with total coincident numbers of 48 percent (pending citizenship registration of temporary residential status of the city after migrated from countryside).(Picture 18)



**Picture 18. Citizenship status of the members in brigades**



**Table 5. Construction rate, by 26 of December, 2018**

№	Name of work	Unit	Rates /tugriks/		
			Company	Brigade	Individual
	Dredging and excavation work				
1	Dredging and excavation work /by technical instrument/	m3	10000-13500		
2	Dredging and excavation work /without technical instrument /	m3	40000-50000		
	Works rates with machinery				
3	Work rates with excavator	hourly	81250-120000		
4	Work rates with socket of excavator	hourly	70000-110000		
	Construction assembling works				
5	Floated concrete /Enterprise/	m2	130000-150000	60000-110000	70000-90000
6	Installation of carcass / Enterprise /	m2	115000-130000	45000-70000	
7	Installation of floor, ground	m2	45000-75000	30000-90000	70000-80000
8	Installation of carcass /with frame/	m2	103500-126500	80000-100000	
9	Plastering /exterior/	m2	12000-14000	8000-13000	8000-10000
10	Plastering /interior/	m2	10000-12000	8000-10000	5000
11	Masonry of bricks /38/	m3	35000-45000	30000	25000
12	Masonry of bricks /25/	m2	20000-22000	22000	25000
13	Masonry of bricks /12/	m2	10000-12500	9000-12000	7000
14	Masonry of blocks	m3	19800-24200		
	Plaster works / design works				
15	Exterior stone façade	m2	75000	40000-60000	35000-45000
16	Installation of exterior glass façade	m2	60000-120000	80000-85000	
17	Exterior foam façade	m2	25000-35000	18000-23000	25000-35000
18	Exterior siding	m2	25000-35000	13000-18000	15000
19	Install Stone floor	m2	25000-35000	16000	20000
20	Install Stone stairs	m2	18000-30000	16000	20000
21	Install Stone boards	m2	10000-15000	8000-10000	8000
22	Install water insulation and seal	m2	3000-3500	2000	2000
23	White mastic /2 phase/	m2	3500-4500	3000-3500	3000
24	Wall straighten works /Plastering/	m2	9000-12000	7000	7000
25	Ceiling straightening work	m2	4500	4000-6000	4500
26	Knapp sealing	m2	1500	1500	1000
27	Polishing	m2	1500	1000	1000
28	Emulsion /Exterior/	m2	4500-7500	4000-7000	3000
29	Emulsion /Interior/	m2	4000-4500	3500	1500
30	Sealing wallpapers	m2	5000-6000	3000-4000	2500-3000
31	Painting	m2	4000-5000	2000-3000	1500
32	Installation of doors /Exterior/	ш	45000	15000-25000	18000
33	Installation of doors /Interior/	ш	25000-35000	25000	10000-15000
34	Sealing linoleum	m2	6000	6000	2500-3500
35	To parquet floor	m2	4500-5500	5000	3000-4500
36	Smoothing of floors with concrete	m2	6500-8000	10000	5000
37	Insulation of windows	ш	15000-20000	9000-15000	10000-15000
38	Roof works	m2	25000-35000	18000-28000	18000

**Source: Website of Barilga.MN**

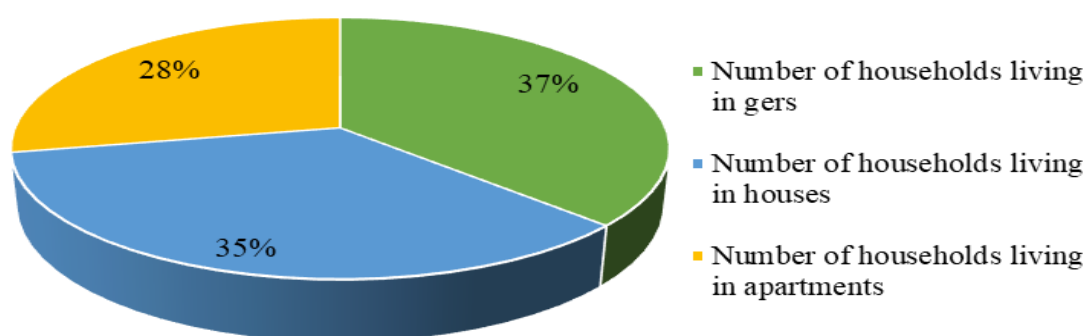
There are total 4 different types of objectives including foreigners, companies, brigades and individuals in the construction sector, but respondents responded that their market value, quality, and performance are different. For example, wages for



foreigners are approximately two times more rated. On the other hand, construction workers work by brigade system due to companies do not constantly pay their workers' social insurance tax as well as do not provide any opportunity for their self-development. These are also the main causes of brigade being in fluctuant size and operation.

110 (56 percent) of the respondents (brigade leaders) have owned loans to buy vehicles and equipments for brigade's operations. The average loan size is between 2 to 20 million MNT.

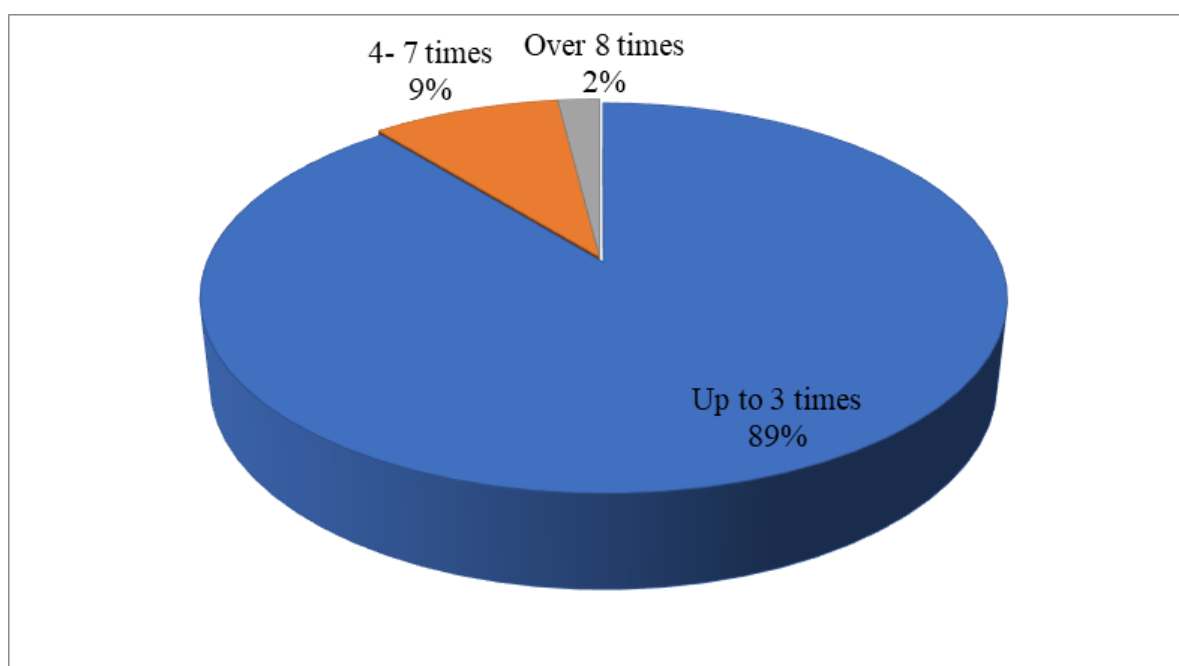
For studying the social condition of brigade members, most of them live in ger areas (Figure 19). Particularly, 184 (37 percent) of them live in gers, 176 (35 percent) of them live in houses, 141 (28 percent) of them live in apartments.



**Picture 19. Types of houses where brigades' members live**

One of the most common issues in the construction sector, particularly in the brigade is not to get paid after perform. On the one hand, it depends on the skills of the brigade and the quality of their performance, although it shows that the differences between mutual agreement, understanding and high gaps between expectation of the client and the contractor. Also, inconstant condition of investments in in the construction sector is very common, therefore they perform their work before get paid that causes them to get paid after long delay. The main issue is the contractors take advantage on the weakness of executors' legal status and require them perform by contract with one-sided interest, even sometimes they convince them to work without any contracts.

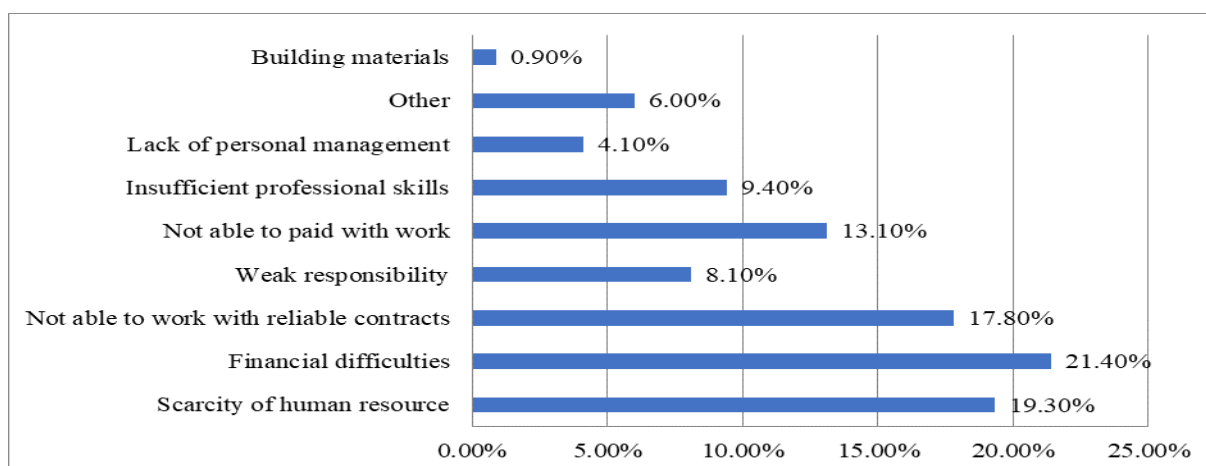
There are at least 3 cases of unpaid performances within 89 percent of the brigade participated in the survey in last three years (Picture 20). And there are 4-7 cases of 9 percent of them not paid for their performances and more than 8 cases occurred for 2 percent of them. It is not easy to get paid for their performances constantly and on time. Whereas, there are brigades and clients who have been cooperating by benefiting mutually with high quality performances. But it is very rare.



**Picture 20. The numbers of unpaid cases within last 3 years**

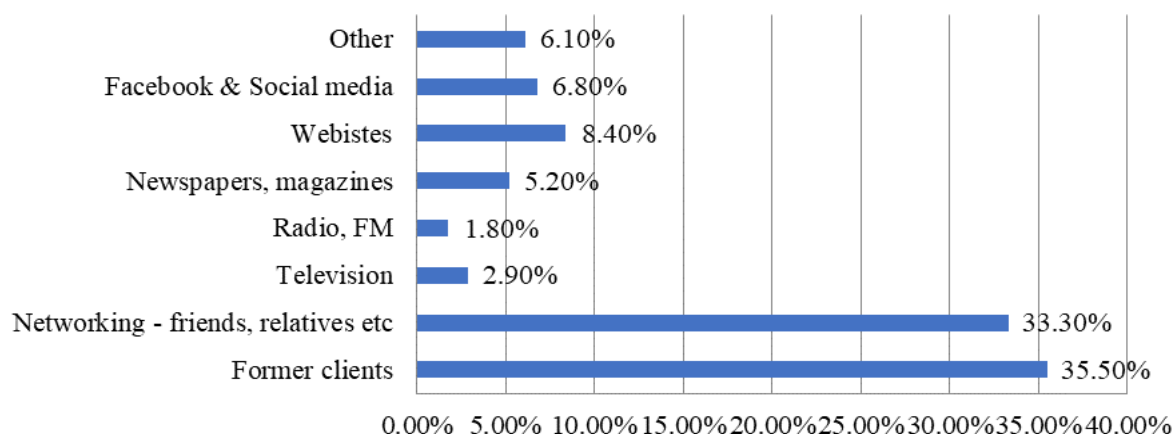
According to the survey, the participants responded that 100 (21.4 percent) of the brigades face financial difficulties, 90 (19.3 percent) of them face lack of human resource, 83 (17.8 percent) of them are unable to work by reliable contracts, 61 (13.1 percent) of them fail to get paid, 44 (9.4 percent) of them have lack of professional skills and 19 (4.1 percent) of them work without proper management (Picture 21). Financial difficulties and human resource depletion weigh higher percentage. For overcoming with these difficulties, it is crucial to have appropriate policy and leverage. Most importantly, it is essential to develop sustainable and long-term policies for human resource development.

Also, 18 percent of them responded that they are not able to work with reliable contracts. The way to improve this issue to empower employees with legal knowledge, skills and to provide them training for working at professional level and performances.



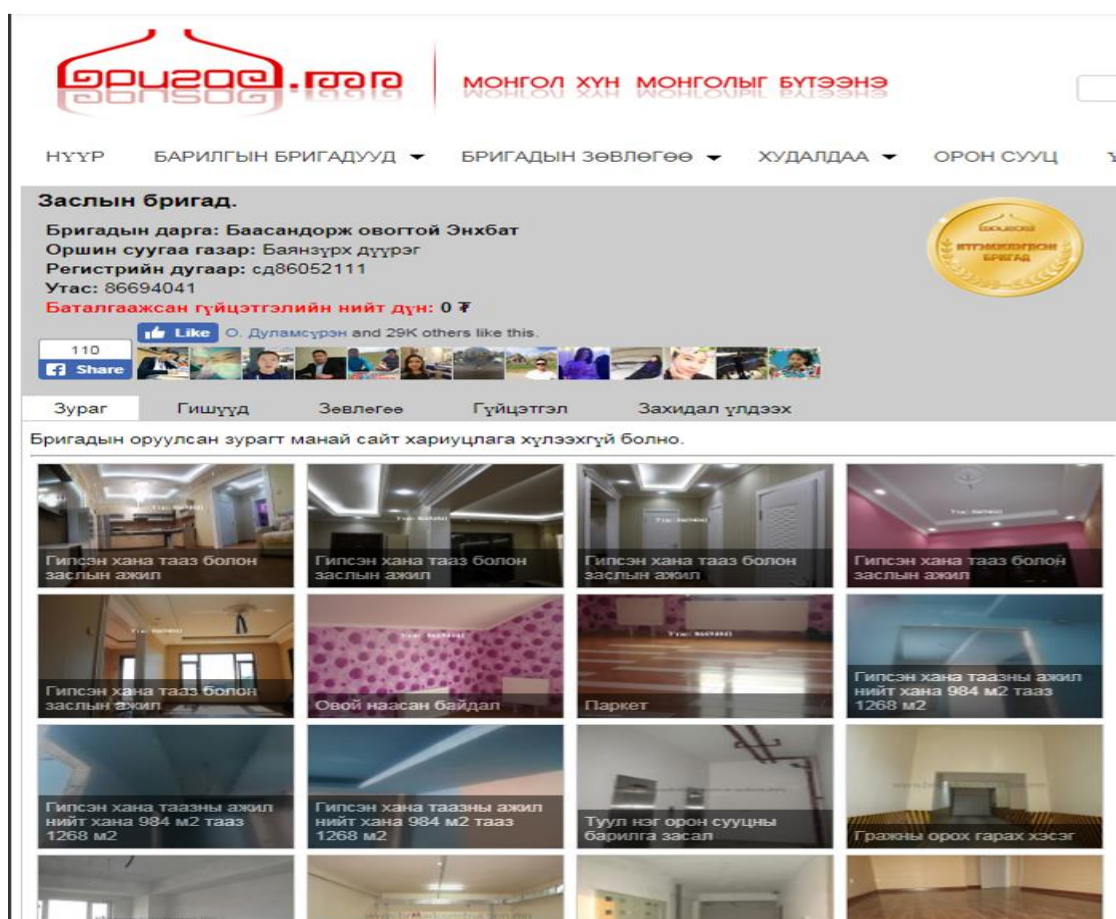
**Picture 21. Barriers that brigades face**

157 (33.5 percent) of the brigades receive next work from the previous clients, 147 (33.3 percent) of them find their next work from their friends and partners, 37 (8.4 percent) of them find it from internet websites, 30 (6.8 percent) of them find their work from FB / social networking site and FM radio (Picture 22).



**Picture 22. The channels of the brigades from where they find their work**

There are many tools encourage to find work such as Labor Agency, many different sites for ads, Facebook Group, TV and Radio that support them finding their new orders. For instance, please refer at: <http://brigad.mn/brigad/431>. (Picture 23)



Picture 23. Website of Brigad.mn

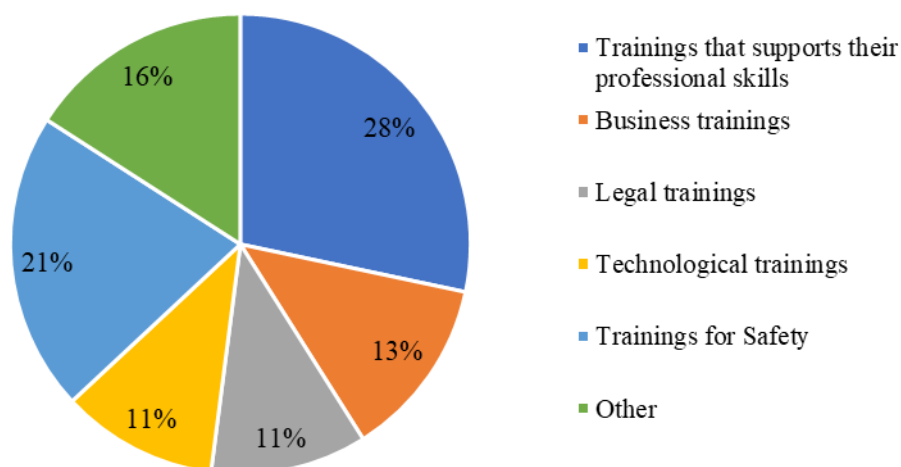
There are total 12 different types of 294 brigades have registered and find their work orders through the website shown above. (Table 6).

Table 6. Statistics of registered brigades on the website: <http://brigad.mn/>

№	Types of brigades	Number of brigades	Total numbers of members	Average numbers of members in each brigade
1	Brigades for Masonry	32	218	7
2	Brigades for Carpentry	32	213	7
3	Brigades for Interior design work	69	126	2
4	Brigades Electric works	24	72	3
5	Brigades for Plumbing	18	77	4
6	Brigades for Rebaring	16	127	8
7	Brigades for installation of carcass	46	340	7
8	Brigades for Exterior facades	17	62	4
9	Brigades for Roof works	6	20	3
10	Brigades for Plastering	12	20	2
11	Brigades for Stone works	14	35	3
12	Brigades for Welding	8	19	2
	Total	294	1329	4

The website is accredited but is not able to expand its' usage due to lack of

advertising skills of brigades on the website. There is only one brigade is on accreditinal level on this website.



**Picture 24. Types trainings necessary for the brigades**

During the survey, surveyed brigades were asked questions such as professional, business, legal, technological, labour, safety, health and other areas in order to evaluate the needs of the training (Picture 24). According to the responses, 28.3 percent of them require professional training, 21 percent of them HSE, 12.7 percent of them business and 11 percent of them required training for legal and technological skills.

66.4 percent of the brigade members have a professional certificates and they are usually permanent member of the brigade with specialized certificate in plumbing and electricity.

The most of the brigades involved in the survey use their own equipment (for each type of operations) with the cost between 300 thousand to 10 million tugrugs per tool. The equipment costed more than these amounts usually supplied by the clients. In particular, 71 percent of the respondents own specific tools which are essential factors for obtaining new work orders in the brigade market. Therefore, brigades tend to use their own tools in order to operate reularly.

70.5 percent of the brigade has been actively working in last 3 years, with a wide range of work rated from 2 million MNT for interior work of 40 m<sup>2</sup> to 1.2 billion MNT for construction work of 15,000 m<sup>2</sup>.

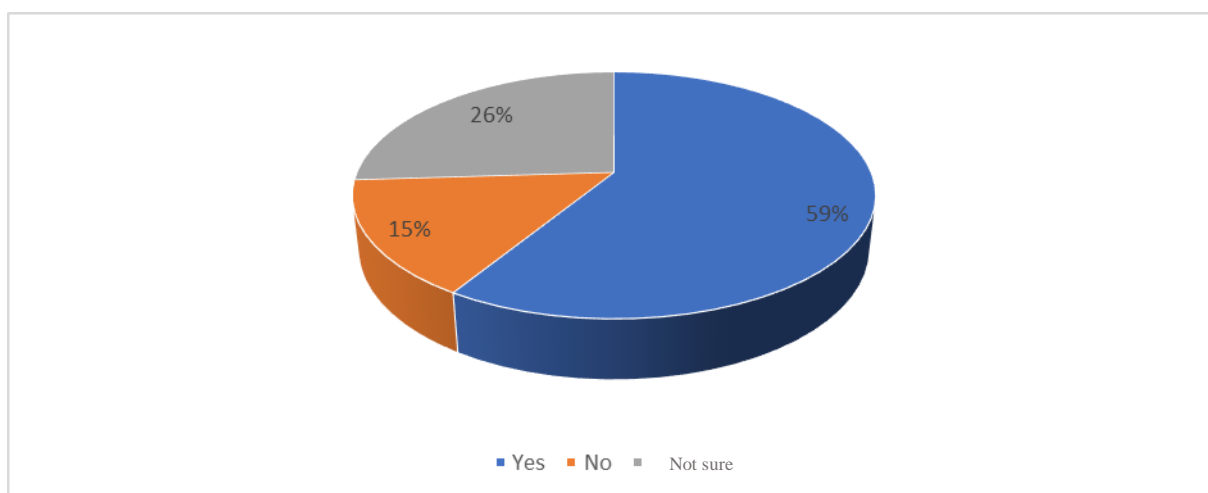
The reasons are several reasons to hire female workers in brigades as follows. These include:

1. One of the family members is a brigade leader of the brigade and mutually support on their work

2. For knitiing armature
3. For performing some detailed works such as cutting
4. There are many women working in the brigades with the puurpose of roles in interior design, mudding, painting, puttying, cleaning and cooking.

Participants provided the following conclusions about female workers. Namely, female workers more responsible for work, good at their occupation, honest, no absense, good at detailed works, neat and come on time.

When the Brigade Leaders were asked that if there were free trainings conducted for installing insulation in ger area, would they accept that offer. According to their responses, 58.8 percent of the respondents are interested to participate, 15.2 percent of them would not participate, 26 percent of them do not sure to participate. (Picture 25)



**Picture 25. Participation Interests of the brigade leaders in the project**

59 percent of them informed that they would ability to work on this project with their previuos workers such as friends or members based on their experience, professional skills, dedication, years of working experience or experiences of previuos cooperation.

In conclusion, the respondents mentioned that steadiness of the brigade can be secured by stable contract, regular work supplement and enough payment for financial stability.

## **CHAPTER 3. THE RESULTS OF THE SURVEY TO INDICATE INDIVIDUALS WILLING TO WORK IN THE CONSTRUCTION SECTOR**

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The survey for indicating individuals willing to work in the construction sector was conducted among people who work at construction material markets including “100 Ail” market, markets near Gurvaljin’s bridge and Hermes Trade Center.

Additionally, there were many people involved in the survey by contacting through by filling questionnaires through phone calls, advertising newspapers, facebook, and the other ad sites or visiting at survey conducting areas.

We could involve around 714 citizens in the survey and successfully inputted data for 665 of them into database system.

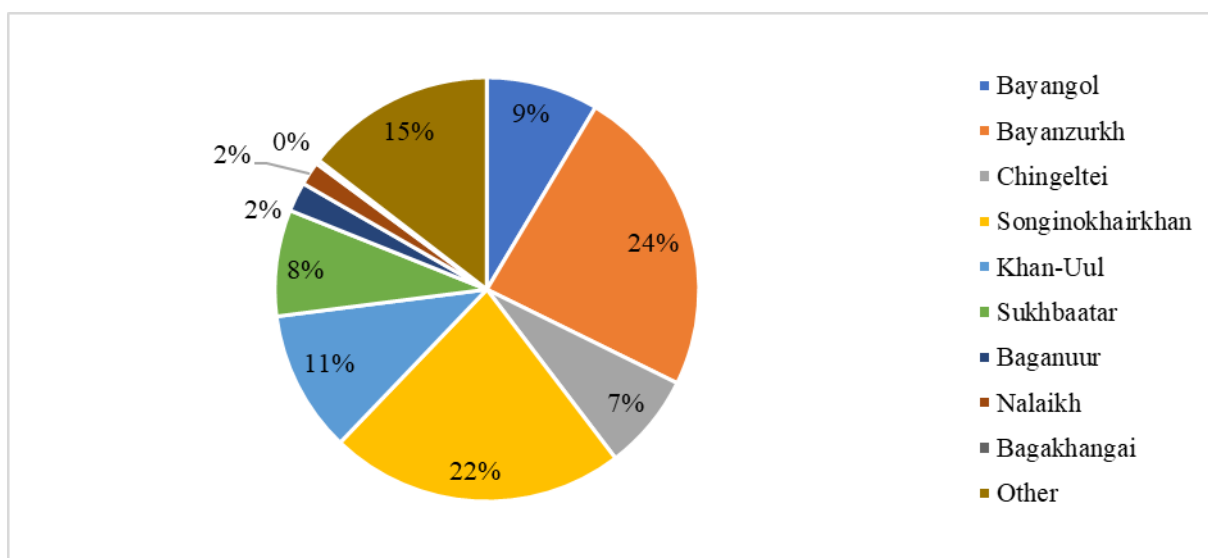
There were total 665 individuals involved in this survey who work in the construction sector and 521 (78.3 percent) of them were men and 144 (22.7 percent) of them were women as well as 412 (62 percent) of the total participants involved in the survey were interested in installing insulation in houses in ger areas and among them 331 (80.3 percent) were men and 81 (19.7 percent) were women. The overall work experiences of the all participants were equal, but the work experience in the construction sector were different as majority of them have been working in construction sector with the number of 248 (42 percent) and 191 (32.3 percent) of them have been working for 5-9 years in this sector. This result shows that construction sector has reformed and developing actively in the recent years. By the range of age group, 25 percent of them aged between 45-55 and 58 percent of them aged between 20-29 that indicates the feature of the construction sector. 379 (57 percent) of the total participants are married and aged between 40-55 years old (35.4 percent) that describes they would work permanently and the individuals aged between 20-24 are mostly not married with the weigh of (47.5 percent) and (41.2 percent) of them live with partners. For looking at family status, (59.6 percent) of them usually have 4-7 family members and (34.4 percent) of them live ger areas. In general, 74.9 percent of them have own houses. And 75 percent of them have been working in Ulaanbaatar city for the last three years.

The survey was conducted in 6 districts of Ulaanbaatar city, but there were some participants from Nalaikh, Baganuur, Bagakhangai district and other rural residents involved in the survey depended on their occupational significances. Total 83 percent of the respondents were from 6 districts of the city and 17 percent of them were



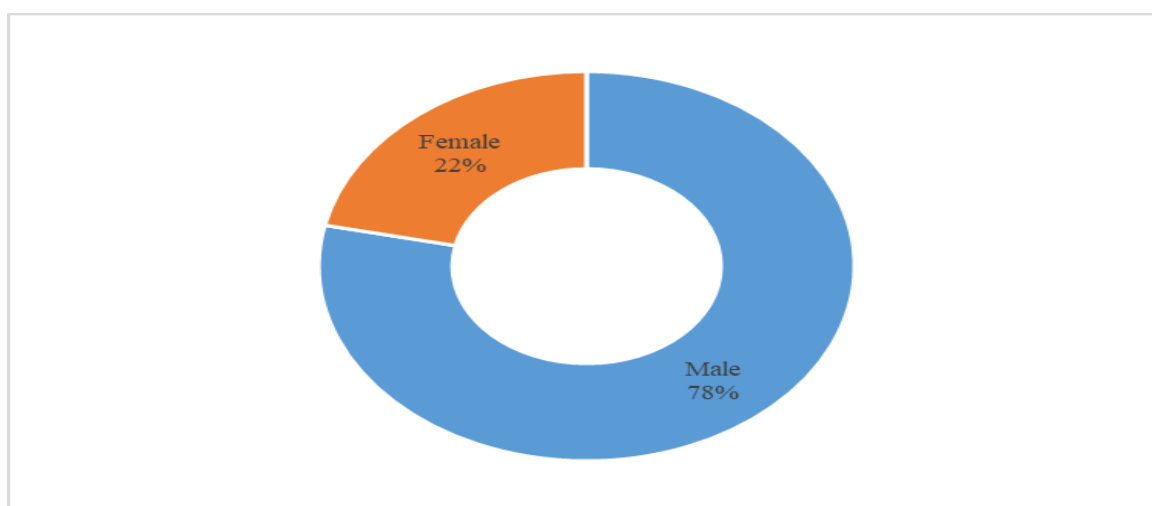
residents working in Nalaikh, Baganuur, Bagakhangai and other rural areas. By location, 158 (23.8 percent) of them work in Bayanzurkh district, 149 (22.4 percent) of them work in Songinokhairkhan district and 72 (10.8 percent) of them work in Khan-Uul district.

81 percent of the total participants involved in the survey were from target 6 target districts.



**Picture 26. Residential status of the individuals involved in the survey**

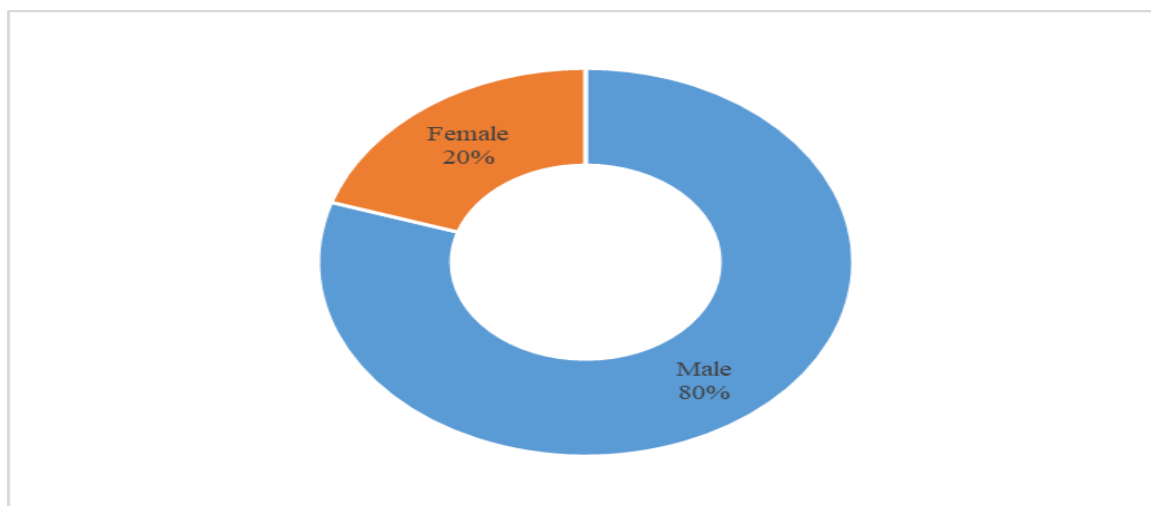
Total 521 (78.3 percent) of 665 participants were male and 144 (22.7 percent) of them were female (Picture 27).



**Picture 27. The ratio of the participants, by gender**

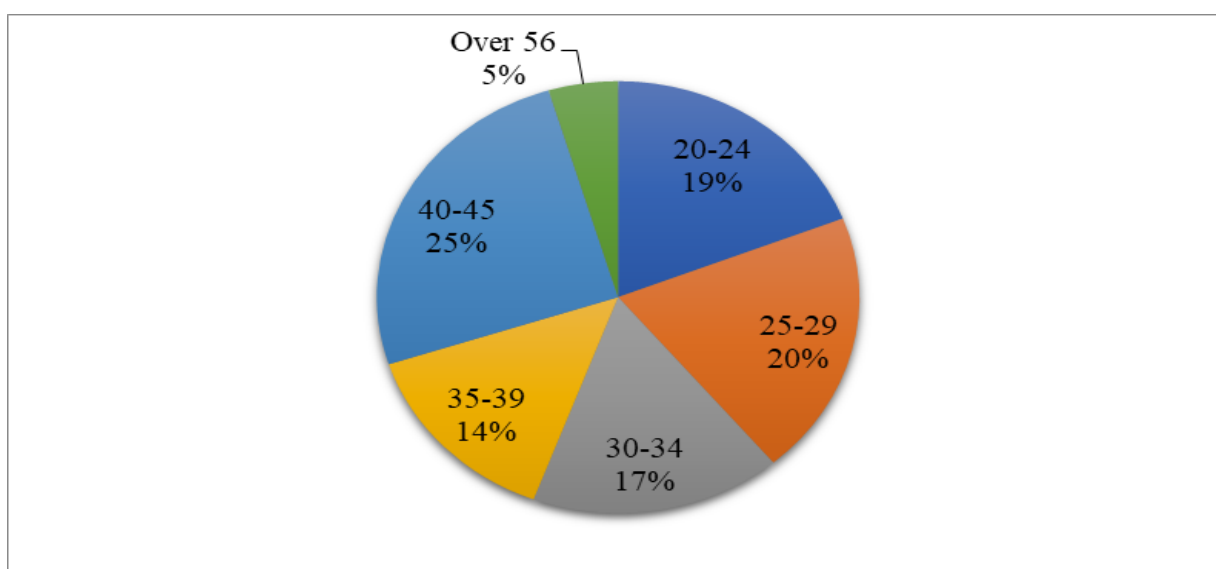
412 (62 percent) of total individuals involved in the survey are interested to insulate houses in ger area which is 331 (80.3 percent) are male and 81 (19.7 percent) are woman. (Picture 28)





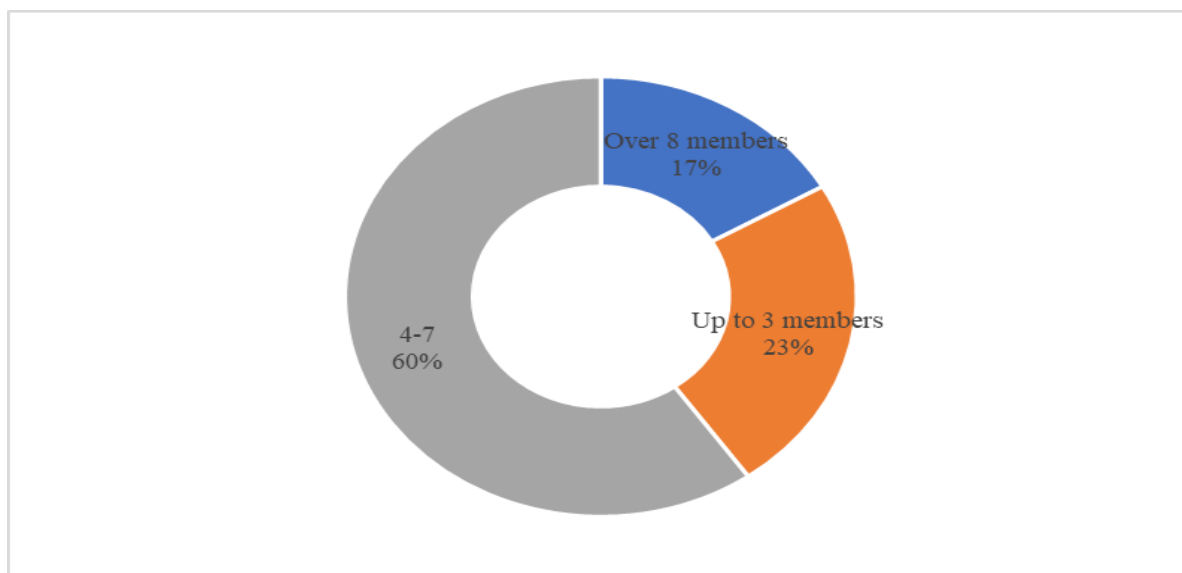
**Picture 28. The ratio of the participants who are willing to be involved in the project, by gender**

The correspondents of the participants' age are spreaded comparatively. But the level of significance and probability is high that indicates they have representative abilities. (Picture 28)



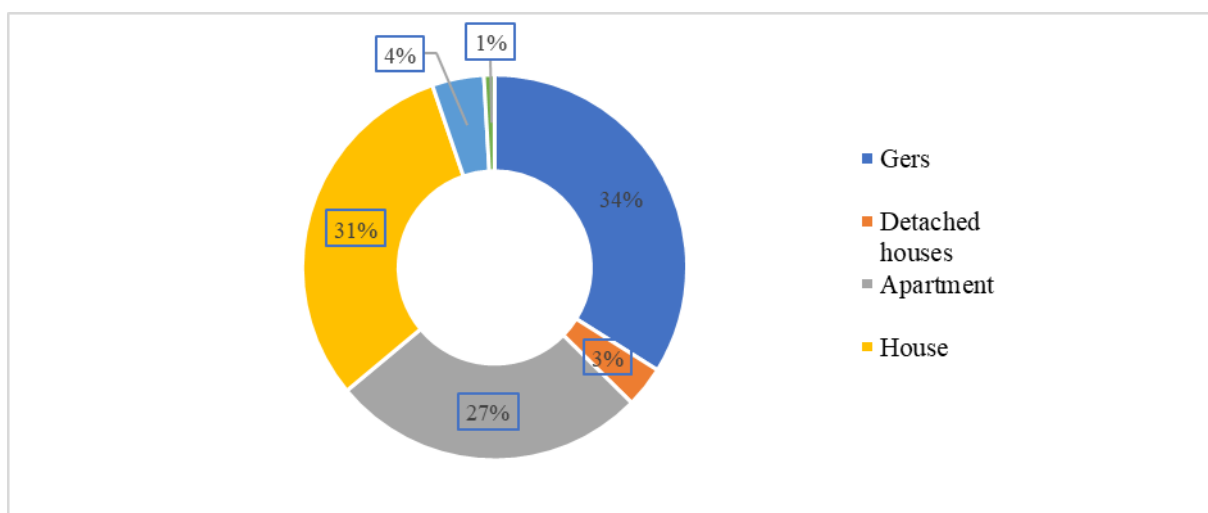
**Picture 29. Age ratio of the participants**

According to the age group, 169 (25 percent) of them aged between 40-55, 131 (19.7 percent) of them aged between 25-29, 127 (19.1 percent) of them aged between 20-24, 112 (16.8 percent) of them aged between 30-34, 95 (14.3 percent) of them aged between 35-39 and 31 (4.7 percent) of them are over 56 years old.



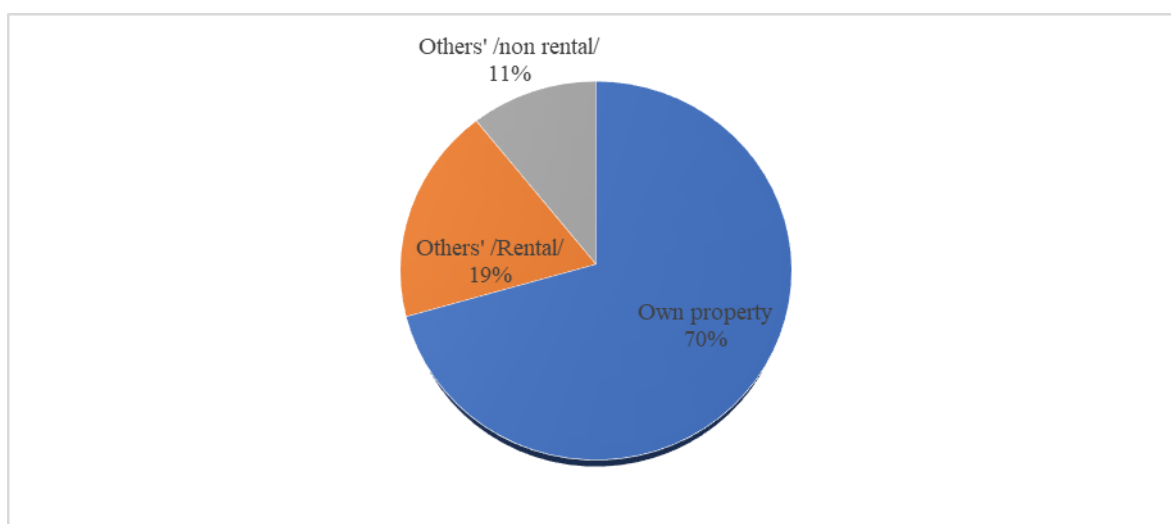
**Picture 30. Numbers of family members of the participants**

Most of participants involved in the survey are married and 60 percent of them have family with 4-7 members, 23.5 percent of them have up to 3 members in the family and the rest of 16.7 percent have more than 8 family members in their family. (Picture 30)



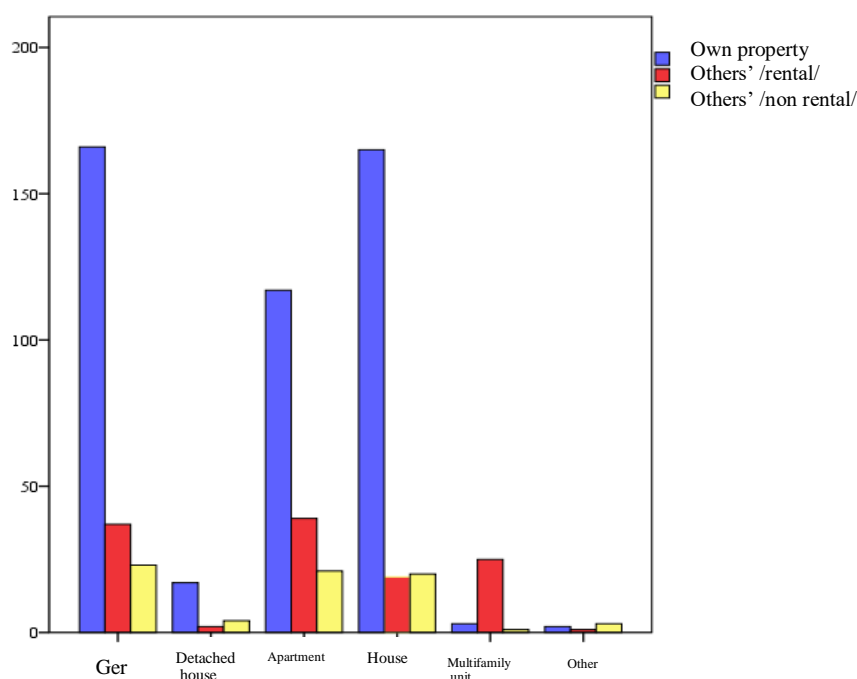
**Picture 31. Types of housing**

Computing data by the housing types of the participants, 226 (34 percent) of them live in a gers, 204 (30.7 percent) of them live in houses, 177 (26.6 percent) of them live in apartments, 29 (4.4 percent) of them live in dormitory and the rest of the participant of 23 (3.5 percent) live in detached houses. (Picture 31)

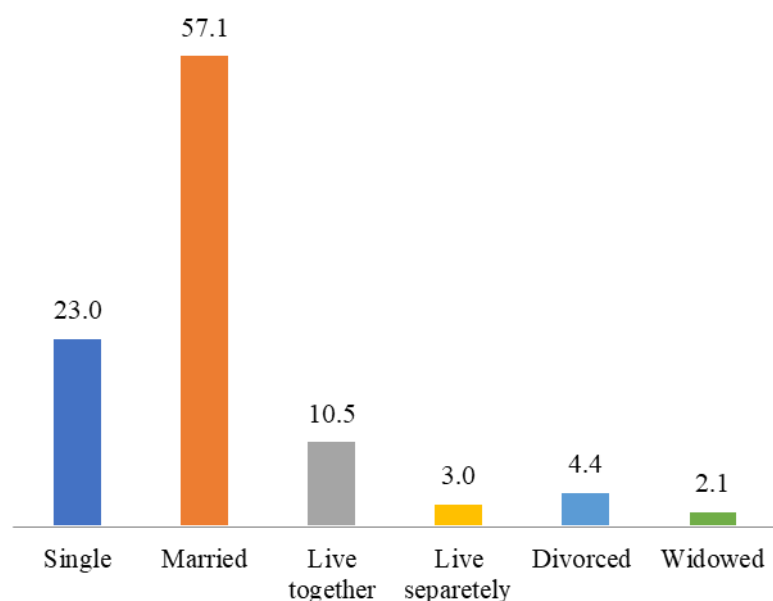


**Picture 32. Ownership status of the housing**

Ownership of the housing splits into the following three types, namely, own, others' / rental and someone's / non-rental. 469 (70.5 percent) of the participants live in their own houses, 124 (18.6 percent) of them live in rental houses and the remaining participants of 72 (10.8 percent) live in other's houses without rent. Total 29.4 percent of the participants involved in the survey live other people' houses without rent. (Picture 32-33)



**Picture 33. Ownership status of the housing of the participants**



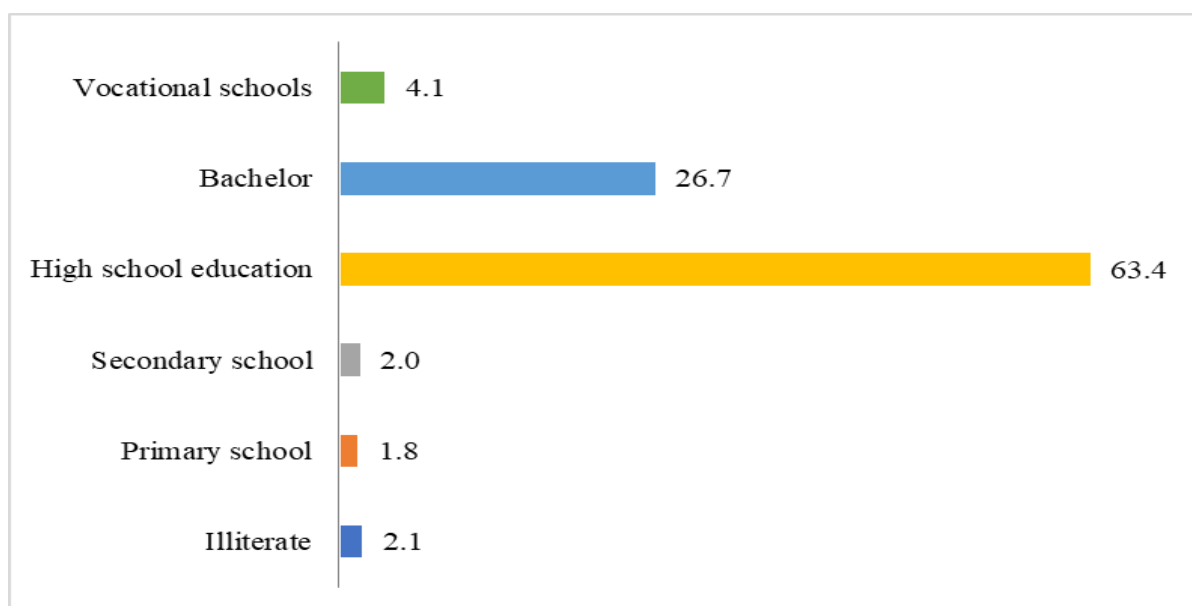
**Picture 34. Marital status of participants in the survey**

By marital status of the participants, 379 (57 percent) of them are married, 153 (23 percent) of them are single, 70 (10.5 percent) of them live with partners and the remaining 63 (9.5 percent) of them are divorced or widowed. (Picture 34, Table 7)

**Table 7. Number of family members, by age group**

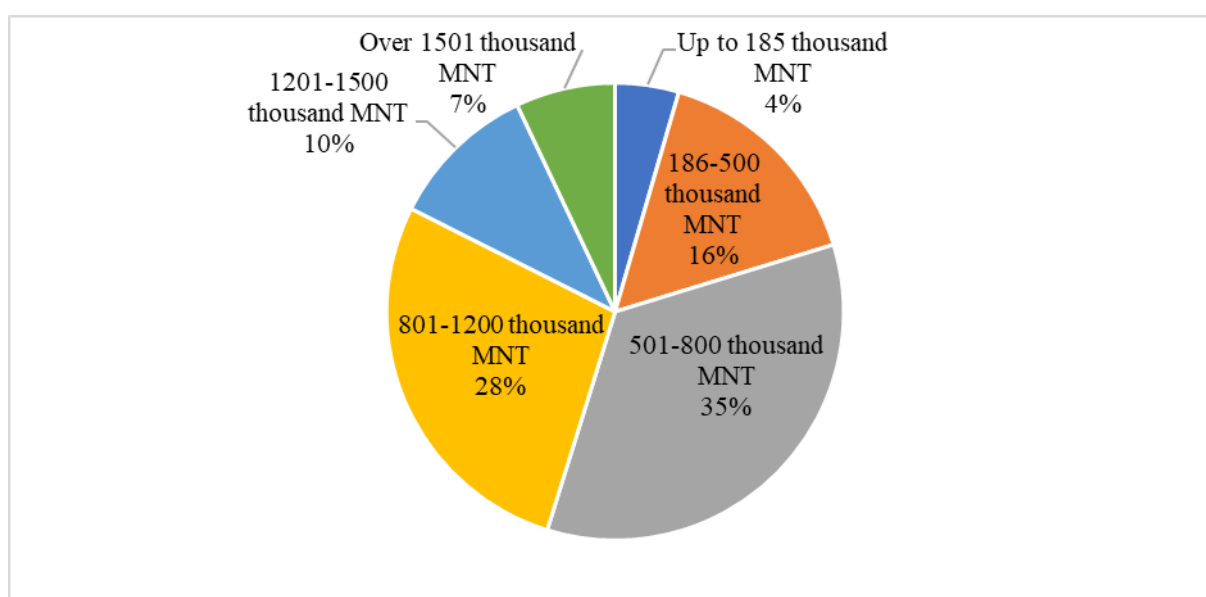
		Age group						Total
		20-24	25-29	30-34	35-39	40-55	Over 56 ages	
Marital Status	Not married	68	42	21	13	6	2	152
	Married	21	60	75	69	133	24	382
	With partners	24	21	5	5	13	1	69
	Single	7	2	4	2	4	1	20
	Divorced	4	5	5	4	8	2	28
	Widowed	2	2	2	2	5	1	14
Total		126	132	112	95	169	31	665

There were the most of the respondents participated in the survey aged between 30-35 and 62 percent of them married that indicates the tendency of their permanent employment.



**Picture 35. Education Level of the participants**

By education level, 421 (63.3 percent) of the total participants obtained secondary education, 178 (26.8 percent) of the participants obtained higher education and the remaining 66 (9.9 percent) of the participants obtained technical, vocational or primary education. (Picture 35)



**Picture 36. Average monthly income of households**

Households with the highest income level weight 229 (34.4 percent) of the participants with monthly income of 501,000 – 800,000 MNT, 184 (27.7 percent) of the total participants earn wage of 801,000 – 1,200,000 MNT, 105 (15.8 percent) of the participants earn wage of 186,000 – 500,000 MNT monthly and 70 (10.5 percent) of the participants earn wage of 1,201,000 – 1,500,000 MNT and minority of the participants of 47 (7.1 percent) earn more than 1,501,000 MNT and the remaining 4.5 percent of the total participants earn less than 185,000 MNT wage monthly. (Picture 36)

The income level of the households is not depended on their age, gender and family members, whereas it is fully depended on their education level. 201 (32.4 percent) of the total respondents earn wage of 501,000 – 800,000 MNT and among them 144 (23.2 percent) of the participants obtained only secondary education. (Table 8)

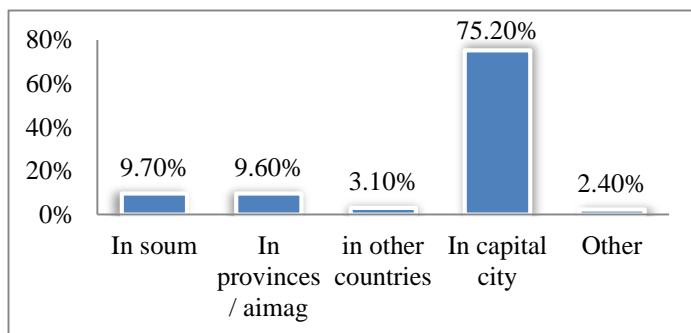
**Table 8. The income level of the households, by education level**

		Household average income						Total
		Till 185,000	186,000-500,000	501,000-800,000	801,000-1,200,000	1201,000-1,500,000	Upper 1,501,000	
Level of education	Illiterate	6	1	4	3	0	0	14
	Primary	1	3	4	3	1	0	12
	Secondary	0	0	6	5	2	0	13
	High School	18	83	164	117	27	13	422
	Bachelor	3	16	38	52	37	32	178
	Technical and vocational	2	2	13	4	3	2	26
Total		30	105	229	184	70	47	665

67.7 percent (450) of the total participants obtained driving licenses and the remaining 32.3 percent (215) of them have no driving licenses. According to the work experiences, 27 percent of them have up to 4 years' experiences, 29 percent of them have 5 to 9 years, 23 percent of them have 10 to 14 years and 21 percent of them have more than 15 years' work experiences. Put it simply, the years of work experiences have been spreaded constantly.

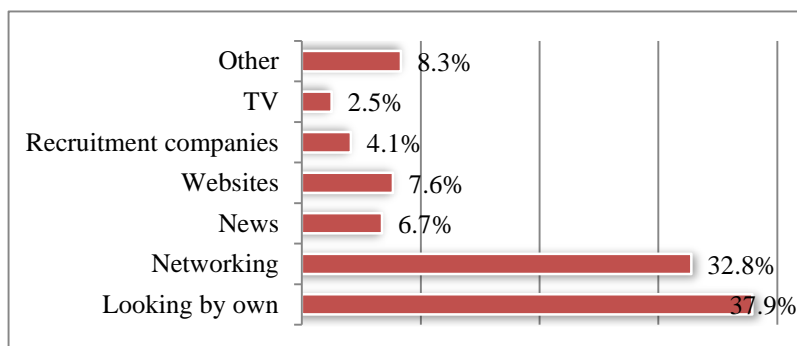
By computing the years of experiences in construction sector, there were 42 percent of them worked up to 4 years, 32 percent of them worked between 5-9 years, 15 percent of them worked between 10-14 years and 11 percent of them worked more than 15 years in the sector. In other words, all the participants involved in this survey have experience in construction sector in any other different ways that meets the aim of the research.

By the residential status, 477 (75 percent) of the participants have been working in the capital city, 62 (10 percent) of the participants have been working in provinces, 10 percent of them have been working in soums and 20 (3 percent) of them have been living abroad and the remaining 2 percent of them have been working at other places. (Picture 37)



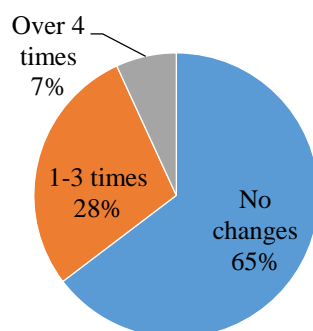
**Picture 37. The work location of the participants in last 3 years**

37.9 percent of the total participants find their jobs by searching on their own, 32.8 percent of the participants find their jobs through their acquaintances, 7.6 percent of them find from websites, 4.1 percent of them find from Labor and Social Welfare Organizations and the remaining 10.7 percent of the total participants find their jobs through TV and other sources. (Picture 38)



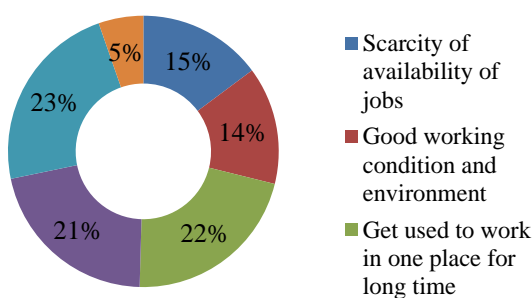
**Picture 38. The channels for finding jobs of the participants**

65 percent of the participants have not changed their jobs for the last 3 years, 28 percent of them have changed their jobs 1-3 times and the remaining 6 percent of them have changed more than 4 times. In other words, there are many seasonal affections for the jobs in construction sector, thus participants response that perform the most of their work by brigades if it is necessary. (Picture 39)



**Picture 39. The changes of the jobs within last 3 years**

The participants responded their reasons for working in construction sector constantly, namely, 261 (23 percent) of the respondents consider their wage is reasonable, 245 (22 percent) of the respondents responded they have got along with their jobs for working many years in construction sector, 243 (21 percent) of the respondents are passionate about their jobs, 169 (15 percent) of the respondents were responded the availability of workplace reduced, 160 (14 percent) of the respondents consider the workplace conditions are good and the remaining 61 (5 percent) of the respondents own long-term loans. (Picture 40)

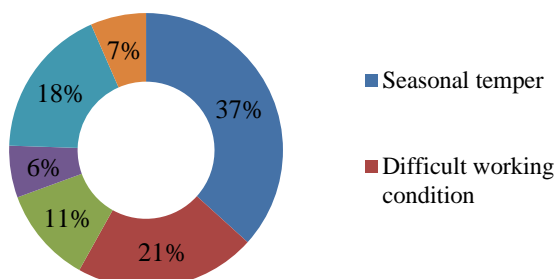


**Picture 40. The reasons of working in construction sector constantly**

And participants responded that they have changed their work more than 4 times within 3 years. 240 (37 percent) of respondents responded due to seasonal

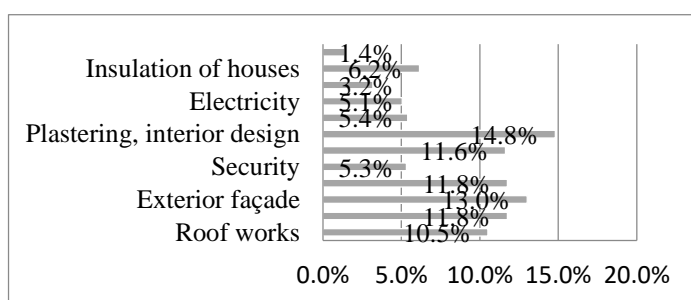


affections, 140 (21 percent) of respondents responded due to difficult working condition 117 (18 percent) of respondents responded due to low paid, 73 (11 percent) of respondents responded due to migrancy and the remaining 43 (7 percent) of respondents due to their unprofessionalism. (Picture 41)



**Picture 41. The reasons of inconstant work**

By work experiences, 14.8 percent of respondents have been working in plastering and interior design, 13 percent of them in exterior facades, 11.8 percent of them in installation of windows and doors and floor, the other 11.8 percent of them in construction concrete, 11.6 percent of respondents have been working in masonry and the remaining 10.5 percent of respondents have been working in installation of roofs. (Picture 42)



**Picture 42. Work experiences in construction sector**

338 (64.5 percent) of respondents responded that they perform their construction works by receiving offers from someone or clients and 170 (32.4

percent) of respondents responded “no”.

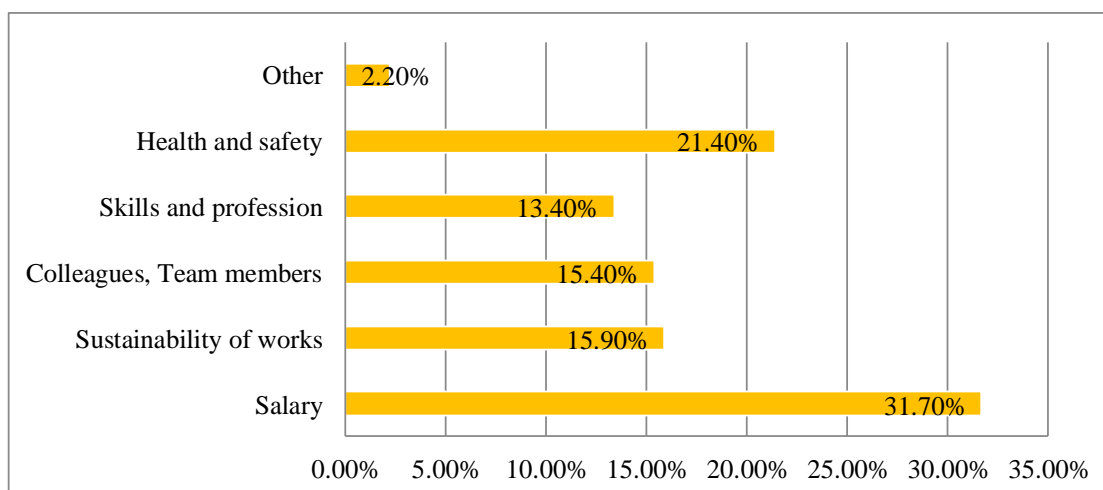
The following results shows the advantage of working with women. They responded that women are more responsible for their works, good at interior design but construction work is mostly considered as difficult scales of works for women and there are lack of professionalism within women as well as women have disadvantage of going on maternity leave. (Table 9)

**Table 9. Advantages and disadvantages of working with women**

№	Advantages	Percentage	№	Disadvantages	Percentage
1	<b>Responsible</b>	46.5	1	The difficulty of construction work scale	48
2	<b>More installd than men</b>	11.8	2	Lack of professionalism	17.7
3	<b>Experienced in internal design</b>	27.4	3	Maternal leave	19
4	<b>Cheap labor</b>	6.8	4	Claim more complains than men	9.2
5	<b>Reliable</b>	7.6	5	Other	5.3

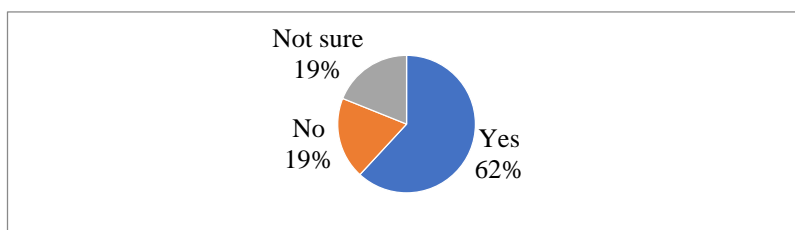
Analyzing the crucial factors that makes work more difficulty in construction sector, 409 (31.7 percent) of the respondents considered the amount of salary, 276 (21.4 percent) of them considered health and safety, 205 (15.9 percent) of respondents seek for working sustainability, 199 (15.4 percent) of them considered colleagues and team members and the remaining 173 (13.4 percent) of the respondents responded skills and professions are crucial factors for working in company or on any jobs. (Picture 44)

**Picture 43. The crucial factors for working in construction sector**



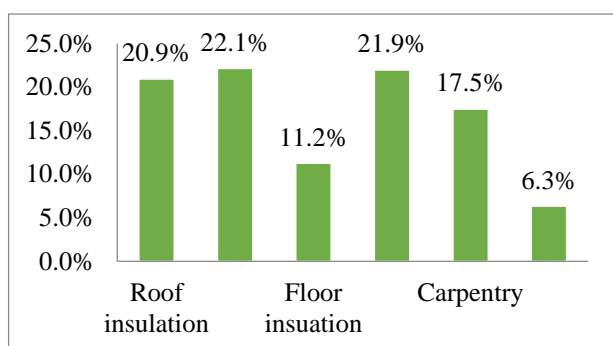
For identifying the interest for working in insulation of houses, 62 percent of

total respondents responded “yes” and the decisions of 19 percent of the respondents were not sure and the rest of the respondents responded they don’t know or responded “no”. (Picture 45).



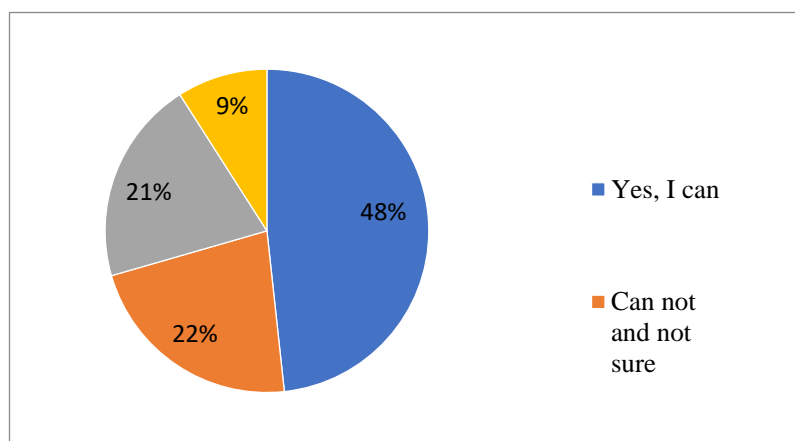
**Picture 44. The Interest of participating in vocational training in insulation of houses in construction sector**

For identifying the interest of participating in training for insulation field, 236 (21.9 percent) of the respondents expressed their interest in insulation of windows and plastering; 238 (22.1 percent) of them interested in exterior façade, 225 (approximately 21 percent) of them interested in insulation of roof; 188 (17.5 percent) of them interested in carpentry; 121 (11.2 percent) of respondents were interested in floor insulation and the remaining 68 (6.3 percent) of the respondents expressed they are not able to work in insulation and retrofitting. (Picture 45)



**Picture 45. The interest of participating in training and working in insulation field**

For defining the interest of working in insulation field in the future, 48 percent of the respondents responded “Yes and can do it”, 22 percent of them responded “can not”, 20 percent of respondents expressed to work as part time besides their main work and 9 percent of respondents responded to work sustainable.

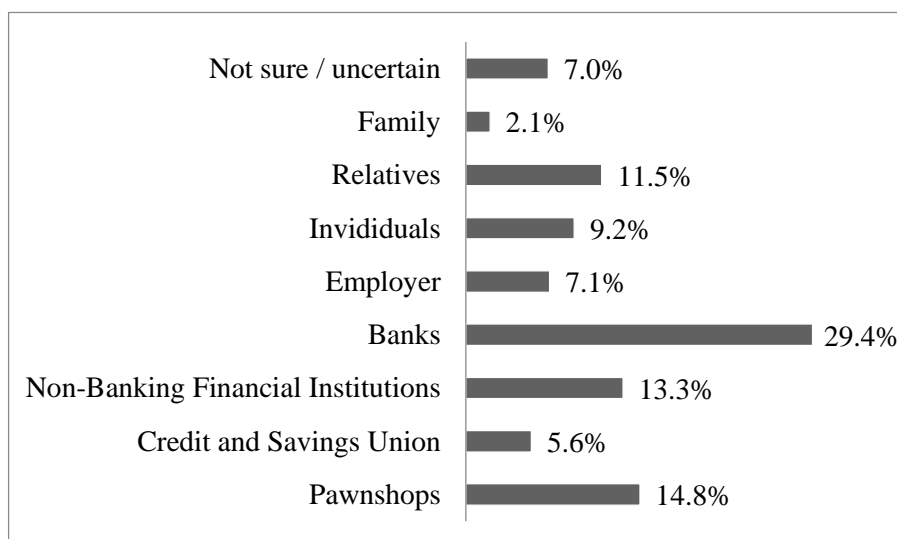


**Picture 46. The interest working in insulation work permanently**

For identifying team building ways of the brigades, 258 (33 percent) of total respondents by networking and 238 (30.5 percent) respondents by joining with other fized brigades. Also, 92 (11.8 percent) of them responded to work with their own, 71 (9.1 percent) of them expressed to work by involving their family members (spouse, children), 58 (7.4 percent) of them responded to gather workers by using massmedia channels and the remaining 64 (8.2 percent) of total respondents responded “do not know”.

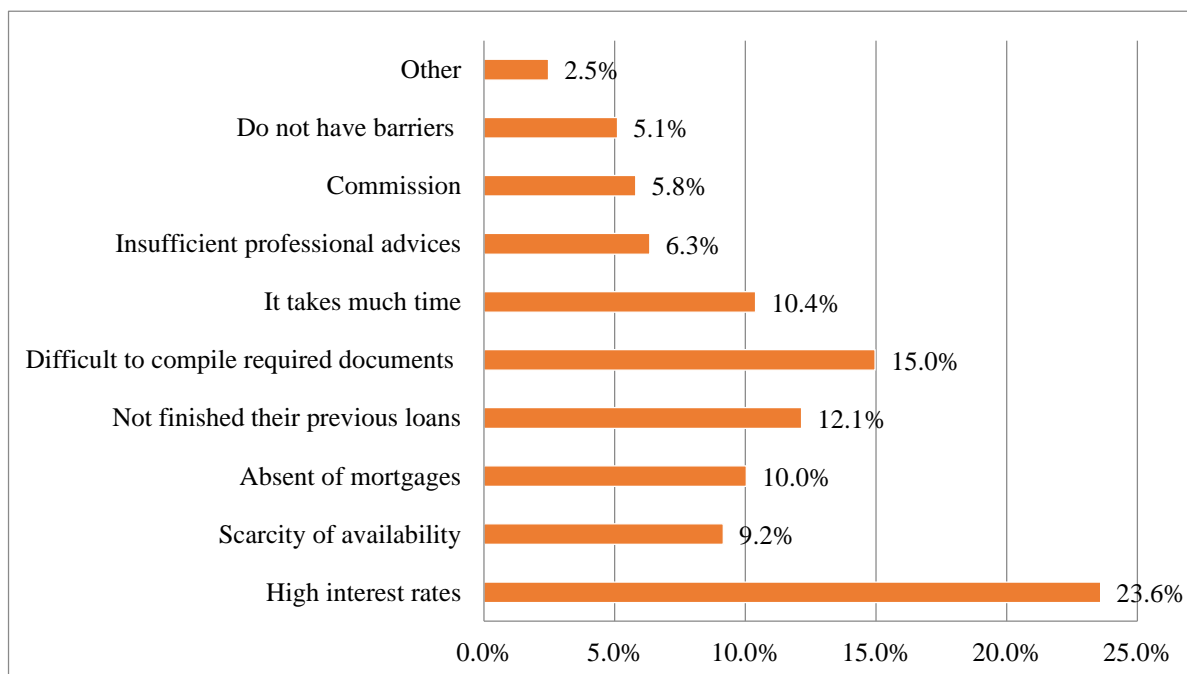
339 (51 percent) of total respondents do not own any loans, 223 (38.5 percent) respondents own certain amont of loans and the remaining 2.9 percent of total respondents not sure whether they own loans or not due to any of their family members may own loans. If necessary to get loan, 143 (29.4 percent) of respondents go to banks, 72 (14.8 percent) respondents go pawnshops, 69 (14.2 percent) respondents usually contact to non-banking financial organizations and the remaining respondents seek for help from their relatives and their works. (Picture 47)

In other words, these participants do not have permanent income relies on season and impossible to pay social insurance tax, therefore, there are lack opportunities to get loans from banks due to less evidence to prove their income level to the bank and meet their requirements.



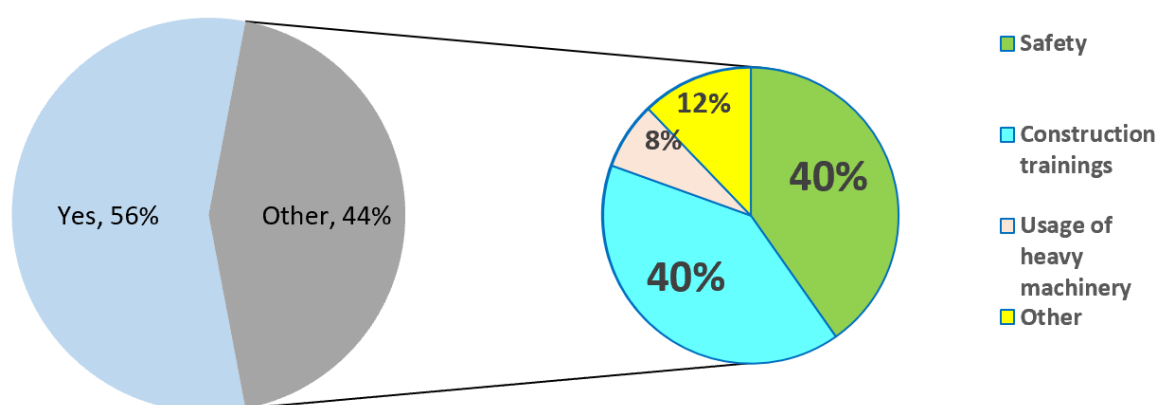
**Picture 47. The places where brigades contact when they seek for loans**

134 (23.6 percent) of total respondents pay high interests of the loan, 85 (15 percent) respondents face difficulties to gather required documents, 69 (12.1 percent) respondents have not finished previous loans and the remaining 57 (10 percent) of the total respondents responded that they do not have sufficient properties to meet requirements of the loans as well as considered the interests and commissions of the loans are very high and takes long time to get approved the loans. (Picture 48)



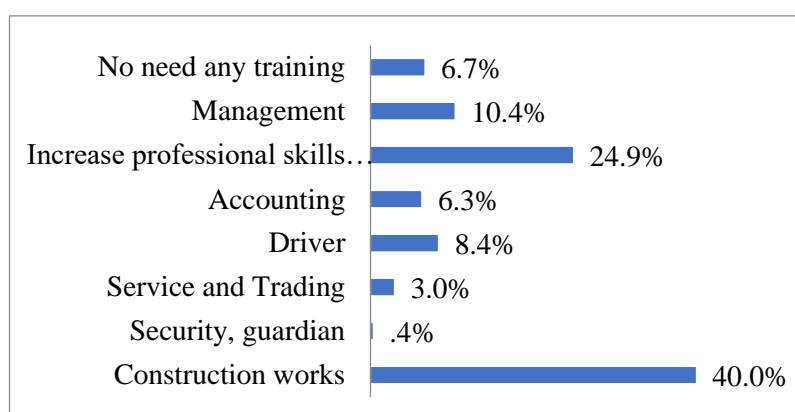
**Picture 48. Barriers to get loans**

56 percent of the participants have attended in certain trainings, including safety trainings (40 percent), construction professional trainings (40 percent) and 8 percent of respondents have attended in trainings for the usage of heavy machinery. (Picture 49)



**Picture 49. The experiences of the participants attended in trainings**

352 (70.4 percent) of the individuals are willing to improve and develop their qualification and profession in the following trainings in the above diagram (Picture 50).



**Picture 50. The needs of required trainings**

215 (40 percent) of the participants were interested in trainings focused in construction sector, 134 (24.9 percent) of the participants were willing to improve their professional skills, 56 (10.4 percent) of the participants were attend in leadership management. In the meantime, accounting, service and sales trainings were mentioned less. The needs of trainings of the participants were linked to the willingness to work continuously throughout four seasons of the year.

164 (20.5 percent), and 156 (19.5 percent), and 77 (9.6 percent) of the participants responded that they are more available to attend in trainings in January, February and March. (Table 10)



Table 10. Available months to attend in the training, by percentage

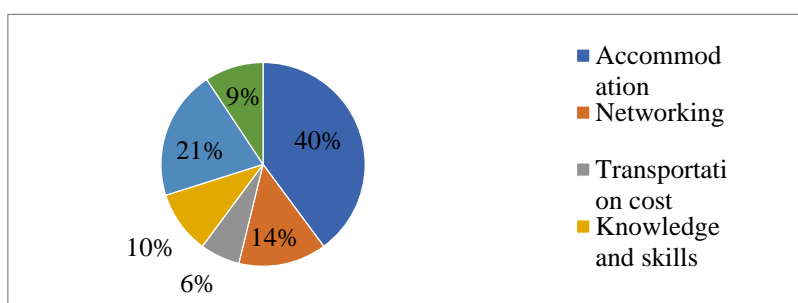
Month	Number of availabilities	Percentage
<b>January</b>	<b>164</b>	<b>20.5 percent</b>
<b>February</b>	156	19.5 percent
<b>March</b>	77	9.6 percent
<b>April</b>	40	5.0 percent
<b>May</b>	26	3.3 percent
<b>June</b>	35	4.4 percent
<b>July</b>	31	3.9 percent
<b>August</b>	32	4.0 percent
<b>September</b>	24	3.0 percent
<b>October</b>	27	3.4 percent
<b>November</b>	58	7.3 percent
<b>December</b>	130	16.3 percent

And they responded that the dates or times will be flexible during this months. Some of the participants preferred to take trainings during the weekends. (Table 11)

**Table 11. Available days for taking trainings**

Weekdays	Number of availabilities	Percentage
<b>Monday</b>	<b>86</b>	<b>13.8 percent</b>
<b>Tuesday</b>	77	12.4 percent
<b>Wednesday</b>	79	12.7 percent
<b>Thursday</b>	75	12.1 percent
<b>Friday</b>	81	13.0 percent
<b>Saturday</b>	111	17.8 percent
<b>Sunday</b>	113	18.2 percent

The following barriers respondents face when they migrate from rural areas to the city. 120 (40 percent) of the participants hardly to find accommodation to live, 62 (20.6 percent) of the participants face financial difficulties, 42 (14 percent) of them face networking barriers in order to work in the cities. (Picture 51)



**Picture 51. Barriers and difficulties that workers face to work in cities from provinces**

Total 224 of the participants in the survey migrated from rural areas to Ulaanbaatar city and have been living illegally or temporary. The most difficult barrier they face is accommodation in the city.

## CHAPTER 4. THE RESULTS OF THE FIRST STAGE SELECTION PROCESS OF INDIVIDUALS AND MSMEs THOSE WILLING TO JOIN IN THE PROJECT

### 1.1. The first stage of selection process within brigades those willing to join in install insulation in houses in ger areas and its results

There were 42 questions asked to indicate the possibilities of installing insulation in houses in ger areas besides gathering information of brigades. In other words, it is crucial to identify the interest of the participants to work in our suggested field after collecting surveys and providing guidelines about SOAP project. By the first stage of the selection procedure within the framework, there were 120 participants responded “Yes” for the question of “If we provide free training of technology to install insulation, would you accept our offer to join in the project for installing insulation in houses?”. From them, 96 of the surveys met the requirements on POWER BI program. (Picture 52-54)

**Table 12. The results of the criteria of first stage selection process**

Step	Criteria, indicators	Remarks	Number of qualified survey questionnaires	Number of unqualified survey questionnaires	Total number of survey questionnaires
1	The interests of brigades to work in insulation of houses in ger areas	Responses of “yes” for the question No.42	120	97	217
2	Number of questionnaires those were successfully responded by the participants with interview during the completion of survey	<p>1. Would you able to offer any brigades that can work for installing in ger areas? (1-5 points)</p> <p>2. How would you select your team or labor force in order to perform the works mentioned above? (1-5 points)</p> <p>3. How many numbers of brigades or team members would you able to offer? (1-5 points)</p> <p>4. How would you maintain the sustainability of work condition for the members of brigades? (1-5 points)</p> <p>The researchers evaluated each questions by ranking from 1-5 and participants who received 4 and 5 points have been remarked.</p>	96	24	120

The numbers of questionnaires passed by first stage of selection process		96		96
--	--	----	--	----

At the second stage of selection process, the participants were interviewed by the following 4 quesitons. The successful responses were rated by 1-5 points and the participants will be selected for the next stage of selection.

1. Would you able to offer and recommend your brigade to perform exterior insulation of the houses in ger areas (1-5 points)
2. How would you select your team or labor force in order to perform the works mentioned above? (1-5 points)
3. How many numbers of brigades or team members would you able to offer? (1-5 points)
4. How would you maintain the sustainability of work condition for the members of brigades? (1-5 points)

The researchers evaluated each questions by ranking 1-5 points and participants who received 4 and 5 point have been remarked.

The total 96 participants met the requirements of the questionnaires above and total 96 brigades have been selected to the next stage. The participant's data were inputted by each question mentioned above and processes by POWER BI program.

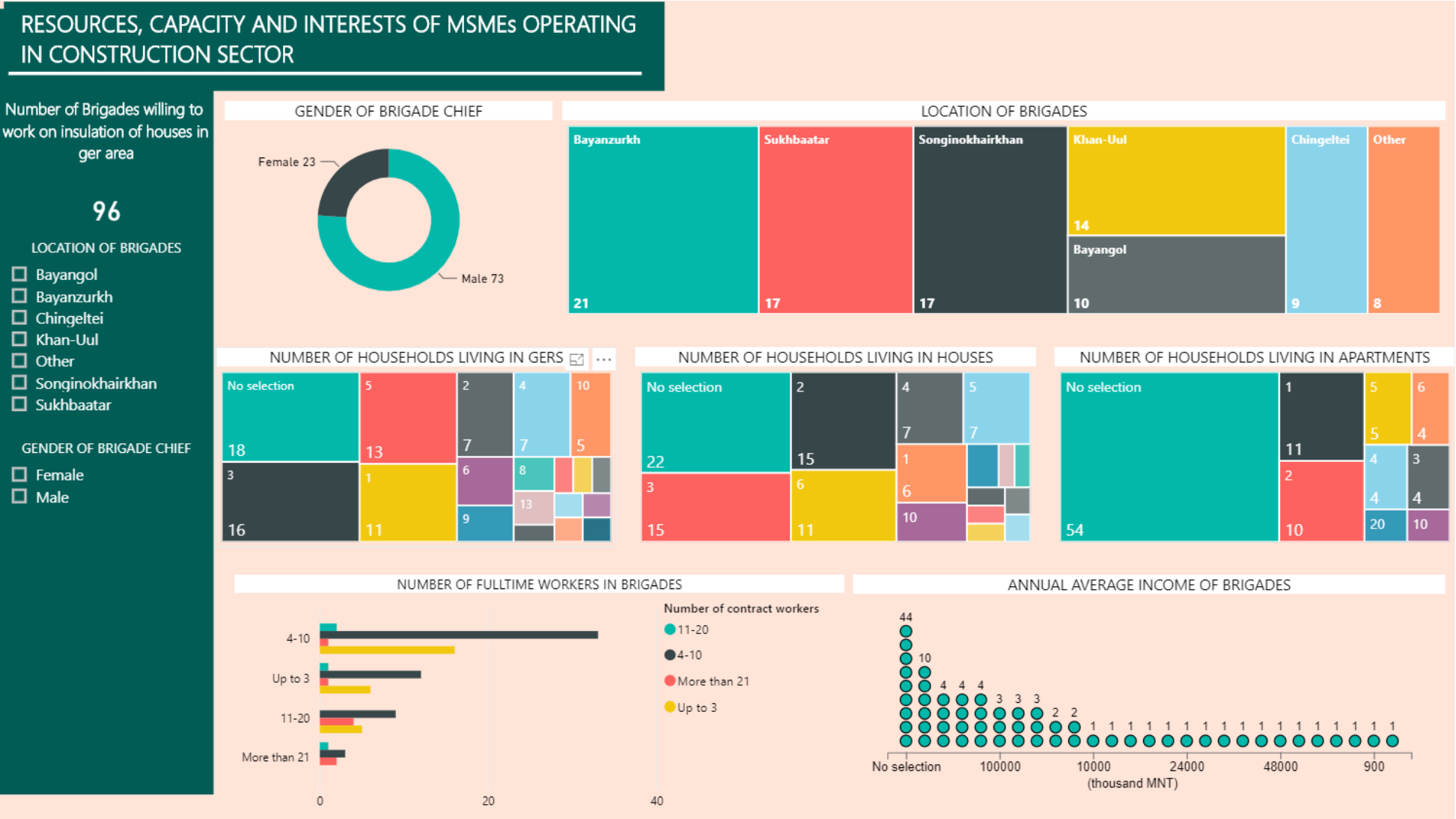
Please refer the following link for the program in Mongolian: [https://app.powerbi.com/view?r=eyJrljoiZDA5MDVmOTltZDQwMy00MDA3LWI0ZDQ0tYjc0YzIxODkxYTgwliwidCI6IjdjOWI5OTAxLTlhZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOiJlEwfQ\\_percent3D\\_percent3D](https://app.powerbi.com/view?r=eyJrljoiZDA5MDVmOTltZDQwMy00MDA3LWI0ZDQ0tYjc0YzIxODkxYTgwliwidCI6IjdjOWI5OTAxLTlhZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOiJlEwfQ_percent3D_percent3D). The link is only available within 5 days after the submission of the report.

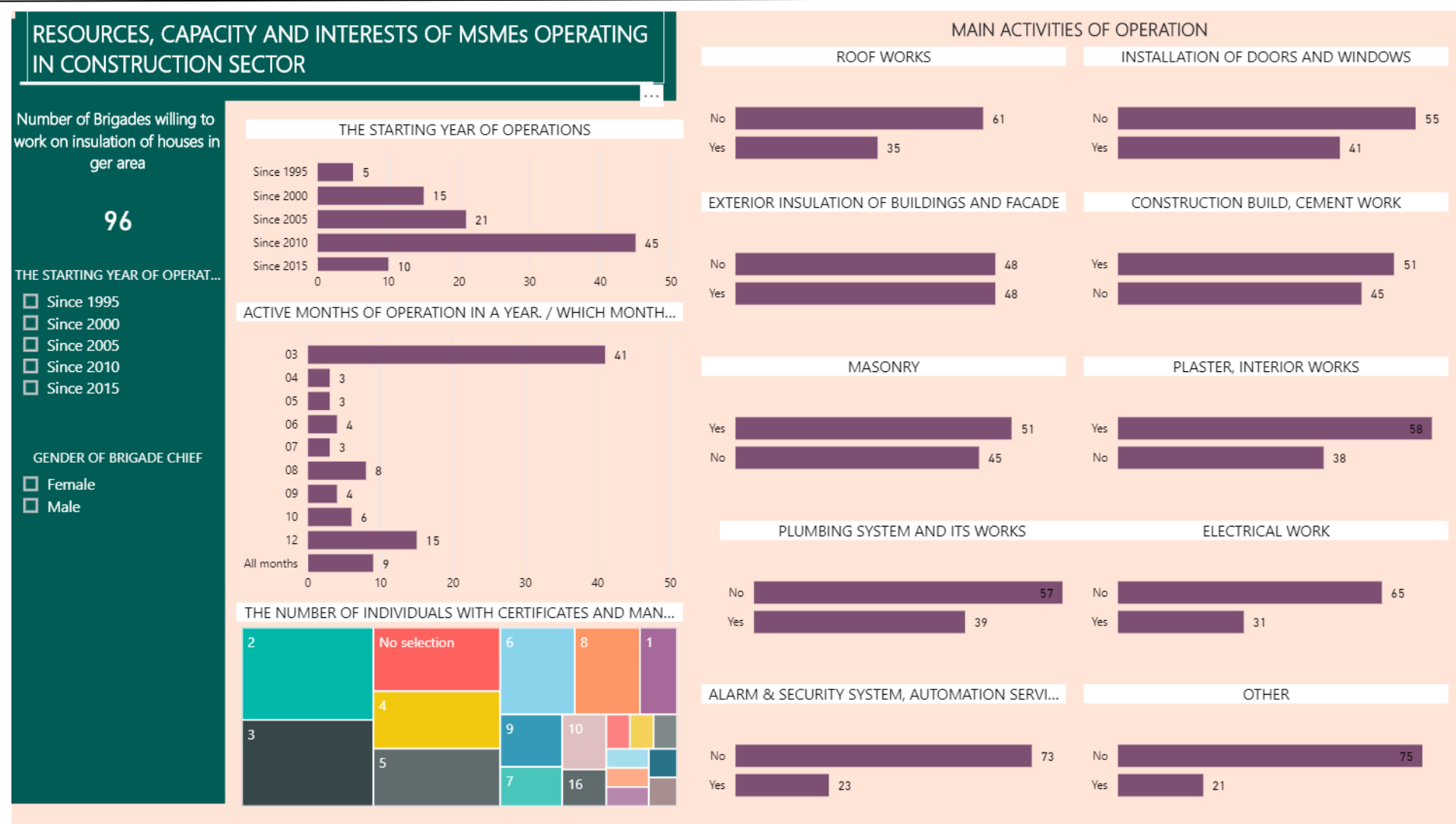
Link of POWER BI program in English:

<https://app.powerbi.com/view?r=eyJrljoiZmQ4YmJjNWEtZWU2YS00NDM1LWI1NWtYTFkMjgzYjY5MDA1liwidCI6IjdjOWI5OTAxLTlhZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOiJlEwfQ%3D%3D>

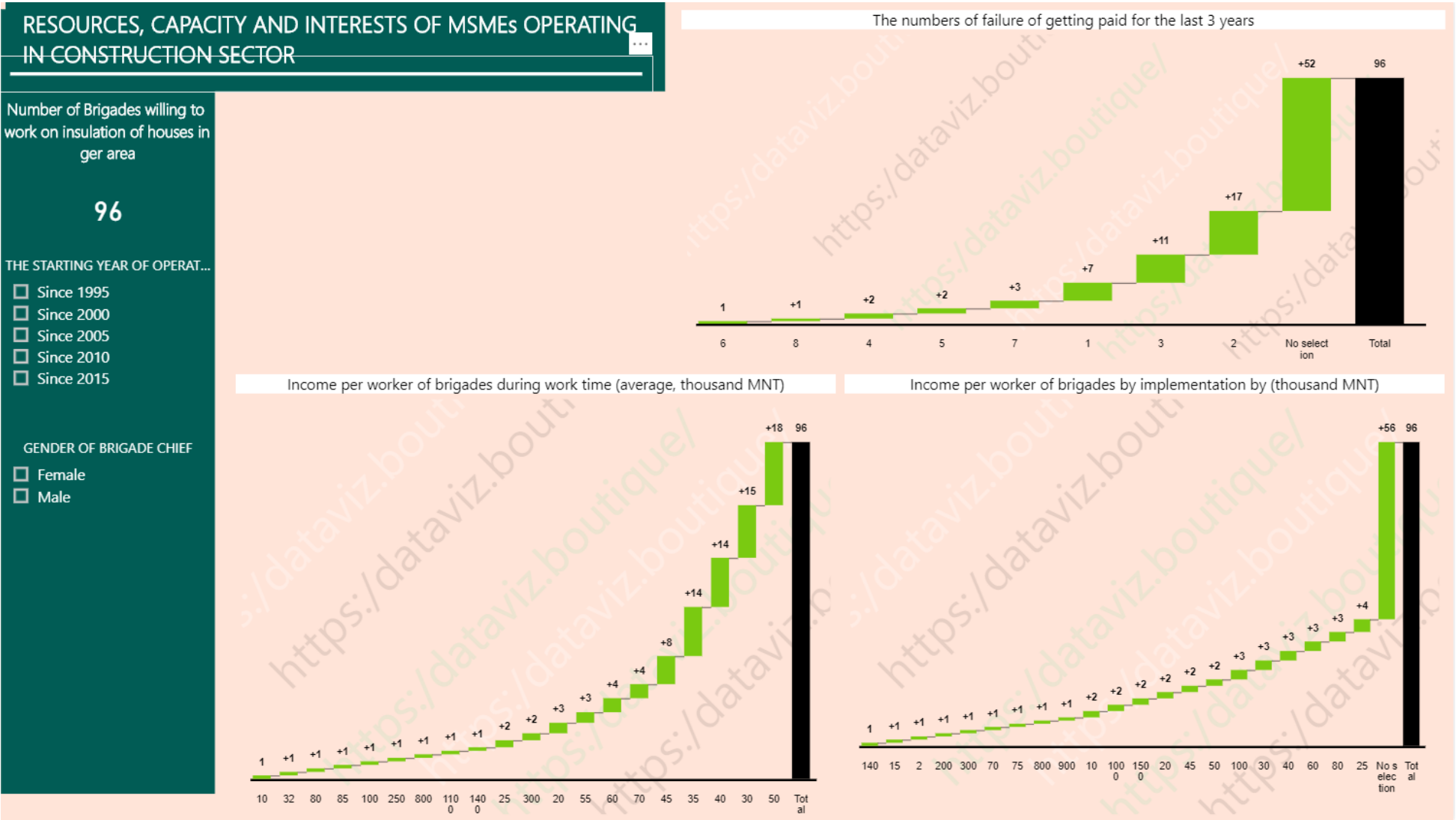
The link is only available within 5 days after the submission of the report.

The following pictures show the results of the analysis computed on Power BI program.





**Picture 53. General indicators of brigades General indicators of brigades met with requirements of the criteria II**



Picture 54. General indicators of brigades General indicators of brigades met with requirements of the criteria II /continued/



The list of 96 brigades those willing to join in install insulation in houses in ger areas and met with (Table 13)

**Table 13. List of brigades met with requirements of the criteria of first selection process**

No	Questionnaire number	Operating area	Name of the Brigade Leader	Gender	Phone number	Status of operation
1	9	Sukhbaatar	Nyam-Orgil	M	99120156	No license
2	12	Khan-Uul	Ankhmaa	F	88026553	Construction licensed
3	26	Khan-Uul	B.Batmend	M	99336226	Construction licensed
4	33	Sukhbaatar	Boldbaatar	M	99100670	Construction licensed
5	34	Sukhbaatar	Chuluunbaatar	M	88678863	Construction licensed
6	36	Sukhbaatar	Byambadorj	M	86580315	Construction licensed
7	37	Khan-Uul	Munkhtur	M	96060622	Construction licensed
8	39	Songinokhairkhan	Javzandolgor	F	96616048	No license
9	41	Bayanzurkh	Enkhzorig	M	95228222	No license
10	48	Sukhbaatar	Amarsaikhan	M	94004455	N/A
11	49	Chingeltei	Munkhbayar	M	88939244	Construction licensed
12	50	Bayanzurkh	Tsatsral	F	96363838	No license
13	51	Sukhbaatar	Darkhanbayar	M	99065282	No license
14	52	Bayanzurkh	Altankhuyag	M	88121371	Construction licensed
15	53	Bayangol	Sundui	M	99996368	Construction licensed
16	54	Chingeltei	Tserenbanzragch	F	99686252	Construction licensed
17	55	Bayangol	Tungalag	F	88125852	No license
18	57	Bayanzurkh	Minjarav	F	96680819	No license
19	58	Bayanzurkh	Uuganbaatar	M	98118853	No license
20	59	Chingeltei	Demchig	M	93143851	No license
21	60	Chingeltei	Otgontsend	M	89818449	No license
22	62	Khan-Uul	Ya.Ganduulga	M	80114494	Construction licensed
23	65	Bayanzurkh	Boldbaatar	M	99742151	No license
24	67	Songinokhairkhan	Mart	F	91892821	No license
25	70	Chingeltei	Munkhbat	M	86070904	No license
26	72	Bayangol	Sanchir	M	94949898	No license
27	74	Bayangol	Nergui	M	99190101	Construction licensed
28	77	Songinokhairkhan	Zaya	M	99173064	LLC
29	81	Songinokhairkhan	Amarjargal	F	88622334	No license
30	82	Songinokhairkhan	Dugersuren	M		LLC
31	83	Chingeltei	Enkhbold	M	88550336	Construction licensed
32	89	Songinokhairkhan	Batdelger	M	95169046	LLC
33	104	Other	S.Sukhbold	M	88706373	Construction licensed
34	131	Chingeltei	Nergui	M	88113299	Construction licensed
35	141	Khan-Uul	Munkh-Orgil	M	88030538	LLC
36	148	Bayanzurkh	A.Oyunjargal	M	99164434	Construction licensed
37	152	Khan-Uul	Otgonbat	M	89055992	Construction licensed
38	154	Bayanzurkh	Munkh-Erdene	M	88818911	No license
39	156	Khan-Uul	Khadbaatar	M	96688610	N/A

40	159	Sukhbaatar	Munkh-Orgil	M	88030538	Construction licensed
41	184	Other	O.Byambasuren	F		N/A
42	186	Other	Byamba	M	93907691	Construction licensed
43	193	Bayanzurkh	Sh.Gantulga	F	99107601	Construction licensed
44	195	Other	Ganzorig	F	99178855	No license
45	200	Songinokhaikhhan	P.Battulga	F	96650918	Construction licensed
46	203	Sukhbaatar	Batjargal	F		No license
47	206	Sukhbaatar	M.Munkhbayar	M	80113449	No license
48	209	Songinokhaikhhan	Ravdanpuntsag	M	80022698	No license
49	210	Songinokhaikhhan	L.Erdene	M	86769648	No license
50	211	Songinokhaikhhan	U.Byambajav	M	96669863	No license
51	212	Bayangol	L.Torguud	M		Construction licensed
52	213	Bayanzurkh	J.Tseveengombo	M	91141442	No license
53	214	Songinokhaikhhan	M.Enkhjargal	F	88036086	Construction licensed
54	218	Bayanzurkh	P.Barkhasbadi	M	99663354	No license
55	220	Khan-Uul	Batmunkh	M	86854141	No license
56	225	Songinokhaikhhan	Ulziisaikhan	M	96009573	No license
57	229	Sukhbaatar	Ganzorig	M	88186227	No license
58	231	Khan-Uul	Byambadorj	M	88570043	No license
59	247	Other	Bat-Erdene	M	89005372	Construction licensed
60	249	Bayangol	Tserenjav	M	88088223	N/A
61	250	Bayanzurkh	Delgersaikhan	M	99099586	Construction licensed
62	253	Songinokhaikhhan	Batsaikhan	M	88088525	No license
63	263	Khan-Uul	Enkhtaivan	M	86087134	LLC
64	264	Bayanzurkh	B.Khosbayar	M	80212240	No license
65	274	Bayanzurkh	Enkhbayar	M	89041441	No license
66	309	Khan-Uul	Ts.Nachinkhuu	M	99105450	Construction licensed
67	311	Other	Bayandelger	M	88093106	LLC
68	314	Bayangol	Taivanbaatar	M	89760318	LLC
69	316	Khan-Uu	Otgongchimeg	F	90119116	No license
70	320	Other	Bat-Eruult	M	98205055	LLC
71	322	Songinokhaikhhan	Sainbileg	M	88773434	Construction licensed
72	332	Chingeltei	B.Munkhdari	F	99604711	Construction licensed
73	334	Bayanzurkh	Saruulmaa	F	89996067	No license
74	338	Other	Uuganbayar	M		Construction licensed
75	341	Chingeltei	Temuulenbaatar	M	999973115	LLC
76	344	Bayanzurkh	Ariunbold	M	91919817	Construction licensed
77	355	Bayanzurkh	Kh.Soyoltsetseg	F	96557737	Construction licensed
78	356	Khan-Uu	Gankhuyag	M	99090884	No license
79	359	Sukhbaatar	Batnasan	M	99161674	No license
80	401	Sukhbaatar	Kh.Soyoltsetseg	F	89199830	No license
81	403	Sukhbaatar	Munkhhas/ Batbayar	M	96913377	Construction licensed
82	420	Sukhbaatar	Gombojav	F	96056410	LLC
83	801	Songinokhaikhhan	Khurelkhuuyag	M	94113617	LLC
84	802	Songinokhaikhhan	Oktyabri	M	94791630	LLC
85	976	Bayanzurkh	Batmunkh	M	91118999	Construction licensed

86	977	Bayanzurkh	Naranmandah	F	99907902	Construction licensed
87	978	Khan-Uu	S.Batnasan	M	96009448	No license
88	2002	Sukhbaatar	Battulga	M	99162572	Construction licensed
89	2004	Bayangol	-	M	88283844	N/A
90	2005	Bayangol	D.Byambaa	M	91919690	Construction licensed
91	2006	Bayanzurkh	Togosjargal	M	80094455	No license
92	2008	Sukhbaatar	A.Shinetsetseg	F	99564444	No license
93	9100	Sukhbaatar	B.Erdenebayar	M	99587818	Construction licensed
94	9102	Bayangol	Duramsuren	F	91011187	Construction licensed
95	9103	Songinokhairkhan	Batsuren	M	88100122	No license
96	9601	Bayanzurkh	Battulga	M	88043496	No license

## 1.2. The first stage of selection process within brigades those willing to join in install insulation in houses in ger areas and its results

The first stage of selection process within brigades those willing to join in install insulation in houses in ger areas is done with 10 steps as following. (Table 14) The first 9 steps as below mentioned:

1. Willing to join in install insulation in houses in ger areas
2. Willing to be sustainable
3. Willing to specialise and work in this field by individual itself
4. Willing to be sustainable
5. Working experience and capacity
6. Working experience and capacity-2
7. Have your own tools related to work
8. Entrepreneurial tendency
9. Belief indicator to work in construction sector.

And 10<sup>th</sup> criteria should provide researchers ability to perform during the collection of surveys by involving their close surroundings, target khoroo, disabled but capable to work and women. (Table 16).

**Table 14. Criteria and results of first selection process of individuals**

Step	Criteria	Remark	Number of qualified questionnaires	Number of disqualified questionnaires	Total number of surveyed questionnaires
1	Willing to join in install insulation in houses in ger areas	Individuals who answered question No.1 as "yes"	412	253	665
2	Willing to be sustainable	Individuals who answered question No.31-1,3,4	339	73	412
3	Willing to specialise and work in this field by individual itself	Individuals who answered question No.30-1:5	314	25	339
4	Willing to be sustainable	Individuals who answered question No.20-1	209	105	314
5	Working experience and capacity	Individuals who answered question No.23-1	152	57	209
6		Individuals who answered question No.22-2:12	144	8	152
7	Have your own tools related to work	Individuals who answered question No.24-1	93	51	144
8	Entrepreneurial tendency	Individuals who answered question No.23-1, 32-1:5	83	10	93
9	Belief indicator to work in construction sector	Individuals who answered question No.26, 27	55	28	83
	Number of qualified questionnaires met with as above mentioned				55
10	provide researchers ability to perform during the collection of surveys by involving their close surroundings, target khoroo, disabled but capable to work and women added into the list.	Researcher evaluated individual as 1-5 points during the collection of surveys and specially noted individuals who have a point as 4 or 5	42		
	Total number of individuals who passed first stage of selection process		97		

55 individuals out of total 665 questionnaires have been selected in the first stage of selection process by the 9 steps of criteria. (Table 15) Analysis of each criteria and requirements are available in the following link of POWER BI program in Mongolian. The link is only available within 5 days after the submission of report.

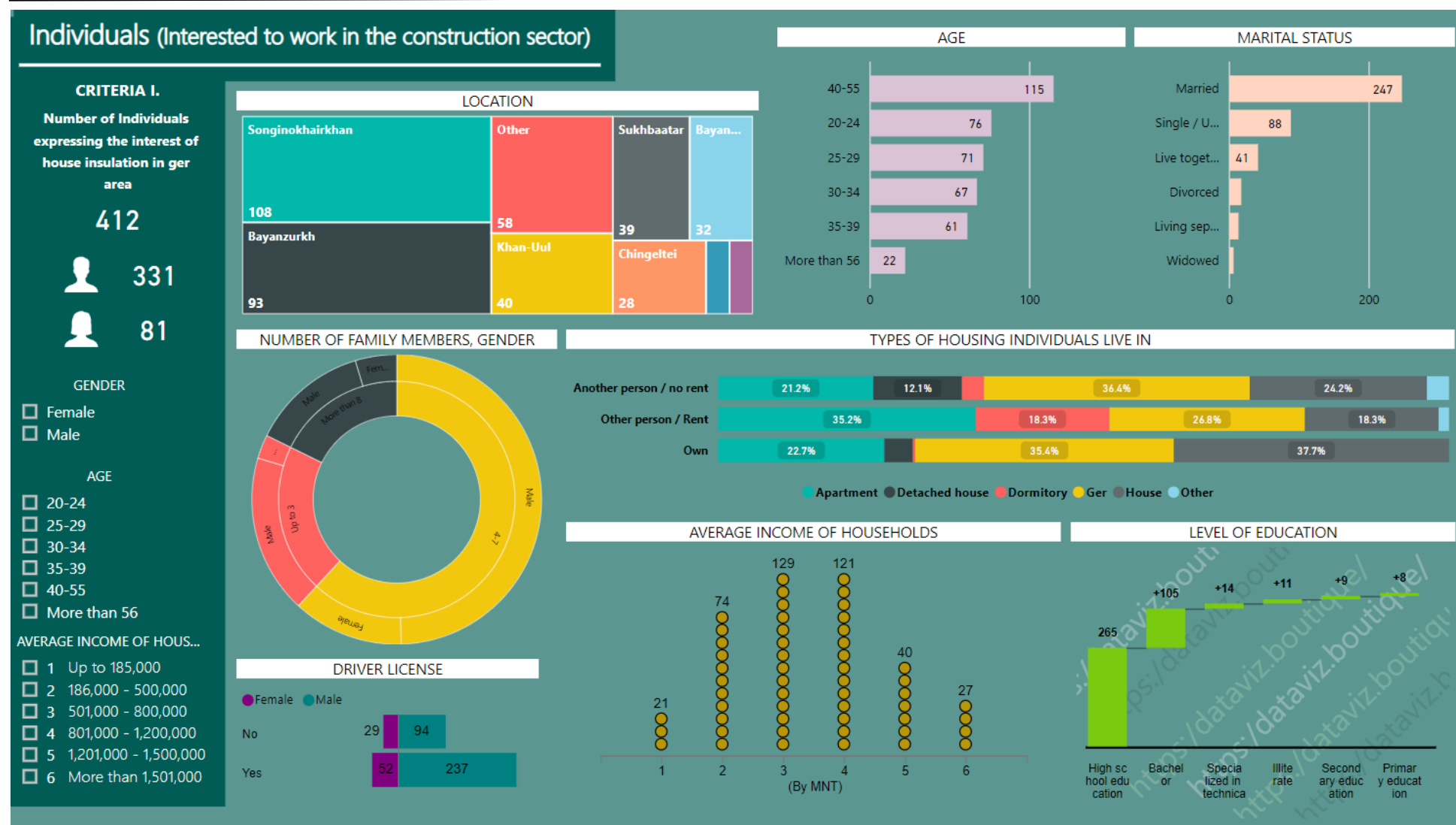
(Picture 55-66)

[https://app.powerbi.com/view?r=eyJrIjojYjNkOWMxYzktZmlyMy00ZDdmLTIIYzctM2I5ZmZlZWQyYWMyliwidCI6IjdjOWI5OTAxLTljZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOjEwfQ\\_percent3D\\_percent3D](https://app.powerbi.com/view?r=eyJrIjojYjNkOWMxYzktZmlyMy00ZDdmLTIIYzctM2I5ZmZlZWQyYWMyliwidCI6IjdjOWI5OTAxLTljZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOjEwfQ_percent3D_percent3D)

But, 42 individuals are selected by the 10<sup>th</sup> criteria.

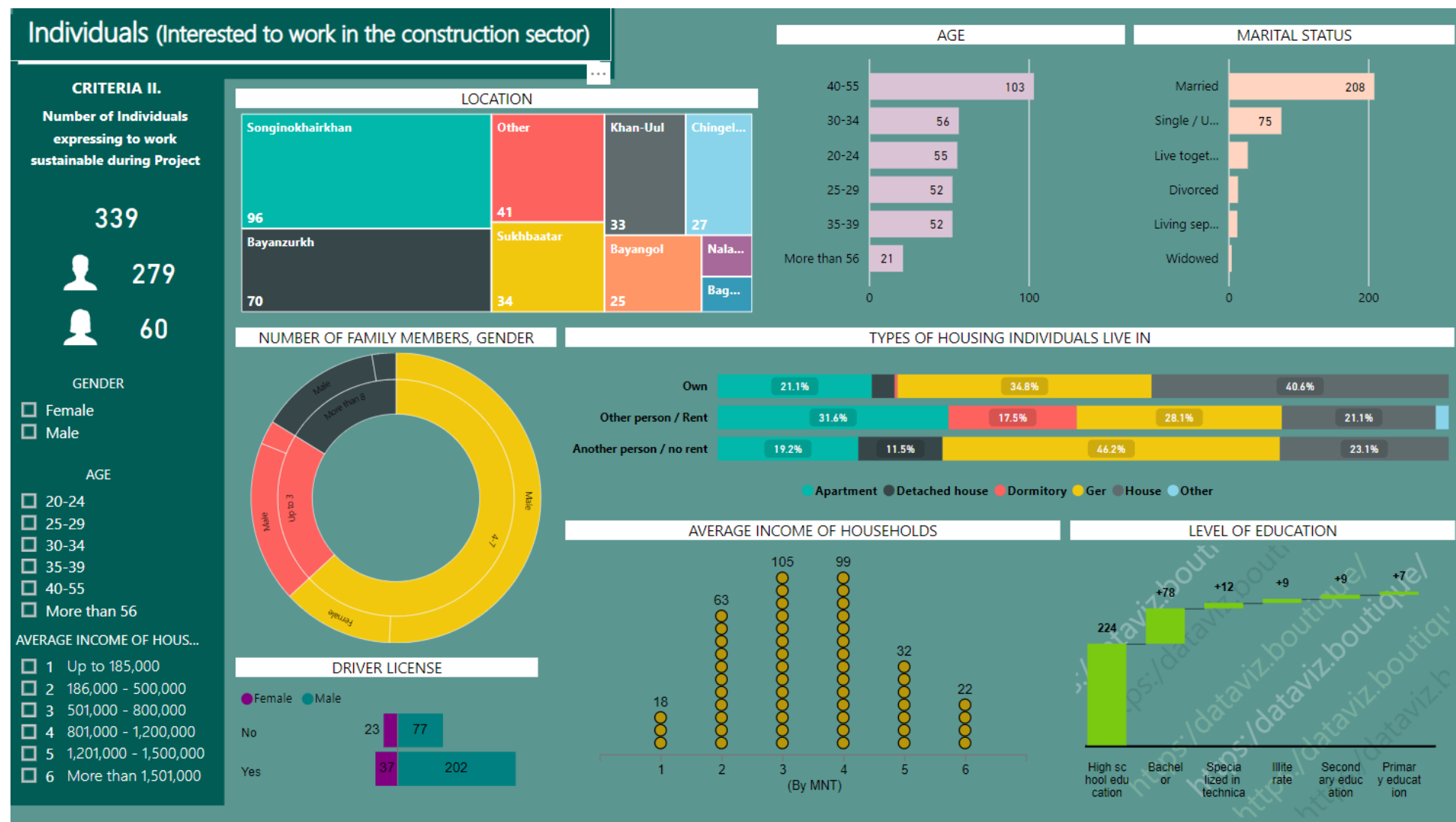
Link of POWER BI program in English:

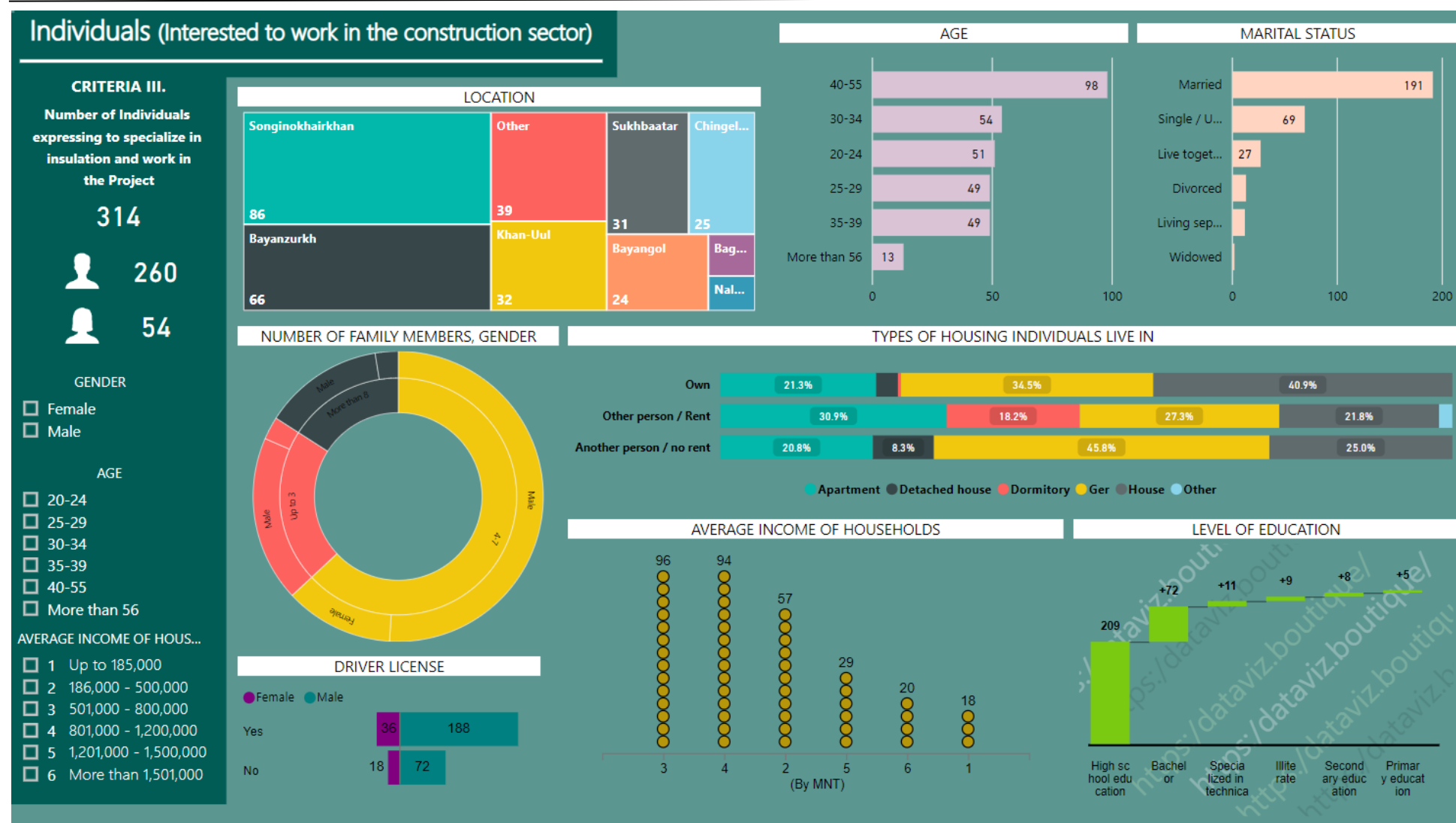
<https://app.powerbi.com/view?r=eyJrIjojNWMzY2QyMWEtODQ2Yy00ODM5LWFKZmUtYjYzYTg5MDA2NWRiliwidCI6IjdjOWI5OTAxLTljZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOjEwfQ%3D%3D>



**Picture 55. First stage of selection of individuals who willing to work in construction sector, by 1<sup>st</sup> criteria**



Picture 56. First stage of selection, by 2<sup>nd</sup> criteria

Picture 57. First stage of selection, by 3<sup>rd</sup> criteria

## Individuals (Interested to work in the construction sector)

### CRITERIA III.

**Number of Individuals  
expressing to specialize in  
insulation and work in  
the Project**

**314**



**260**



**54**

#### GENDER

- ☐ Female  
☐ Male

#### AGE

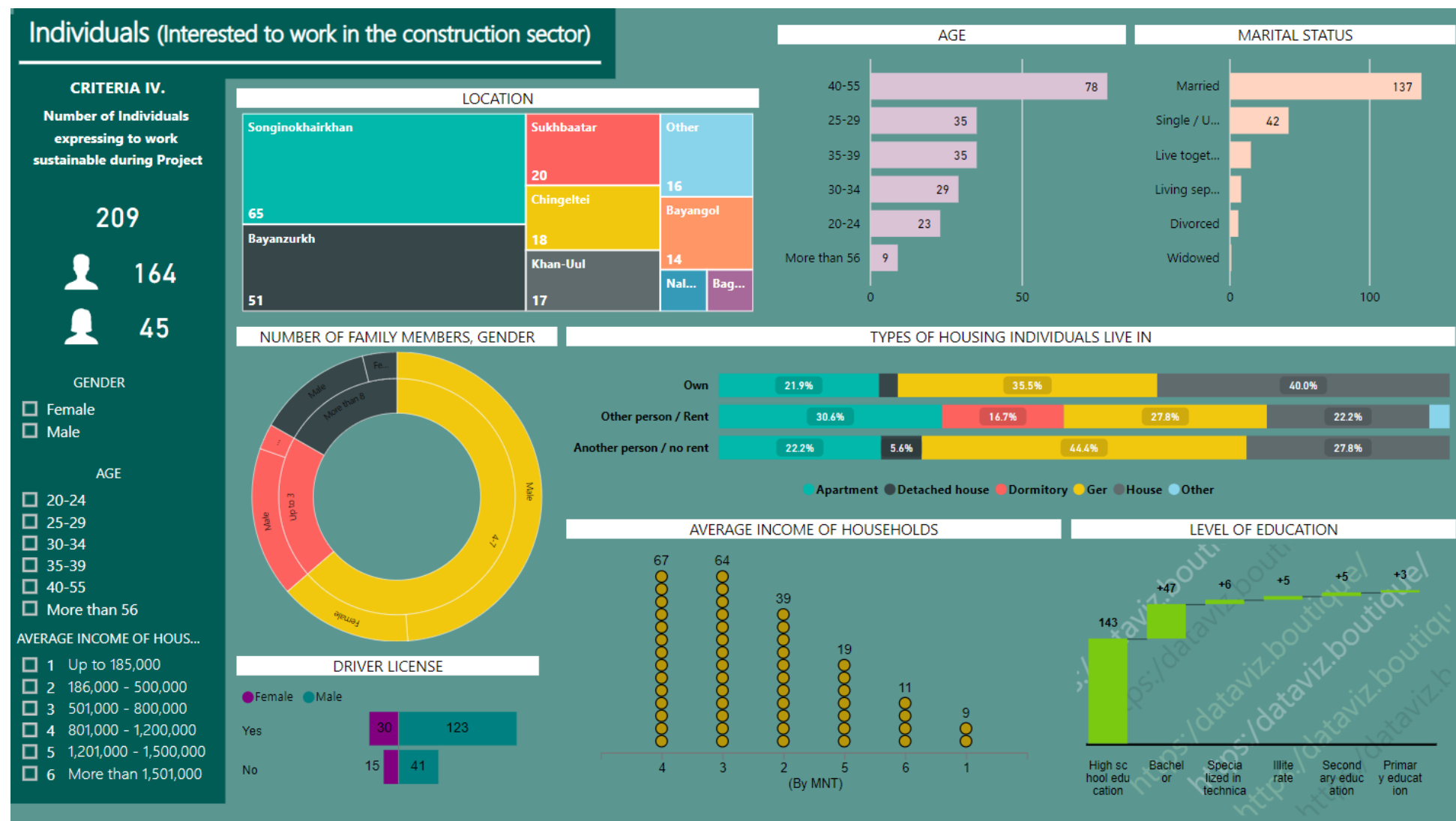
- ☐ 20-24  
☐ 25-29  
☐ 30-34  
☐ 35-39  
☐ 40-55  
☐ More than 56

#### AVERAGE INCOME OF HOUS...

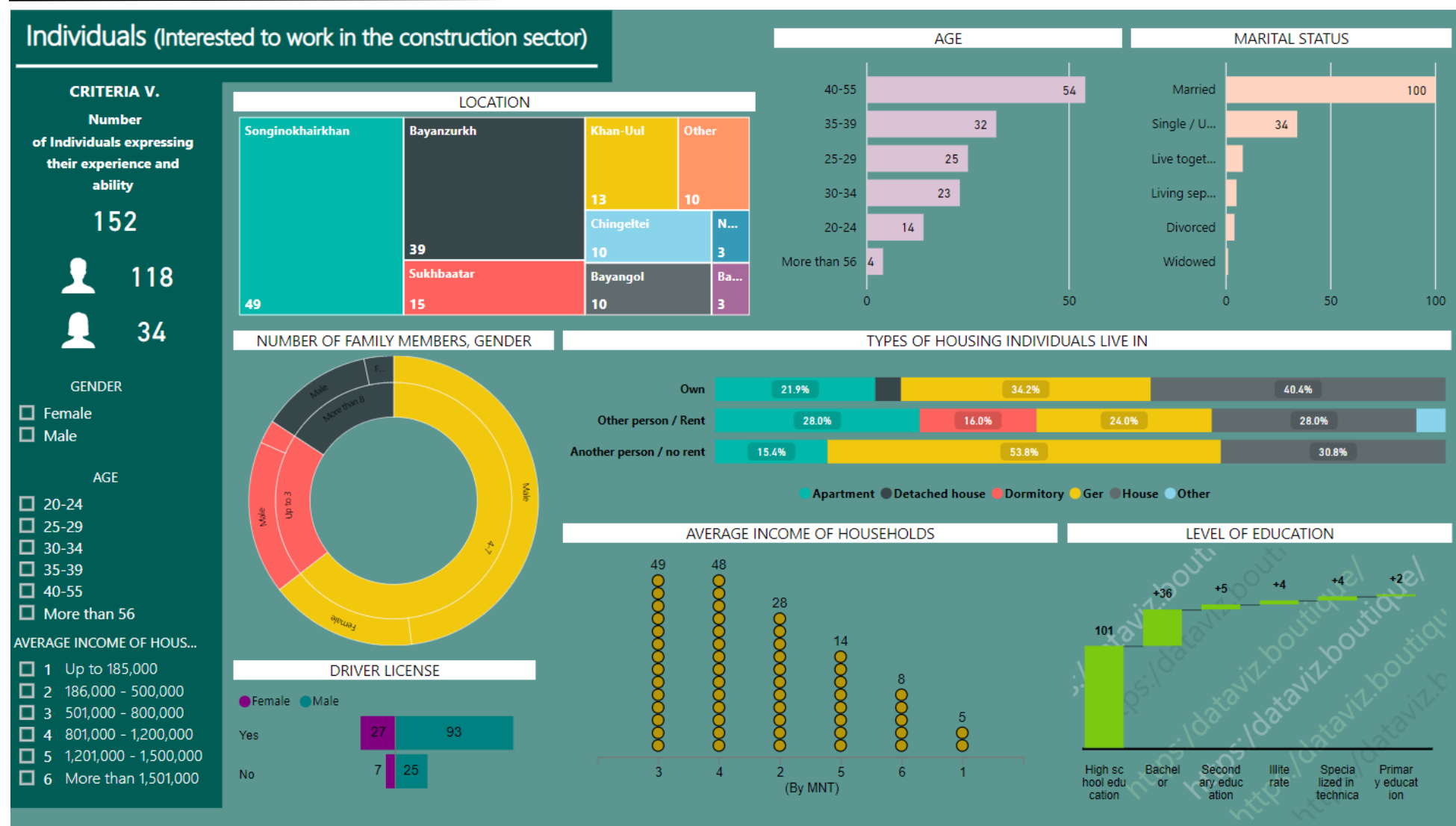
- ☐ 1 Up to 185,000  
☐ 2 186,000 - 500,000  
☐ 3 501,000 - 800,000  
☐ 4 801,000 - 1,200,000  
☐ 5 1,201,000 - 1,500,000  
☐ 6 More than 1,501,000

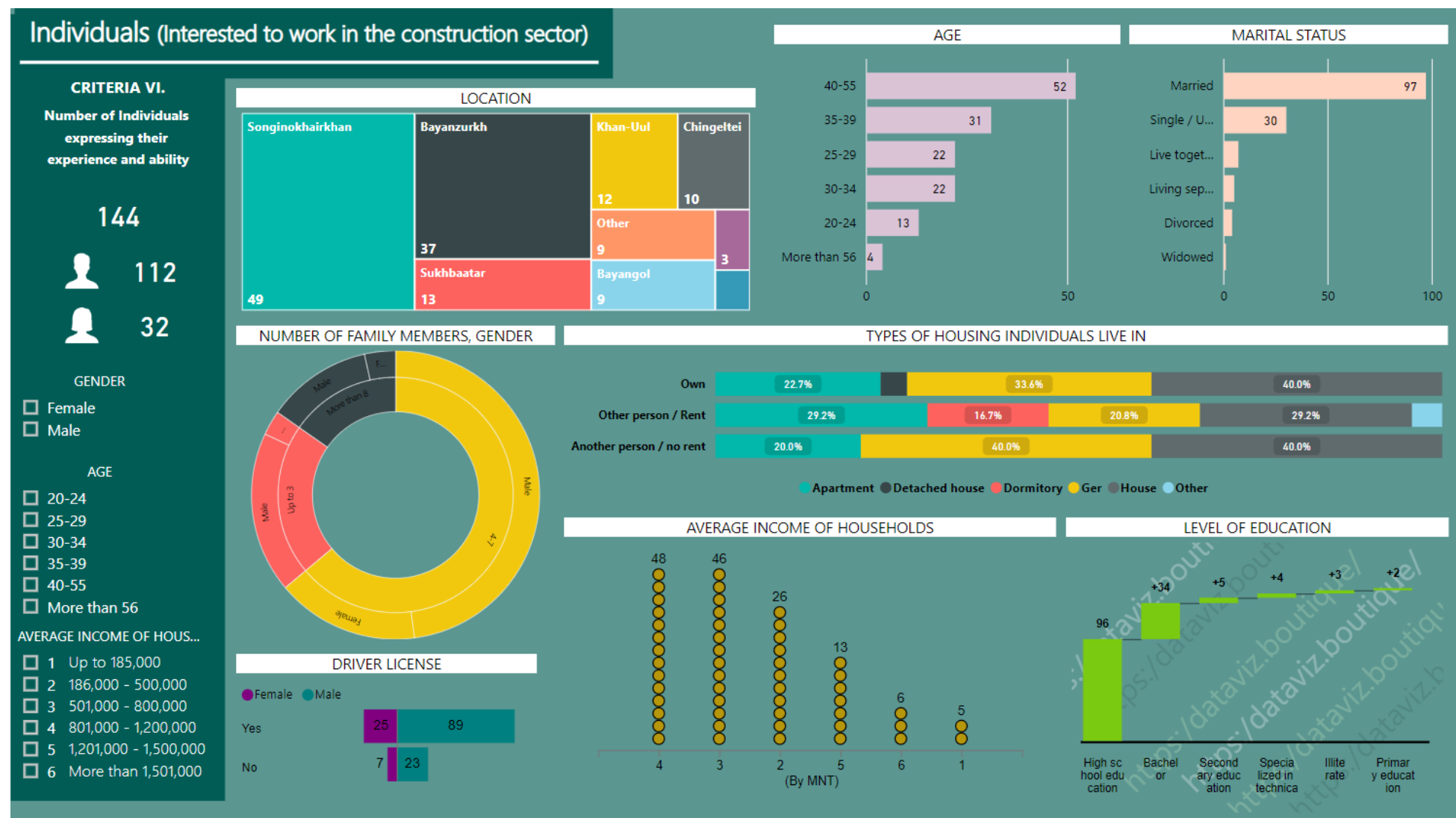
Number	Number of Individuals	Questionnaire number	Full name	Roof insulation	Exterior facade	Basement insulation	Window insulation, clay and its insulation	Carpenter	Skills / Competence
1	1	1	N.Enkhbat	1	1		1		3
2	1	1	Batmunkh Bold	1	1	1	1	1	5
3	1	1	A.Erdenechuluun					1	1
4	1	1	Myagmarbavuu Begzsuren	1					1
5	1	1	Otgonbulag		1	1	1		3
6	1	1	Toliya Altankhuyag	1	1	1	1	1	5
7	1	1	Bayanmunkh				1	1	2
8	1	1	B.Bat-Enerel	1	1	1	1	1	5
9	1	1	Nyamdorj Batmunkh				1		1
10	1	1	B.Baasantseren	1	1	1	1	1	5
11	1	1	Tseveenravdan Erdenebat	1	1			1	3
12	1	1	Dolgorsuren Battulga	1					1
13	1	1	Ankh-Erdene	1	1		1		3
14	1	1	A.Gelendaidamba	1			1	1	3
15	1	1	J.Tumurbaatar		1		1		2
16	1	1	Battulga	1	1		1	1	4
17	1	1	Ts.Erdenebat	1	1			1	3
18	1	1	D.Saikhanbayar	1	1		1		3
19	1	1	Jigzaa Batbaatar	1	1		1		3
20	1	1	Enkh-Amgalan Enkhchuluun					1	1
21	1	1	Kh.Azbayar		1				1
22	1	1	T.Gantsetseg	1	1	1	1		4
23	1	1	A.Gankhuyag	1	1	1	1	1	5
24	1	1	Tseen-Oidov Orgil		1			1	2
25	1	1	Bayartulga Lkhamsuren		1			1	2
26	1	1	Orsoo Oyunsuren			1			1
27	1	1	B.Tuvshinbat	1	1	1	1	1	5
28	1	1	Sukhbaatar Usukhbayar	1				1	2
29	1	1	Battsengel Nyam-Osor					1	1
30	1	1	Oyuntsetseg Enkh-Amgalan		1				1
31	1	1	D.Tuvshinbayar	1	1	1	1	1	5
32	1	1	Bold-Erdene		1		1	1	3
33	1	1	B.Khishigbat	1	1		1	1	4
Total	314	314	A.Altangerel	169	169	82	170	134	729

**Picture 58. First stage of selection, by 3<sup>rd</sup> criteria**



Picture 59. First stage of selection, by 4<sup>th</sup> criteria

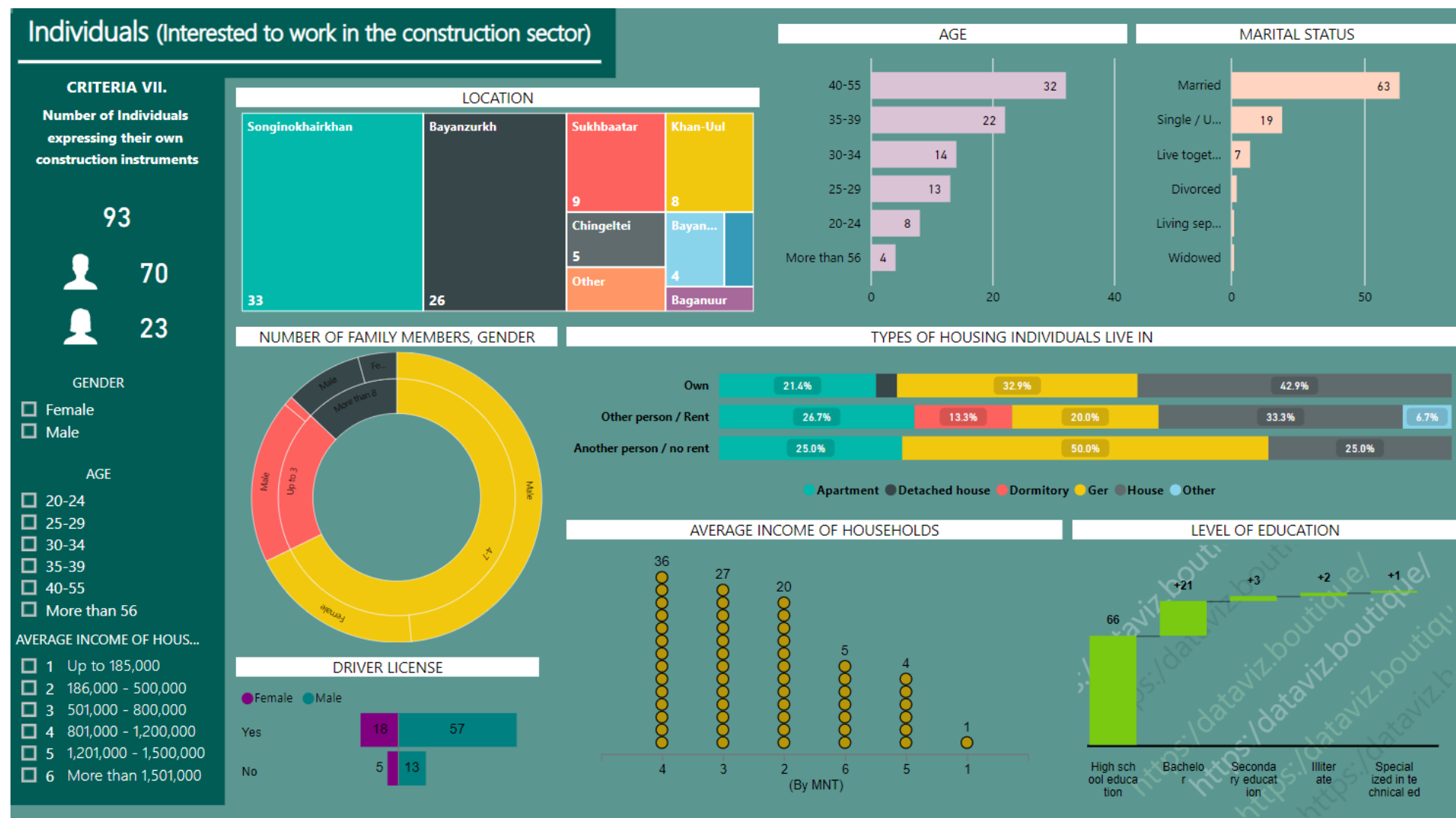
Picture 60. First stage of selection, by 5<sup>th</sup> criteria

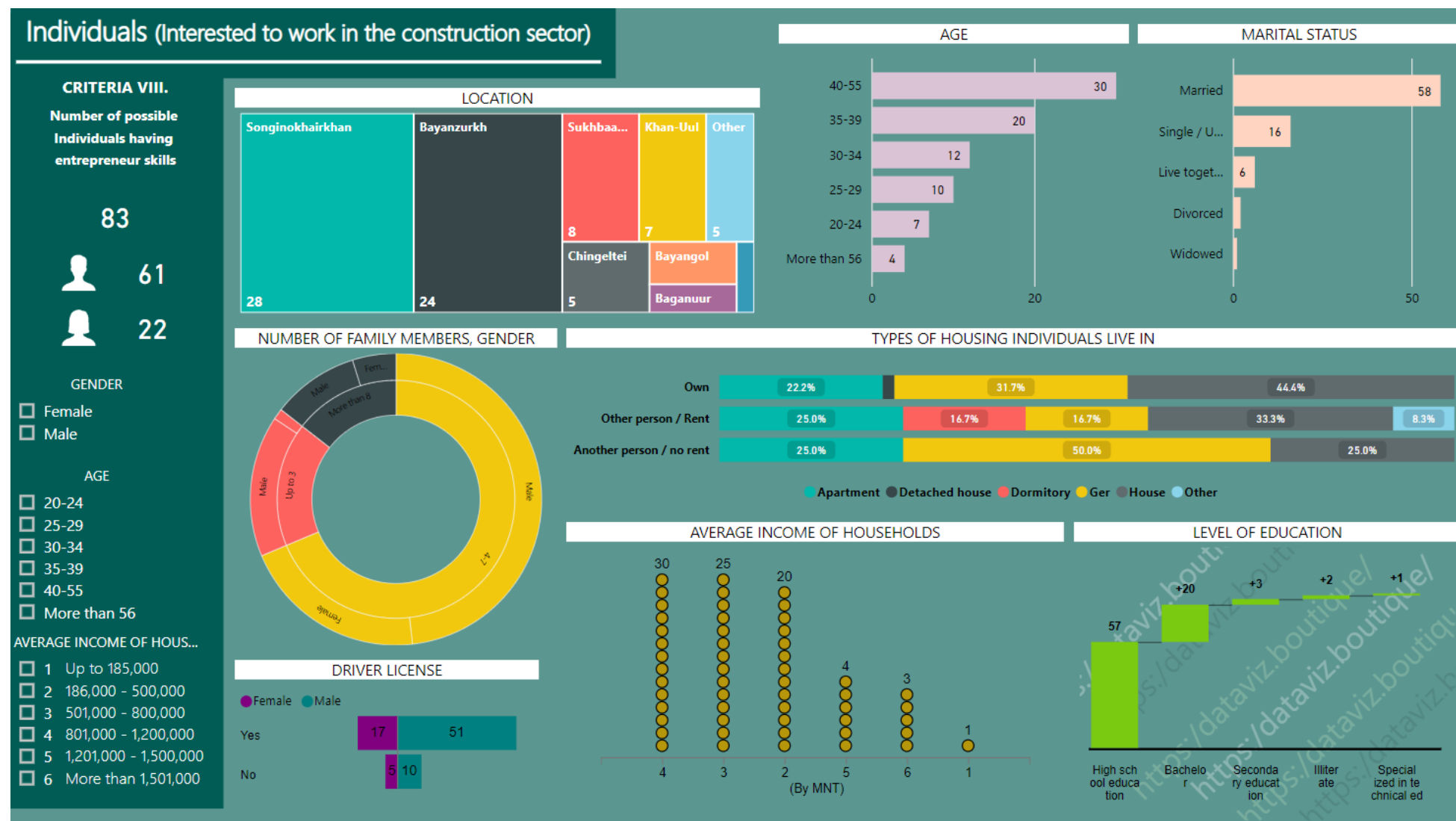
Picture 61. First stage of selection, by 6<sup>th</sup> criteria

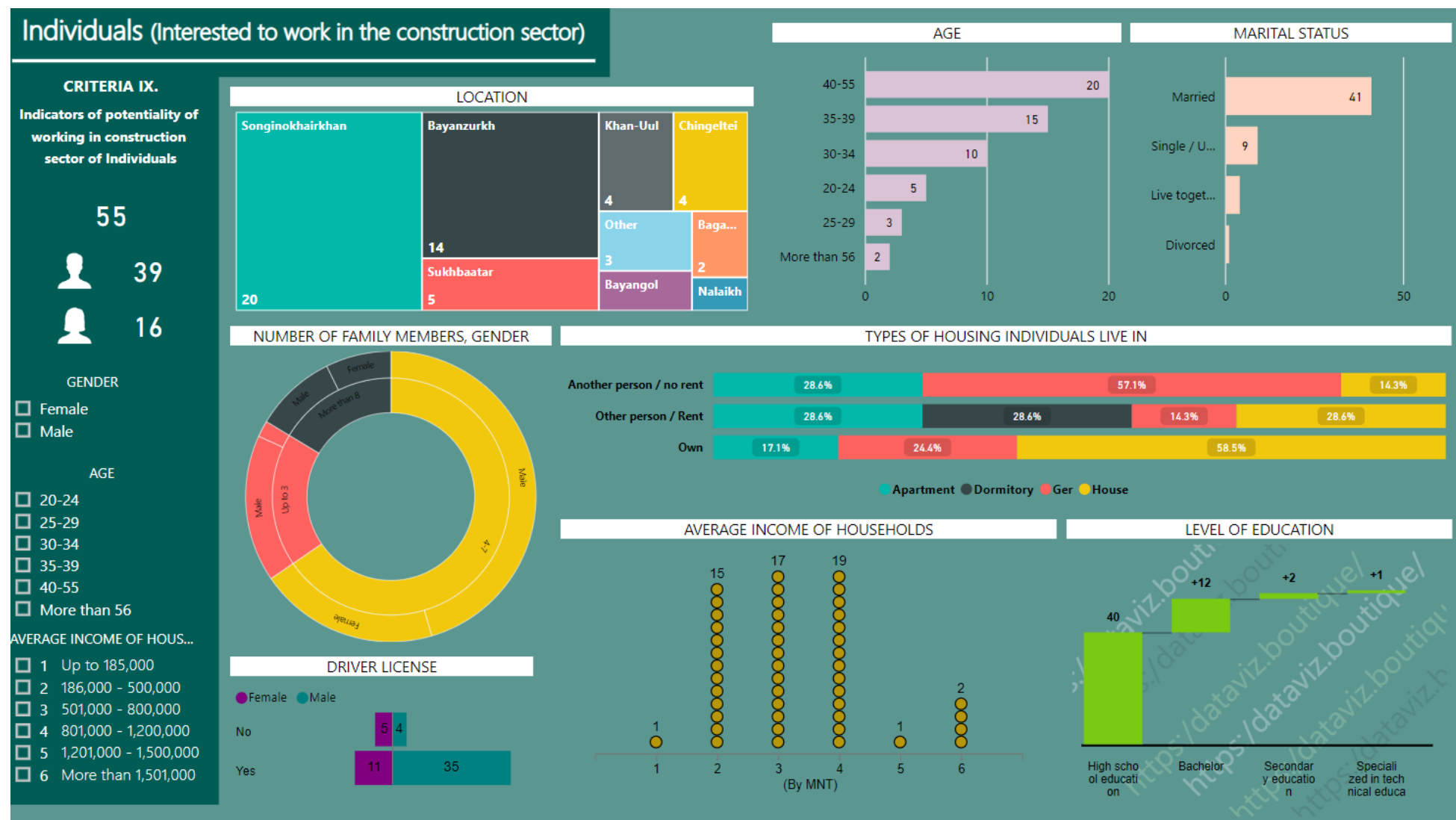
Individuals (Interested to work in the construction sector)															
CRITERIA VI.															
Number of Individuals expressing their experience and ability															
144															
112															
32															
GENDER															
<input type="checkbox"/> Female															
<input type="checkbox"/> Male															
AGE															
<input type="checkbox"/> 20-24															
<input type="checkbox"/> 25-29															
<input type="checkbox"/> 30-34															
<input type="checkbox"/> 35-39															
<input type="checkbox"/> 40-55															
<input type="checkbox"/> More than 56															
AVERAGE INCOME OF HOUS...															
<input type="checkbox"/> 1 Up to 185,000															
<input type="checkbox"/> 2 186,000 - 500,000															
<input type="checkbox"/> 3 501,000 - 800,000															
<input type="checkbox"/> 4 801,000 - 1,200,000															
<input type="checkbox"/> 5 1,201,000 - 1,500,000															
<input type="checkbox"/> 6 More than 1,501,000															
Number	Question naire number	Full name	Roof insulation	Installation of door, window and floor	Exterior facade	Construction build, cement work	Masonry	Plaster, interior works	Plumbing	Electrical work	Alarm & Automation service	Insulation of houses	Security	Carpentry work	Skills / Competence
1	1	N.Enkhbat			1										1
2	5	Myagmarbavuu Begzsuren	1												1
3	7	Toliya Altankhuyag				1									1
4	9	B.Bat-Enerel						1							1
5	20	Ankh-Erdene	1						1						2
6	31	Battulga	1	1	1		1	1	1			1			7
7	50	Enkh-Amgalan Enkhchuluun		1	1										2
8	51	Kh.Azbayar	1	1	1					1	1		1		6
9	52	T.Gantsetseg				1		1							2
10	53	A.Gankhuyag	1	1	1	1	1	1	1	1	1	1	1		11
11	60	Bayartulga Lkhamsuren			1										1
12	65	B.Tuvshinbat					1	1							2
13	69	D.Tuvshinbayar				1		1							2
14	72	B.Khishigbat								1					1
15	77	N.Damdinsuren							1	1		1			3
16	83	D.Gandorj			1										1
17	93	B.Bilguun	1	1	1	1	1	1	1	1	1		1		10
18	130	Munkhbat Chadraabal						1							1
19	131	E.Tumenbold	1	1	1	1	1			1		1			7
20	132	S.Khosbayar	1	1	1	1	1	1	1				1		8
21	133	B.Bat-Erdene	1	1	1	1	1	1				1			7
22	135	Davaatsetseg Gantulga		1			1	1							3
23	166	B.Gantulga	1	1		1		1							4
24	169	Borgilchuluun	1	1	1	1	1	1	1	1	1	1			10
25	226	B.Enkhtsetseg				1									1
26	229	N.Tsogjargal	1	1	1	1	1	1		1		1	1		9
27	234	Ikhubayar Uyanga						1							1
Total	183866	A.Altangerel	45	50	63	45	57	60	28	19	11	22	22	3	425

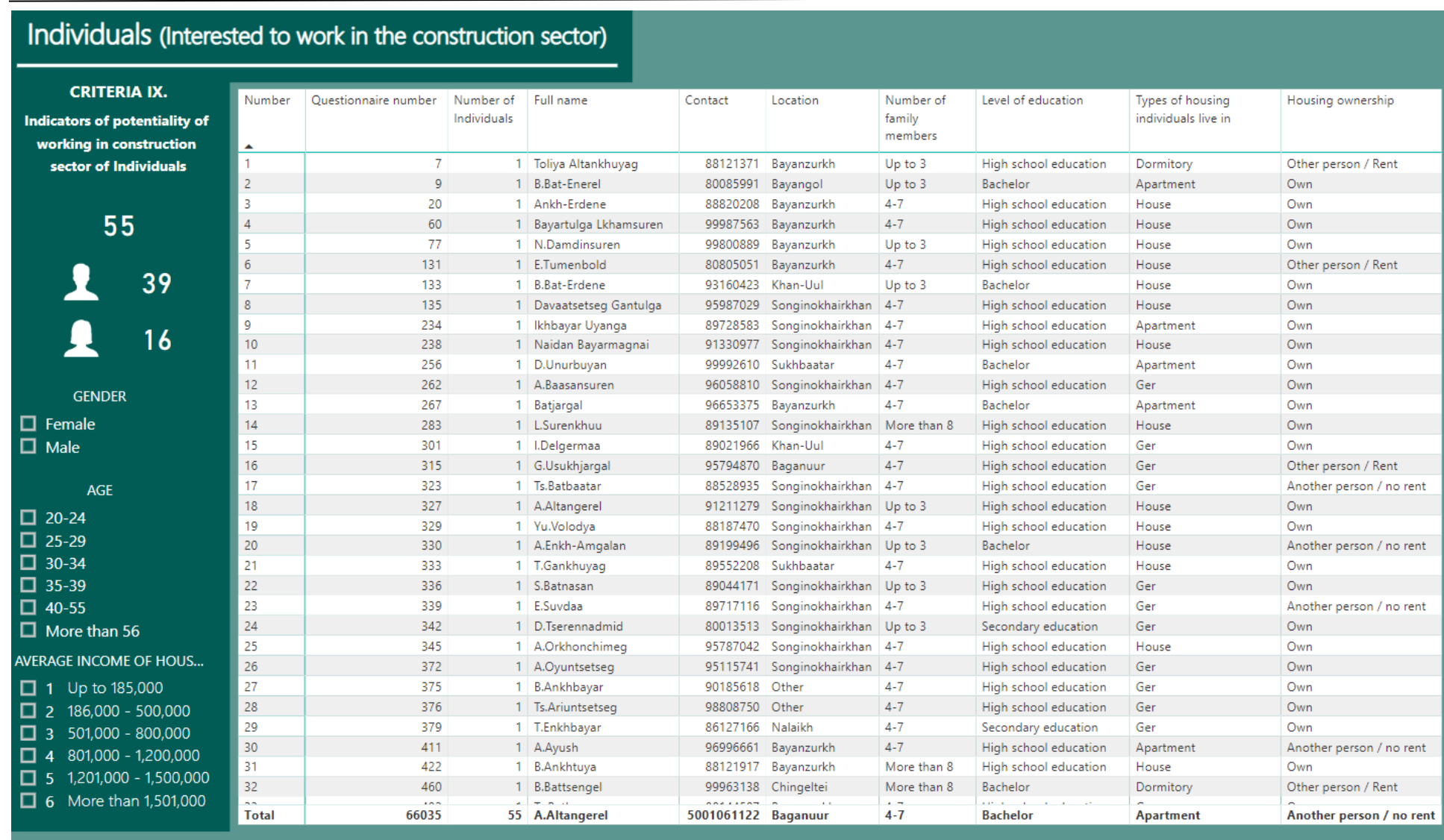
Picture 62. First stage of selection, by 6<sup>th</sup> criteria /continued/



Picture 63. First stage of selection, by 7<sup>th</sup> criteria

Picture 64. First stage of selection, by 8<sup>th</sup> criteria

Picture 65. First stage of selection, by 9<sup>th</sup> criteria

Picture 66. First stage of selection, by 9<sup>th</sup> criteria /continued/

List of 55 selected individuals who met with the 9 criterias of first selection process. (Table 15).

**Table 15. List of individuals who passed 1-9 criterias of first stage of selection process**

No	Number of questionnaires	Full name	Gender	Phone number	Address		
1	7	T.Altankhuayg	M	88121371	Bayanzurkh	19 <sup>th</sup> khoroo	BA house number 277
2	9	B.Bat-Erdene	M	80085991	Bayangol	2 <sup>nd</sup> khoroo	Home 71A suite 10
3	20	Ankh-Erdene	M	88820208	Bayanzurkh	27 <sup>th</sup> khoroo	
4	60	B.Lkhamsuren	M	99987563	Bayanzurkh	24 <sup>th</sup> khoroo	Jar house number 6-5
5	77	N.Damdinsuren	M	99800889	Bayanzurkh		
6	131	E.Tumenbold	M	80805051	Bayanzurkh	21 <sup>st</sup> khoroo	33-44
7	133	B.Bat-Erdene	M	93160423	Khan-Uul	14 <sup>th</sup> khoroo	Ulziit denj
8	135	D.Ganutlga	M	95987029	Songinokhairkhan	5 <sup>th</sup> khoroo	BG house 18-15
9	234	I.Uyanga	F	89728583	Songinokhairkhan	31 <sup>st</sup> khoroo	House 4A 4-387
10	238	N.Bayarmagnai	M	91330977	Songinokhairkhan	5 <sup>th</sup> khoroo	BG house 48-9
11	256	D.Unurbuyan	M	99992610	Sukhbaatar	10 <sup>th</sup> khoroo	
12	262	A.Baasansuren	M	96058810	Songinokhairkhan	26 <sup>th</sup> khoroo	House 5B number 1-64
13	267	Batjargal	M	96653375	Bayanzurkh	26 <sup>th</sup> khoroo	
14	283	L.Surenkhuu	F	89135107	Songinokhairkhan	5 <sup>th</sup> khoroo	BG house 14-21
15	301	I.Delgermaa	F	89021966	Khan-Uul	9 <sup>th</sup> khoroo	
16	315	G.Usukhjargal	M	95794870	Baganuur		Dari-Ekh
17	323	Ts.Batbaatar	M	88528935	Songinokhairkhan	8 <sup>th</sup> khoroo	
18	327	A.Altangerel	M	91211279	Songinokhairkhan	8 <sup>th</sup> khoroo	ZBTS house 3-99
19	329	Yu.Volodya	M	88187470	Songinokhairkhan	24 <sup>th</sup> khoroo	Loan house number 7-8
20	330	A.Enkh-Amgalan	M	89199496	Songinokhairkhan		
21	333	T.Gankuhyag	M	89552208	Sukhbaatar	15 <sup>th</sup> khoroo	Dambadarjaa <a href="https://flix555.com/embed-khvr83pqt1rz.html">https://flix555.com/embed-khvr83pqt1rz.html</a> 79B
22	336	S.Batnasan.	M	89044171	Songinokhairkhan	8 <sup>th</sup> khoroo	Bulag number 1-1
23	339	E.Suvdaa	F	89717116	Songinokhairkhan		
24	342	D.Tserennadmid	F	80013513	Songinokhairkhan	5 <sup>th</sup> khoroo	BGB 4-7

25	345	A.Orkhonchimeg	F	95787042	Songinokhairkhan	26 <sup>th</sup> khoroo	Altan-ovoo
26	372	A.Oyuntsetseg	F	95115741	Songinokhairkhan	26 <sup>th</sup> khoroo	Altan-ovoo 49-49
27	375	B.Ankhubayar	M	90185618	Other		Sarig 4-16
28	376	Ts.Ariuntsetseg	F	98808750	Other		Sarig 4-16
29	379	T.Enkhubayar	M	86127166	Nalaikh	7 <sup>th</sup> khoroo	Uvur 4a-13
30	411	A.Ayush	M	96996661	Bayanzurkh	26 <sup>th</sup> khoroo	park viva
31	422	B.Ankhtuya	F	88121917	Bayanzurkh		park river
32	460	B.Battsengel	M	99963138	Chingeltei	12 <sup>th</sup> khoroo	Bulga 20-1062
33	482	Ts.Batbayar	M	88144587	Bayanzurkh	28 <sup>th</sup> khoroo	10-1030 number
34	516	Erdenebileg	M	88028908	Bayangol	8 <sup>th</sup> khoroo	37-120
35	526	P.Munkh-Erdene	F	88818911	Bayanzurkh	1 <sup>st</sup> khoroo	Их тойруу 30байр 130тоот
36	623	B.Narankhuu	M	80828426	Bayanzurkh		21-356 number
37	628	Kh.Alimaa	F	99492494	Songinokhairkhan	28 <sup>th</sup> khoroo	4-68 number
38	632	Sh.Garavdorj	M	80166264	Chingeltei	14 <sup>th</sup> khoroo	Khandgait 1-001
39	640	B.Amarjargal	M	80304022	Chingeltei		
40	650	Temuujin	M	88073248	Bayanzurkh	17 <sup>th</sup> khoroo	Shuniin Apartment 54 Zakh
41	660	D.Enkhtsetseg	F	88164167	Songinokhairkhan	11 <sup>th</sup> khoroo	Mandal 6-123
42	664	Kh.Gerelkhuu	M	88347400	Other		17-04
43	668	B.Tumurkhuyag	M	80805146	Chingeltei		
44	705	S.Otgonjargal	F	99974057	Sukhbaatar	25 <sup>th</sup> khoroo	Khairkhan
45	952	G.Munkhnasan	F	99888150	Sukhbaatar	15 <sup>th</sup> khoroo	19-number 17
46	2001	M.Sanmoinov	M	89288292	Sukhbaatar	1 <sup>st</sup> khoroo	Suite - 36A-52
47	4009	Ch.Ganbold	M	99194703	Bayanzurkh	21 <sup>st</sup> horoo	11-1379
48	4032	B.Gantulga	M	88120431	Bayanzurkh		
49	5007	Batbayar	M	96612997	Songinokhairkhan	8 <sup>th</sup> khoroo	Street No.8 35-294
50	5010	Ch.Narankhuu	F	88913532	Songinokhairkhan	7 <sup>th</sup> khoroo	16-15
51	5011	D.Battulga	M	99262572	Songinokhairkhan	7 <sup>th</sup> khoroo	Suite 15-2
52	5019	J.Bat-Ochir	M	94546966	Songinokhairkhan		26-288
53	5020	B.Oyuntogtokh	F	86527576	Khan-Uul		48-595
54	5053	Batsaikhan	M	88088528	Baganuur	14 <sup>th</sup> khoroo	13-21
55	9000	Ts.Ganbold	M	88424701	Khan-Uul	6 <sup>th</sup> khoroo	Yarmag 20- 517

And 10<sup>th</sup> criteria should provide researchers ability to perform during the collection of surveys by involving their close surroundings, target khoroo, disabled but capable to work and women. 42 individuals who met with the 10th criteria shown as below table.

**Table 16. List of individuals met with the 10<sup>th</sup> criteria of first stage of selection**

No	Number of questionnaires	Full name	Gender	Phone number	Address	
1	250	Kh.Lkhagvajav	M	99065765	Other	
2	258	Ts.Tsolmon	M	99564406	Songinokhairkhan	31 <sup>st</sup> khoroo, Altai number 5-506
3	259	B.Tugsjargal	M	88040080	Songinokhairkhan	5 <sup>th</sup> khoroo T number 128-99 тоот
4	260	Kh.Naranbaatar	M	89423632	Songinokhairkhan	28 <sup>th</sup> khoroo NCH number 11-96
5	261	G.Baasandash	M	99493894	Bayangol	5 <sup>th</sup> khoroo number 21-2-54
6	263	D.Luvsangombo	M	99772105	Songinokhairkhan	5 <sup>th</sup> khoroo, BG number 52-1
7	265	T.Luvsandagva	M	88475596	Songinokhairkhan	5 <sup>th</sup> khoroo, BG number 52-1
8	306	P.Davaajav	M	99821837	Songinokhairkhan	Khairkhan street 3-36
9	335	D.Davaatseren	M	88136103	Bayanzurkh	Number 3-28
10	338	Ch.Dashnyam	M	94496519	Sukhbaatar	15 <sup>th</sup> khoroo, number 12-73-7
11	341	Sereeter Nergui	M	99703839	Songinokhairkhan	Altai 5-506
12	343	L.Undarmaa	F	95287979	Songinokhairkhan	
13	344	Kh.Otgonbold	M	95000146	Other	Salkhit
14	348	O.Tileujan	M	85844041	Bayangol	
15	351	P.Altantsooj	M	96692993	Nalaikh	New Nalaikh town Number 2-10
16	352	B.Baasanbat	M	89712209	Songinokhairkhan	Khangai 50-19
17	354	B.Batmunkh	M	99036066	Sukhbaatar	52-1B
18	355	M.Batzul	M	88401221	Songinokhairkhan	Tsambagarav A-4-387
19	357	Khosbayar	M	88976780	Sukhbaatar	Number 06-1
20	378	Ts.Ariunzaya	F	88333560	Songinokhairkhan	Loan 2-25
21	527	L.Och	M	85826413	Songinokhairkhan	
22	559	Ankhubayar	M	86870726	Songinokhairkhan	Nogoon Chuluut 52-11
23	566	Tugsjargal	M	80199610	Songinokhairkhan	Malchin 1-50-B
24	618	B.Batbold	M	88178160	Sukhbaatar	47-46A
25	665	O.Orkhon	M	96009772	Songinokhairkhan	
26	666	N.Otgonbayar	M	88905904	Bayanzurkh	
27	944	A. Erdenetsetseg	F	89549499	Sukhbaatar	Belkh 29-625
28	945	Ts.Tumurbaatar	M	88988846	Sukhbaatar	11-270
29	946	E.Munkh-Erdene	M	89299499	Sukhbaatar	Belkh 29-625
30	954	D.Gereltuya	F	96330506	Sukhbaatar	Number 25
31	5002	Ts.Jamyansuren	M	86953300	Songinokhairkhan	
32	5006	B.Ariunzaya	F	86252547	Songinokhairkhan	Nuuriin 10-9
33	5008	L.Battushig	M	96224928	Songinokhairkhan	ZBTS 12-35
34	5012	B.Gankhuyag	M	95677589	Songinokhairkhan	Ovoonii 3-16
35	5013	Z.Lhagvasuren	M	89108398	Songinokhairkhan	Number 30-13
36	5014	L.Batsaikhan	M	88084901	Bayangol	Apartment 6-60
37	5015	S.Ochirjav	M	88965951	Sukhbaatar	Altan Town 22-11
38	5016	O.Baatarsukh	M	88870119	Chingeltei	10-305

39	5017	B.Enkhbold	M	88864200	Chingeltei	
40	5036	Nergui	M	80880449	Other	Dornogovi, Sainshand, 2 <sup>nd</sup> team, ET-30
41	5041	B.Bayanzul	M	94441076	Bayanzurkh	Monos 2-27
42	7191	P.Enkhjargal	M	88088694	Bayanzurkh	

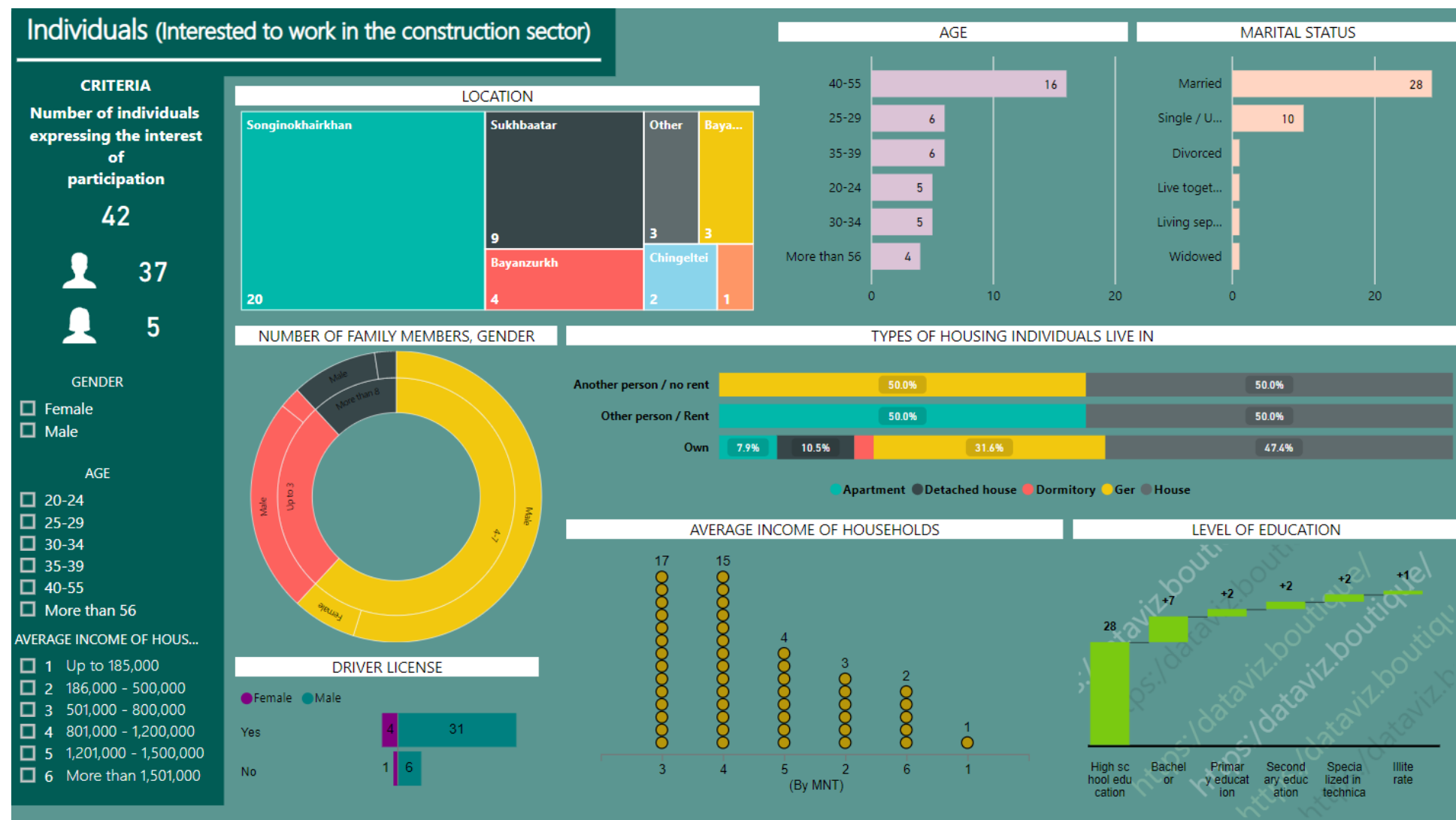
Individuals and questionnaires met with the requirements by criteria of first stage of selection are analysed by POWE BI program and created their databases. (Pictures 67-69).

<https://app.powerbi.com/view?r=eyJrljoiODgwZDdiZTMtYmVhNi00YjgzLWI0ZGMtOTg0Zjk5ZjFkNGVhliwidCI6IjdjOWI5OTAxLTljZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOiEwfQ percent3D percent3D>

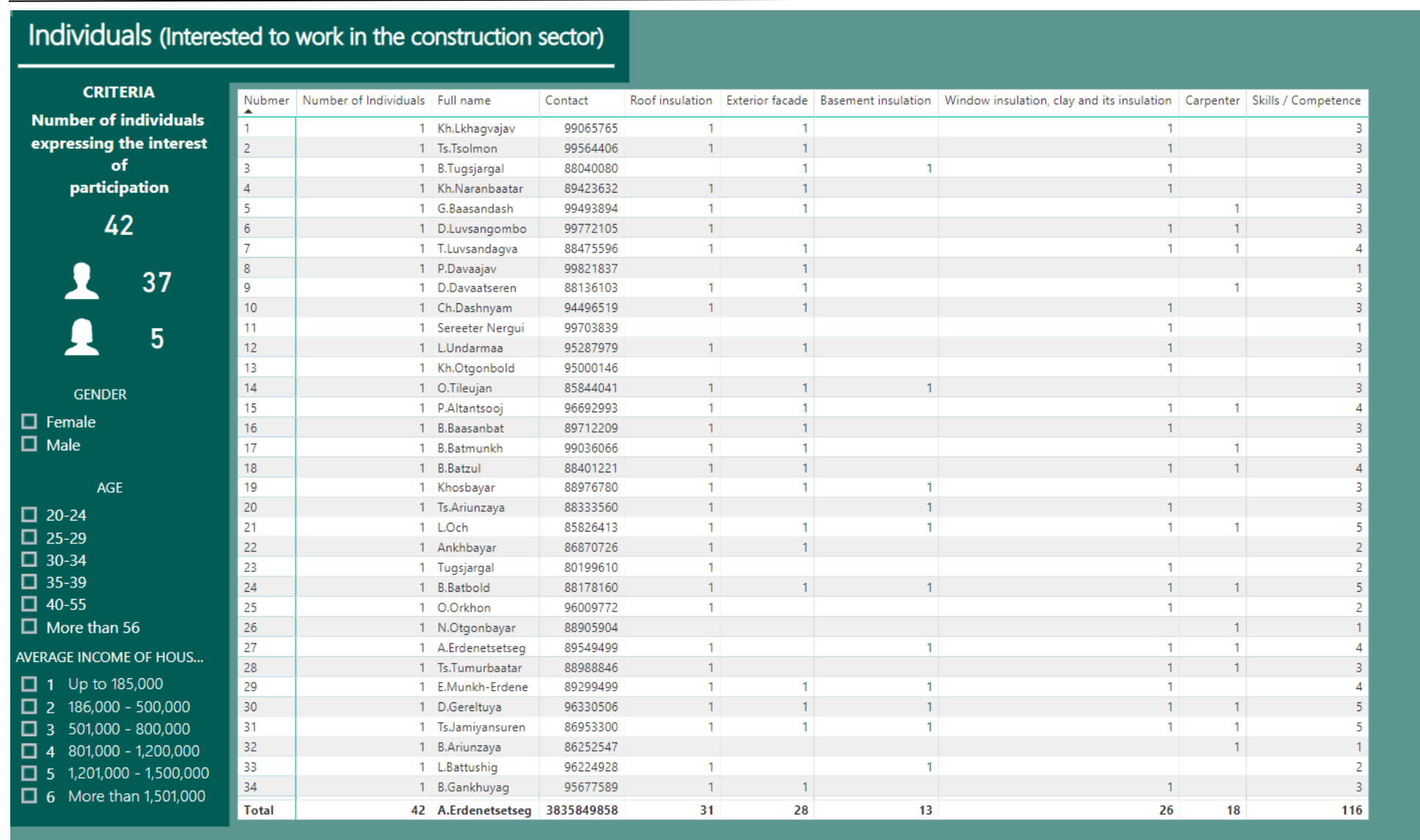
Link in English:  
<https://app.powerbi.com/view?r=eyJrljoiMWFjMzdlOGEtZTVmOS00YmQyLTg0MzltZjk5OWY3MWVlZjcxliwidCI6IjdjOWI5OTAxLTljZjEtNGlwMC1hODkxLTAwNjgzYmZjMzFmNiIsImMiOiEwfQ%3D%3D>

The links are only available within 5 days after the submission of report.





Picture 67. Indicators of individuals who selected in the first stage, by 10<sup>th</sup> criteria



**Picture 68. Indicators of individuals who selected in the first stage, by 10<sup>th</sup> criteria (continued)**

Individuals (Interested to work in the construction sector)																
CRITERIA																
Number of individuals expressing the interest of participation																
42																
37																
5																
GENDER																
<input type="checkbox"/> Female																
<input type="checkbox"/> Male																
AGE																
<input type="checkbox"/> 20-24																
<input type="checkbox"/> 25-29																
<input type="checkbox"/> 30-34																
<input type="checkbox"/> 35-39																
<input type="checkbox"/> 40-55																
<input type="checkbox"/> More than 56																
AVERAGE INCOME OF HOUS...																
<input type="checkbox"/> 1 Up to 185,000																
<input type="checkbox"/> 2 186,000 - 500,000																
<input type="checkbox"/> 3 501,000 - 800,000																
<input type="checkbox"/> 4 801,000 - 1,200,000																
<input type="checkbox"/> 5 1,201,000 - 1,500,000																
<input type="checkbox"/> 6 More than 1,501,000																
Number	Number of Individuals	Full name	Contact	Roof insulation	Installation of door, window and floor	Exterior facade	Construction build, cement work	Masonry	Plaster, interior works	Plumbing	Electrical work	Alarm & Automation service	Insulation of houses	Carpentry work	Security	Skills / Competenc
1	1	Kh.Lkhagvajav	99065765			1										1
2	1	Ts.Tsolmon	99564406		1				1							2
3	1	B.Tugsjargal	88040080						1							1
4	1	Kh.Naranbaatar	89423632			1			1							2
5	1	G.Baasandash	99493894										1			1
6	1	D.Luvsangombo	99772105	1		1	1	1								4
7	1	T.Luvsandagva	88475596	1				1	1							3
8	1	P.Davaajav	99821837	1	1	1	1									4
9	1	D.Davaatseren	88136103		1	1				1					1	4
10	1	Ch.Dashnyam	94496519				1									1
11	1	Sereeter Nergui	99703839		1										1	2
12	1	L.Undarmaa	95287979			1										1
13	1	Kh.Otgonbold	95000146			1										1
14	1	O.Tileujan	85844041			1										1
15	1	P.Altantsooj	96692993	1		1		1								3
16	1	B.Baasanbat	89712209								1					1
17	1	B.Batmunkh	99036066			1	1	1								3
18	1	B.Batzul	88401221	1	1						1					3
19	1	Khosbayar	88976780			1										1
20	1	Ts.Ariunzaya	88333560						1							1
21	1	L.Och	85826413								1					1
22	1	Ankhubayar	86870726							1						1
23	1	Tugsjargal	80199610	1				1					1			3
24	1	B.Batbold	88178160		1	1	1					1				4
25	1	O.Orkhon	96009772				1	1		1						3
26	1	N.Otgonbayar	88905904		1	1	1	1					1			5
27	1	A.Erdenetsetseg	89549499								1	1	1	1		4
28	1	Ts.Tumurbaatar	88988846		1											1
29	1	E.Munkh-Erdene	89299499					1								1
30	1	D.Gereltuya	96330506	1	1	1		1				1			1	6
Total	42	A.Erdenetsetseg	3835849858	12	15	21	9	11	8	6	5	5	5	1	3	1

Picture 69. Indicators of individuals who selected in the first stage, by 10th criteria (continued)

## CHAPTER 5. SECOND STAGE OF SELECTION PROCESS AND ITS RESULTS OF INDIVIDUALS AND BRIGADES WHO EXPRESSED THEIR INTEREST TO WORK IN THE PROJECT

We invited individuals and leader of brigades who expressed their interest to work in install insulation of houses in ger area and met with requirements of first stage of selection process that expressed their interest to work in insulation of houses in ger area, to second stage of selection process.

**Table 17. Results of second stage of selection process**

Types of respondents passed first stage of selection	Quantity	Number of respondents who accepted the invitation of second stage selection process	Number of respondents who unaccepted the invitation /unreachable, out of city, cannot attend, got new works, changed their phone numbers /
Brigades	96	33	63
Individuals	97	19	78
Total	193	52	141

In the second stage of selection process, individuals and brigades submitted their application and are interviewed by professional experts within the framework of the following interview sheets.

**Second stage of selection of individuals and brigades who expressed their interest to work in install insulation of houses in ger area**

Notes:

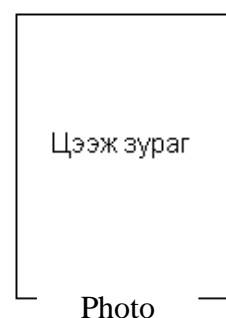
1. The organization is not responsible for any commitment for receiving the application
2. Do not abbreviate any word and please answer specifically and consicely.
3. Required to attach photo.
4. Diplomes, Copy of ID card, letter of recommendation from previous works and schools and CV and diploma are able to attach with this application if necessary.
5. Enclosed documents will not be returned.
6. Personal information will not be used for any other objectives.

**APPLICATION OF INDIVIDUALS WHO WILL DO INSULATION WORKS OF HOUSE IN GER AREA**

**Interested** **work:**

.....

**I. Brief Introduction**



Surname ..... Given Name .....

Gender... Date of birth... Year.... Month....Day Birth place.....

Registration number: .....

Address: .....

Phone number (home).....(phone).....(a).....(Other).....Email.....

.....

Facebook account: .....

**II. Family members**

Relation	Full name	Birth year	Profession	Name of current employed organization	Current employed position	Phone number

### **III. Education /including preliminary education/**

Name of school, university, place	Year of enrollment	Year of graduation	Profession	Level of education	Rank	GPA

### **IV. Level of construction work skills /Fill the levels as the following "+" mark /**

All types of insulation work			Carpentry			Plastering, masonry, interior works			Construction sub works			Other	
Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Points	Points

### **V. Fill information of the last 3 works of yours**

Name of client / organization	Position	Main activities /works that have been done/	Duration		Salary	Reasons of quitting job
			In	Out		

### **VI. Names of references who will describe your professional skills and experiences.**

Name of your reference and your relation	Position and organization	Contact information

### **VII. What kind of equipment are you able to use?**

Nº	Name of equipment	Excellent	Intermediate level	Basic	Uncertain / I do not know
1					
2					
3					
4					
5					

## **VIII. Personal advantages and disadvantages**

Your advantages	Your disadvantages

## **Other talents / art, sport etc. /**

Types of sector	Duration year	Ranks	Certification	Year of certification

1. Do you have any other working skills? If yes, please describe.

.....  
 .....

2. Amount of your expected salary: minimum..... Maximum.....

3. Expected dates and duration of availability to work  
 .....

Signature.....

Date.....year.....month.....day

**Second stage of selection of individuals and brigades who expressed their interest to work in install insulation of houses in ger area**

**Notes:**

1. The organization is not responsible for any commitment for receiving the application
2. Do not abbreviate any word and please answer specifically and consicely.
3. Required to attach photo.
4. Diplomes, Copy of ID card, letter of recommendation from previous works and schools and CV and diploma are able to attach with this application if necessary.
5. Enclosed documents will not be returned.
6. Personal information will not be used for any other objectives.

**APPLICATION OF BRIGADE LEADER HAT WILL DO INSULATION  
WORKS IN GER AREA**

**Interested** **work:**

.....

Цээж зураг

Photo

**I. Brief Introduction**

Surname ..... Given Name .....

Gender... Date of birth...Year.... Month....Day Birth place.....

Registration number: .....

Address: .....

Phone number (home).....(phone).....(a).....(Other).....Email.....

.....

Facebook account: .....

**II. Family members**

Relation	Full name	Birth year	Profession	Name of current employed organization	Current employed position	Phone number

**III. Education /including preliminary education/**



Name of school, university, place	Year of enrollment	Year of graduation	Profession	Level of education	Rank	GPA

**IV. Level of construction work skills /Fill the levels as the following "+" mark /**

All types of insulation work			Carpentry			Plastering, masonry, interior works			Construction sub works			Other	
Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Excellent	Good	Basic / weak	Points	Points

**V. Fill the following information of the last 3 works that have been implemented**

Name of client / organization	Position	Main activities /works that have been done/	Duration		Salary	Reasons of quitting job
			In	Out		

**VI. Names of references who will describe your professional skills and experiences.**

Name of your reference and your relation	Position and organization	Contact information

**VII. What kind of equipment and machinery do your brigade own?**

Nº	Name of equipment and machinery	Quantity	Description
1			
2			
3			
4			

**VIII. Personal advantages and disadvantages**

Your advantages	Your disadvantages

**How many brigades and members of brigades are you able to offer?**

Number of brigades	Number of members	Working duration

1. The amount of your expected salary: minimum..... maximum.....

2. Expected      dates      and      duration      of      availability      to      work  
 .....

Signature.....

Date.....year.....month.....day

## SECOND STAGE OF SELECTION PROCESS OF BRIGADES THAT EXPRESSED THEIR INTEREST TO WORK IN CONSTRUCTION SECTOR

### INTERVIEW SHEET

Interviewer: -----

Full name of interviewee: -----

Number of questionnaires: -----

**The purpose of the survey and selection procedure by interview.** The heat loss of houses in ger areas should be reduced. Within the goal of the project “Energy efficiency advisory and financial intermediation for sustainable housing in unplanned areas in Ulaanbaatar to reduce air pollution” funded by European Union and implemented by GERES /Grance – Group for Environment, Renewable Energy and Solidarity/ cooperating with Mongolian National Construction Association. Currently there are total **160,000** houses needed to be insulated and 1,000 of them will be involved in the project funded by GERES . The goal of the current survey is to identify the individuals in construction sector who are interested to work in this project. Thus, congratulations to you and your members of brigades for the passing first stage of the selection. We will ask 5 questions during the interview. You will be paying efforts for our project by responding honestly based on the real circumstances of your brigade.

No	Questions	Brief notes of the responses	Evaluation 1-5 points
1	Evaluate the terms of responds in the questionnaire		
2	How much payment would be suitable for your brigade to perform this work?		
3	How many members or brigades would you able to offer?		
4	How would you able to comply the work sustainability of your brigade in our Project?		
5	Do your brigade members able to work sustainable in your team? If yes, how many members?		
6	Have you ever experienced that you under performed your orders or refused to perform?		
7	Have your work scale and income level increased in recent years?		
8	Would you interest to insulate and retrofit your own house?		
9	Do you have any questions from us?		
10	When would your brigades able to start the work?		
11	Total score		

**The questions missed out from the previous survey shall be filled during the interview. If there are more descriptive information needed, interviewer shall ask additional questions.**

Date.....

## SECOND STAGE OF SELECTION PROCESS OF INDIVIDUALS THAT EXPRESSED THEIR INTEREST TO WORK IN CONSTRUCTION SECTOR

### INTERVIEW SHEET

Interviewer: -----

Full name of interviewee: -----

Number of questionnaires: -----

**The purpose of the survey and selection procedure by interview.** The heat loss of houses in ger areas should be reduced. Within the goal of the project "Energy efficiency advisory and financial intermediation for sustainable housing in unplanned areas in Ulaanbaatar to reduce air pollution" funded by European Union and implemented by GERES /Grance – Group for Environment, Renewable Energy and Solidarity/ cooperating with Mongolian National Construction Association. Currently there are total **160,000** houses needed to be insulated and 1,000 of them will be involved in the project funded by GERES . The goal of the current survey is to identify the individuals in construction sector who are interested to work in this project. Thus, congratulations to you and your members of brigades for the passing first stage of the selection. We will ask 5 questions during the interview. You will be paying efforts for our project by responding honestly based on the real circumstances of your brigade.

No	Questions	Brief notes of the responses	Evaluation 1-5 points
1	Evaluate the terms of responds in the questionnaire		
2	How much payment would be suitable for your brigade to perform this work?		
3	How many members or brigades would you able to offer?		
4	How would you able to comply the work sustainability of your brigade in our Project?		
5	Do your brigade members able to work sustainable in your team? If yes, how many members?		
6	Have you ever experienced that you under performed your orders or refused to perform?		
7	Have your work scale and income level increased in recent years?		
8	Would you interest to insulate and retrofit your own house?		
9	Do you have any questions from us?		
10	When would your brigades able to start the work?		
11	Total score		

**The questions missed out from the previous survey shall be filled during the interview. If there are more descriptive information needed, interviewer shall ask additional questions.**

Date.....

## 5.1. The indicators and its results of the second stage of selection of Brigades willing to work in install insulation of houses in ger areas

**Table 18. Results of second selection of Brigades**

№	# of questionnaire	Last name	First name	Gender	ID	Phone numbers	Assessment of expert	Work salary that offers		Education level / Profession	Types of operation	Interviewer	Number of brigades that offers	Number of member of brigades	
								Min	Max					Min	Max
1	12	Manlai	Ankhmaa	F	CHJ86121363	88026553	5	30,000	50,000	Plumber, Safety engineer	Installation of plumbing	B.Oyuntungalag	1	4	4
2	0262 (55)	Altangerel	Baasansuren	F	VG88050600	96058810, 80700113, 91011322	5	1.2	1.5	Interior design	Carpenter, internal masonry design, exterior facade	B.Oyuntungalag	3	8	30
3	214	Altankhuyag	Bujinlkham	F	AA87013122	91873436, 91898818, 88036086	5	40,000	60,000	Management	Masonry, interior design, plumbing, gypsum boards		3	20	30
4	9102	Otgontenger	Dulamsuren	F	AR96020408	91011187, 99052377	4			Business management	Exterior facade	Sh.Oyundari	1	18	18
5	301 (55)	Ichinnorov	Delgermaa	F	IG76080901	89021966, 88026600, 80353719	5	35,000	55,000	High school	Construction	N.Munkhuu	2	20	20
6	39	Naran	Javzandolgor	F	VM76030428	96616048, 89999035	4	50,000	80,000		Design	Sh.Oyundari	2	5	5
7	0060 (55)	Bayartulga	Lkhamsuren	F	KHL86062667	95957563, 99987563, 88252867, 89010204	4	140,000	150,000	Design, reinforcing	Reinforcing and interior design,	B.Oyuntungalag	3	6	9

											masonry				
8	57	Purevbat	Minjgarav	F	ITS82021762	96680819, 86680819, 98332118, 91892821	5	45,000	65,000	Interior & exterior design, plastering	Design and exterior rock design	B.Oyuntungalag	2	6	8
9	952 (55)	Dalkhjav	Munkhnasan	F	MB74030104	99888150, 85050546, 96913377	5	30,000	70,000	Exterior and interior design, carpenter	Exterior façade	N.Munkhuu	2	10	30
10	368 (+)	Janchivdorj	Uranbileg	F	CHV84102061	99285579, 98080066, 70187788, 98085533	5	25,000	+	Civil engineer	Insulation	Erdenechimeg	4	20	20
11	2004	Bolodya	Altangerel	M	NT87072519	99952838, 88283844	5	40,000	+	Building major field	Installation of plumbing, wall disjunction, security techniques	N.Munkhuu	1	4	4
12	7	Tolya	Altankhuyag	M	RD770910211	88121371, 95123949	4	50,000	50,000	High school	Carpenter	G.Erdenechimeg	1	10	10
13	48	Tudevдорж	Amarsaikhan	M	BE80122434	94004455, 99057666	5	50,000	+	Illustrator / painter	Wooden carcass, construction of wooden houses, interior design	N.Munkhuu	1	25	25
14	344	Ochirsuren	Ariunbold	M	EP83031317	91919817, 88789817	5	40,000	50,000	Civil engineer, economist	Carpenter, internal and exterior design,	Sh.Oyundari	2	40	40

											facade				
15		Seded	Bataa	M	CHS66040416	99061675, 89996299, 99805698	5	30,000	50,000	Building technique man	Rebuilding and roof construction	G.Erdenechimeg	2	15	24
16	5007 (55)	Tulugbaatar	Batbayar	M	IO74111419	96913377, 88083069	5	35,000	40,000	Plastering, carpenter	Exterior facade	N.Munkhuu	2	15	20
17		Ganbaatar	Batmunkh	M	OV91112219	91118999, 88007181, 95944923	3	2,000	70,000	Construction major	Masonry, Plastering, exterior design	Sh.Oyundari	3	6	12
18	354*	Chichee	Batmunkh	M	PV810521	88854141, 86854141	4.5	50,000	80,000	Masonry and carpenter	Masonry, plastering, façade	Sh.Oyundari	2	7	14
19	978	Surenjav	Batnasan	M	OE85091810	96009448, 89044171	5	50,000	60,000	Carpenter	Building houses, installation of backyard	N.Munkhuu	1	5	10
20	9103	Sunduijav	Batsuren	M	ZYU58031512	88100122, 96062121	5	1.5	3.0	Accountant	Masonry, exterior façade, construction, carcass	T.Bayalagmaa	4	100	100
21	5041*	Lkhagvasuren	Bayanzul	M	OM90122019	94661312, 99696209, 88622722, 89696209	4	30,000	70,000	Plumbing, welding, electrician	Works of electricity	Sh.Oyundari	1	8	8
22	36	Purev	Byambadorj	M	ZYU58031512	86580315, 86580315	5			Civil engineer	Building installation, building sandwich panels	T.Bayalagmaa	2	20	20
23	4009 (55)	Choijamts	Ganbold	M	TSA87090777	99194703, 98128228, 88715571	5	50,000	50,000	Heating engineer, certified	Heating engineer, safety	D.Chimed-Ochir	2	5	5

										engineer	engineer				
24	62	Yadamdulam	Ganduulga	M	AO88101413	80114494	3	50,000	50,000	Engineer	External flange, wall, and installation of houses	G.Erdenechimeg	1	10	15
25	77	Damdindorj	Zaya	M	NE76110915	91248888, 91259888	3	30,000	40,000	Masonry	Masonry	G.Erdenechimeg	2	8	8
26	9552(+)	Tuvdendorj	Munkhbayar	M	IT93122317	88033665, 88043496, 99776287,	3	60,000	120,000	Civil engineer	Field engineer, foundation	T.Bayalagmaa	2	10	10
27	9	Ganbat	Nyam-Orgil	M	KHJ86100511	99120156, 86083009,	4	30,000	+	Lawyer, business management	Brigade Leader	G.Erdenechimeg	2	8	8
28	5015*	Serod	Ochirjav	M	JI69112670	88965951, 99813547	4.5	50,000	60,000	Serviceman, mechanist	Interior design, plastering	D.Chimed-Ochir	1	3	3
29		Vanya	Purevbaasan	M	ME77070713	76065091, 96828008	5	50,000	+	Lawyer, manger Board of	Extention of buildings, design and plastering	G.Erdenechimeg	1	3	5
30	526 (55-c) 154	Bayarsaikhan	Sandagdorj	M	DYU94031211	88818911, 95489898,	5	80,000	80,000	Civil engineer	Insulation, plastering, interior design	G.Erdenechimeg	7	80	100
31	0131 (55)	Enkh-Amgalan	Tumenbold	M	JYA80101577	80805051, 80805150	5	50,000	85,000	Chief	Insulation	B.Oyuntungalag	1	50	50
32	4028(+)	Chuluunbat	Uuganbaatar	M	IZ78101918	98118853, 96680819, 86680819	5	45,000	65,000	Carpenter	Plastering	B.Oyuntungalag	3	8	14
33	264	Boldbaatar	Khosbayar	M	UYU89071154	80212240	5	50,000	60,000	Environment al engineer for forest and gardening	Environme ntal engineer, green	N.Munkhuu	1	5	10



											area				
	Total							42,484	61,923				68	562	689

## 5.2. The criterias and its results of the second stage of selection of individuals willing to install insulation of houses in ger areas

**Table 19. The results of second stage of selection process of individuals**

№	# of questionnaire	Last name	First name	Gender	ID	Phone number	Assessment of expert	Work salary		Education level / Profession	Experiences	Interviewer	Notes
								Min	Max				
1	664	Khuuvch	Gerelkhuu	F	PA78121902	88347400 , 88347400	Selected	60,0	100,0	High school graduate	Interior design		
2	234	Ikhbayar	Uyanga	F	MR95050204	80728583 , 89728583	Selected	50,0	100,0	Construction interior & exterior design	Interior design, exterior facade	T.Bayalagmaa	
3	327	Amar	Altangerel	M	CHB79071218	91211279 , 89158115	Selected	50,0	50,0	High school graduate		D.Chimed-Ochir	
4	20	Bayanjargal	Ankh-Erdene	M	FA81100111	88820208 , 99527585	Nonselected	70,0	70,0	Finance	Plumbing	G.Erdenechimeg	
5	323	Tserendulam	Batbaatar	M	NB80110519	88528935 , 88823025	Selected	35,0	50,0	Carpenter	Interior & exterior design, plastering	G.Erdenechimeg	There are human recourse in welding
6	5007	Myagmar	Batbayar	M	CHB74112017	96612997 , 99718243	Nonselected	100,0	150,0	Carpenter	Build a residence, house	B.Oyuntungalag	

7	9	Batsuuri	Bat-Enerel	M	GZ90100711	80085991 , 80055991	Selected	60,0	70,0	Mining engineer	Construction safety	T.Bayalagmaa	Interest leading brigade in a
8	238	Naidan	Byarmagnai	M	CHV75040278	91330977 , 91330977	Nonselecte d	100, 0	120, 0	Carpenter	Construction , carpenter	B.Oyuntungala g	
9	329	Yuri	Bolodya	M	CHS81080671	88707424 , 88187470	Selected	70,0	80,0	High- School	Construction carpenter	Sh.Oyundari	
10	306*	Pagam	Davaajav	M	SHE47071112	99821837	Selected			Engineer	Senior Engineer, Safety and field engineer	N.Munkhuu	Retiree
11	500 2*	Tserennamjil	Jamyansure n	M	IO54040314	99863009 , 89953300	Selected	80,0	100, 0	Chauffeur	Plumbing, carpenter, electrician	B.Oyuntungala g	
12	250*	Khatuubaatar	Lkhagvajav	M	OA79051911	99065765 , 88721444	Nonselecte d	35,0	45,0			B.Oyuntungala g	
13	*	Radnaabazar	Munkhbat	M	CHS73021019	99188379 , 96680858	Selected	30,0	40,0	Labor teacher	Carpenteer	D.Chimed- Ochir	

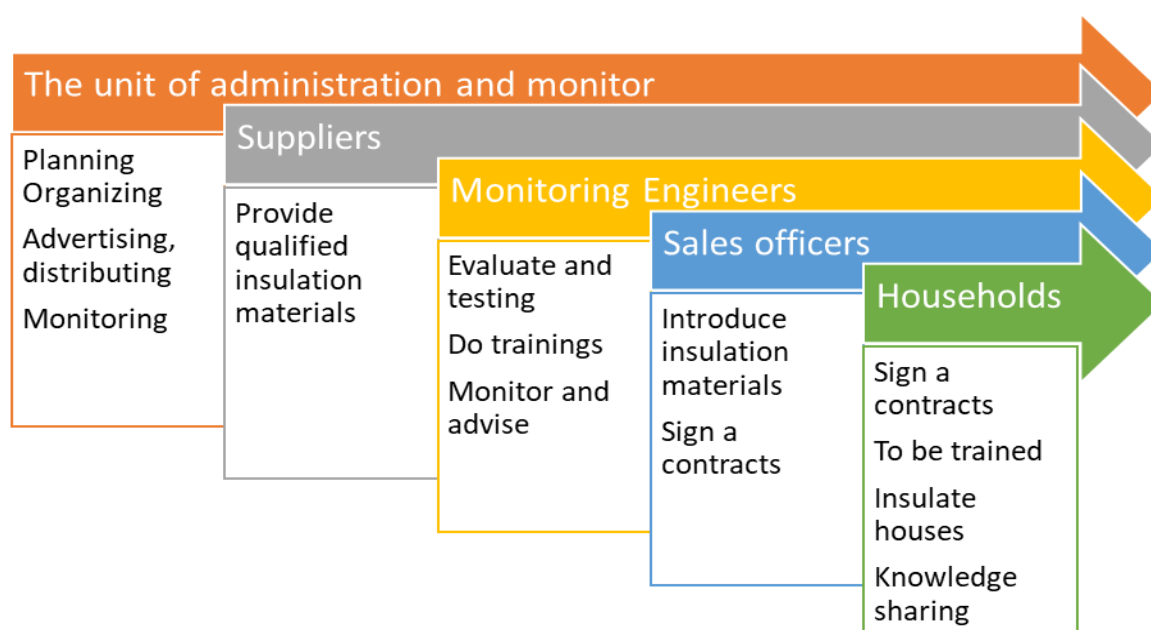
14	*	Altangerel	Nyamdorj	M	TSJ70112975	88025245 , 88816686	Selected	40,0	50,0	Building structure, electrician	Building electricial	G.Erdenechime g	First need to finish the current work
15	945*	Tserendorj	Tumurbaatar	M	VO82011814	86988846 , 88988846	Selected	80,0	80,0	Carpenter	Carcass carpenter	N.Munkhuu	
16	357*	Nyamkhuu	Khosbayar	M	OT93122319	88978997 , 89976780	Nonselecte d	50,0	50,0	Plumbing, welding	Exterior facade, floor frame	B.Oyuntungala g	
17	*	Myagmarjav	Shigshee	M	KHB74122819	99775826 , 80177712		30,0	100, 0	Building carpenter	Construction , plumbing, interior, plastering	G.Erdenechime g	Working as a brigade
18	516	Gombosurga r	Erdenebileg	M	LB87083014	88028908 , 88129464	Selected	60,0	80,0	Civil engineer	Installation of plumbing and ventilation	N.Munkhuu	
19	*	Gotov	Erdenejargal	M	EA70081117	80880449	Selected	40,0	40,0	Safety mechanic s	Exterior façade	G.Erdenechime g	
								57,7 78	71,3 89				

## CHAPTER 6. EXAMPLES AND LESSONS LEARNED FROM SIMILAR PROJECTS IMPLEMENTED IN MONGOLIA

The Ulaanbaatar-Clean Air Project (UBCAP), which is being implemented and funded by the World Bank, will reduce the heat loss of one-street households and connect them to a single-source heating system MODEL PROJECT which has been implemented based on the involvement and participation of citizens in 2017-2018. The goal of this project was to improve air quality of zone 1 and 2 with the following objectives:

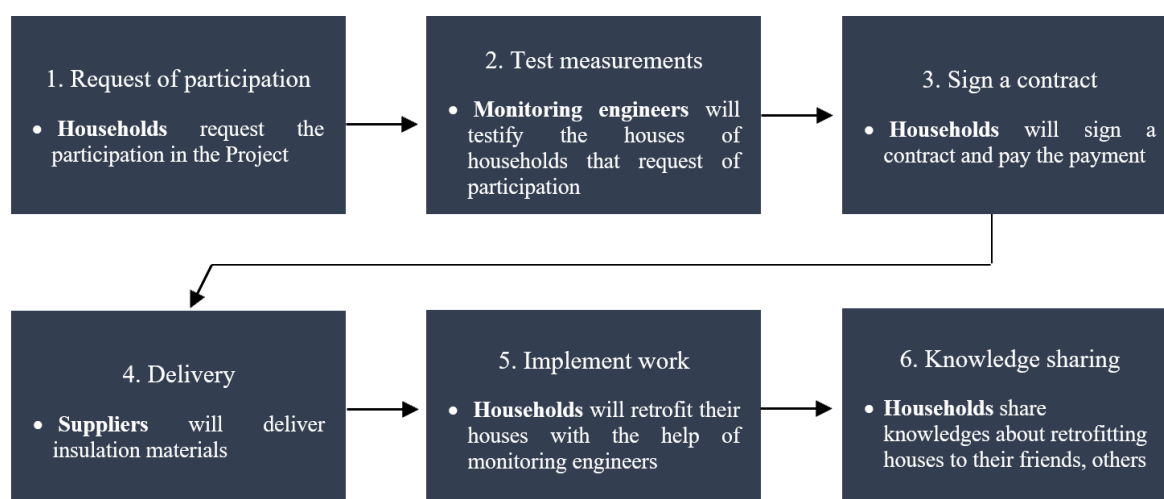
- i. Provide technical and financial assistance to ger district households to reduce heat loss of houses and apartments
- ii. Demonstrate in real-time examples that lower levels of air pollution can be achieved by using low fuel consumption in a warm apartment
- iii. In order to reduce the air pollution, it was important to make awareness campaigns for capital citizens that the involvement of individuals and households are essential.

The "Insulation Campaign" was based on the following steps and phases (Figure 70). These include: discussions, planning, implementing, monitoring, and promoting, including project management units, suppliers, monitoring engineers, sales personnel and households.



**Picture 70. Main role of participants of "Insulation Campaign"**

Key outcomes: Results of households survey indicate that participating in the "Insulation Campaign" have been showed around 30 to 50 percent reduction of households' raw coal consumption during the heating season and household budgets have been saved. The project has been successfully implemented by community organizations such as the members of the Capital Governor Office, the World Bank, the Steering Committee members of Project, the "Building Energy Efficiency Center" at the University of Science and Technology, the Thermal Materials Manufacturers and Supply Company, 6 districts of the capital city, about 400 households in ger areas, One-stop service centers at Dunjingarav and Dragon area. Households who participated in the project have implemented an "Insulation Campaign" with the following stages. (Figure 71).



**Picture 71. Steps to implement the Insulation Campaign**

The following requirements have been included in the Contract for households who have been expressed the willingness to join to the Insulation Campaign. (Figure 72)

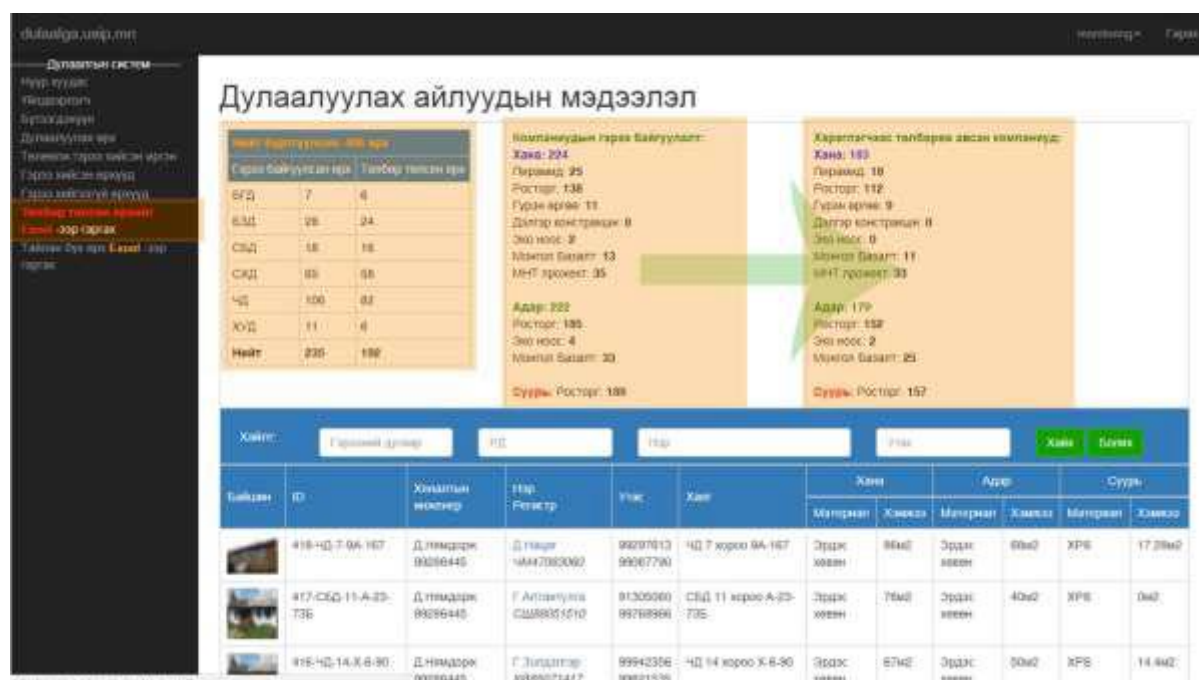
- ✓ The wall of the house should be built by single **blocks, bricks, cane** (around 6x8 size)
- ✓ Households should have a **human resource** to implement insulation work
- ✓ **Form conditions** that are able to do the measurements
- ✓ **Follow the instructions** of monitoring engineers
- ✓ Financial ability to pay **30%** of total budget of insulation materials
- ✓ Always have a person in the house
- ✓ Houses should not have been built in **higher places** and **too slope places**
- ✓ **1 floor houses** are eligible to participate in the Project
- ✓ Houses that have **additional spaces** for exterior insulation

***Picture 72. Criterias for households from Insulation Campaign***

The PMU's control system can be used for further implementation in our project. The PMU organizes and monitors the following main stakeholders of the campaign by connecting their activities: households, monitoring engineers, sales centers and suppliers. (Figure 73)

Controls have been carried out in two basic forms. 1) through the program and 2) on-site monitoring.

- 1) The web-based software ([www.dulaalga.usip.mn/monitoring](http://www.dulaalga.usip.mn/monitoring)) reviews if the contracts and payments made by households daily and calculates the consolidated billing information in MS Excel. Since the monitoring and payment results information are available, the estimates of subsidies and the involvement of households are possible to observe and monitor.
- 2) Under the supervision of the site, the process of monitoring the households involved in the insulation was done and feedbacks was received.



**Picture 73. Part of the surveillance program of the PMU of Insulation Campaign**

Brigades, who have been capable of implementing outdoor insulation for 10 households in one street of ger area, have been selected in the Project and if Brigades meet to the following requirements, a contract was signed with Brigades.



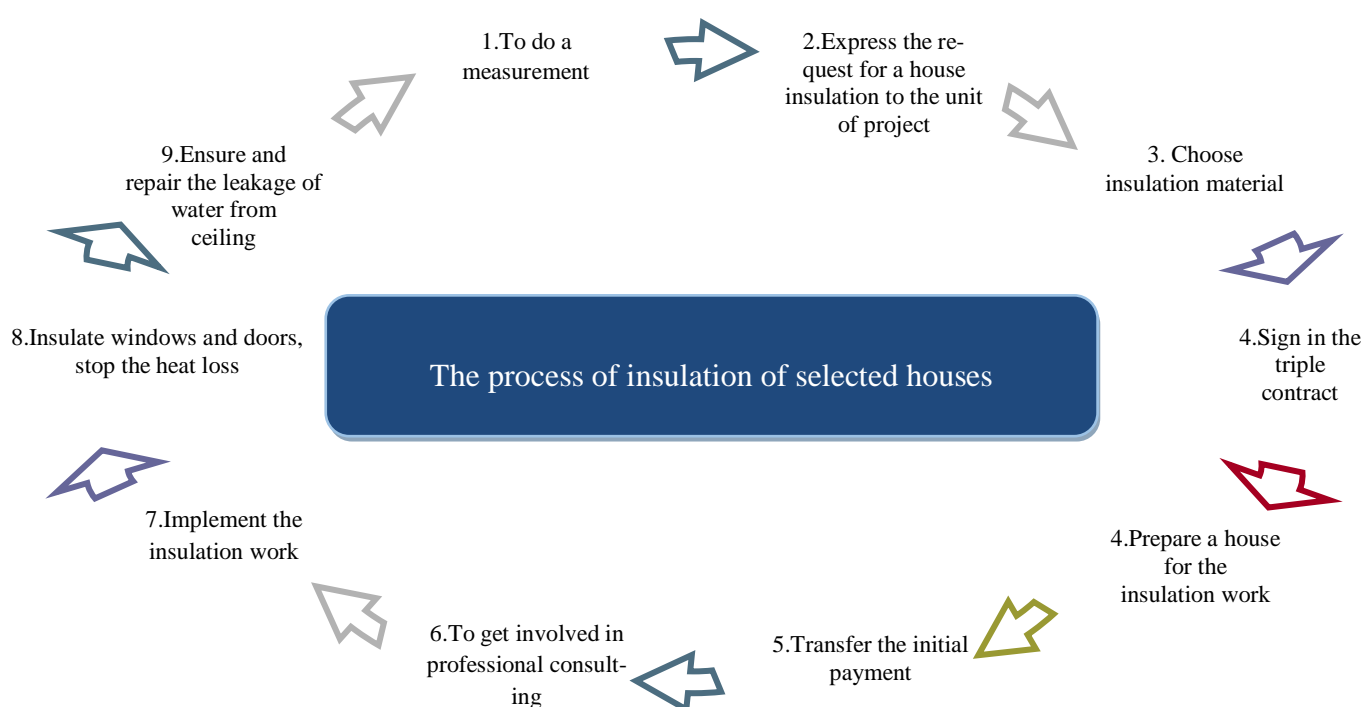
## Requirements for Insulation Brigades:

- Demonstrate and exemplify experiences of outdoor facade which was done independently or as a sub-contractor;
- To have team members with experience of assembling and installing the all types of EPS, XPS board and mineral cotton insulation materials;
- Be able to work in ger areas, have a good communication manner and personal management;
- Fully equipped with the tools needed for implementing insulation works;
- To have a knowledge and ability to provide safety and security.

Insulation Brigades have been implemented facade, roof and floor insulation with insulation materials which were delivered to the yard of the households, and within the Project technical guidance and manuals with instructions were provided from professional organizations.



The Brigades who are willing to participate in the Project, have been submitted the documents (photos of previous works, work contracts, professional certificates, copy of degrees and recommendations) as a proof of qualifications of the criterias above with application and financial proposal. (Salary for insulation per unit area)


The house insulation has been performed in the following ways as shown in Figure 74 below.




***Picture 74. The process of insulation of houses***

In total 11 insulation materials of 7 suppliers (Eco Wool LLC, Mongol Basalt LLC, Rostorg LLC, MNT Project, Ebmat LLC, Guren Urgoo LLC and Pyramid Industry LLC) were used in the first stage of this Project and in the second stage 19 insulation materials of 7 suppliers (Eco Wool LLC, Mongol Basalt LLC, Rostorg LLC, MNT Project LLC, Guren Urgoo LLC, Pyramid Industry LLC and Delger Construction LLC) were used. (Figure 75)

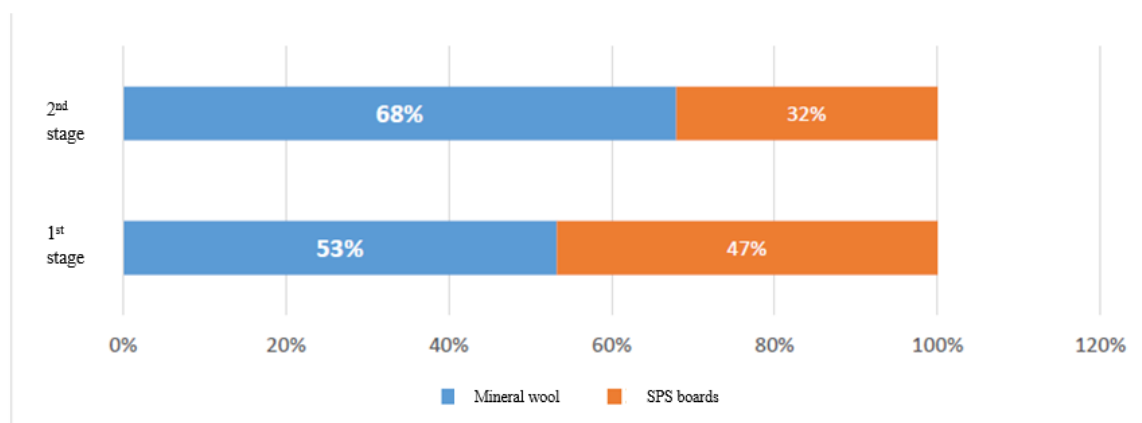







<div> <div>Ханган нийлүүлэгч:</div> <div>ГҮРЭН ӨРГӨӨ ХХК</div> </div>			<div> <div>Ханган нийлүүлэгч:</div> <div>ЭКОНООС ХХК</div> </div>			<div> <div>Ханган нийлүүлэгч:</div> <div>МОНГОЛ БАЗАЛТ</div> </div>		
<div> <div>Дулаалгын материалын төрөл:</div> <div>Чулуут өнгөлгөөтэй (EPS) хөөсөнцөр хавтан</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Металл сайдингтай байгалийн эрдэст хөвөн дулаалга</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Хонины ноосон дулаалга, хуванцар сайдингтай</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Хонины ноосон дулаалга, томор сайдингтай</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Хонины ноосон дулаалга, уур ус тусгаарлагчийн хамт</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Хуванцар сайдингтай чулуун хөвөн дулаалга</div> </div>	<div> <div>Дулаалгын материалын төрөл:</div> <div>Чулуун хөвөн, уур ус тусгаарлагчийн хамт</div> </div>		
<div> <div>Зузаан:</div> <div>15 см</div> </div>	<div> <div>Зузаан:</div> <div>15 см</div> </div>	<div> <div>Зузаан:</div> <div>15 см</div> </div>	<div> <div>Зузаан:</div> <div>15 см</div> </div>	<div> <div>Зузаан:</div> <div>20 см</div> </div>	<div> <div>Зузаан:</div> <div>15 см</div> </div>	<div> <div>Зузаан:</div> <div>20 см</div> </div>		
<div> <div>Зориулалт:</div> <div>Гадна ханын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Гадна ханын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Гадна ханын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Гадна ханын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Адрын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Гадна ханын дулаалга</div> </div>	<div> <div>Зориулалт:</div> <div>Адрын дулаалга</div> </div>		
<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>41,250.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>59,510.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>49,000.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>57,000.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>36,000.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>67,925.00Т</div> </div>	<div> <div>Нэг м² үнэ /НӨАТ орсон/:</div> <div>37,400.00Т</div> </div>		

**Picture 75. Insulation materials that were used during the Insulation Campaign**



**Picture 76. The household choice of wall insulation materials in the Insulation Campaign**

At the first stage of Campaign, the ratio of EPS board and mineral wool materials was almost the same (53 percent to 47 percent) for the selection of external wall materials. But due to the appearance and quality of the mineral wool materials, in the second stage of Campaign, the household choice of mineral wool materials increased by 15 percent compared to previous year. (Figure 76)

The current report reflects and included the required information, stages and considerations of the Insulation Campaign Project.

However, there was little information on the experience Brigade within the Project, Rostorg LLC's insulation brigade was selected for our project.

## CONCLUSION AND RECOMMENDATIONS

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Through the survey and analysis within the framework of research, we have reached to the following key findings and conclusion.

### **Within the improvement of operations of MSMEs and brigades:**

25 percent of total heat loss comes through window, 25 percent from walls, 35 percent from ceiling and around 10 percent of total heat loss comes through floors. Therefore, through the pores and holes, households lost heats, thus air leakages, junction areas are need to be insulated. For those reasons, brigades should have capacity to insulate those parts.

Currently, the following 12 types of brigades are operating its activities in the construction sector: masonry, carpentry, interior design, electric, plumbing, welding, plastering, carcass construction, exterior façade, rebaring, ceiling and all types of plates. Thus, brigades for insulation works should contains capacity of those types and must have capacity to re-insulate the any types of houses. Because of the demand in the market, there are interests of brigades to master and learn the insulation works.

The study shows that despite having contracts or not with investors, clients and contractors, brigades often suffer not to able to get paid or suffer with loss of salaries after work in time. 89 percent of the survey respondents shows that brigades have up to 3 cases of being unable to get paid for the last three years. This is because of weakness in legal capacity of the brigades and on the other hand, due to the ability of brigades, they are not able to deliver the required, qualified and desired results of clients.

Therefore, the study also shows that brigades do not pay taxes and insurance. Today, in the construction sector, there are four types of tariffs for different construction works: such as foreigners, companies, brigades and individuals. The difference is related to the quality of the work performed, as well as whether the tax is payable.

Working with brigades is beneficial for construction companies. First, the salary assessment can be negotiated to be low as possible. In doing so, companies can pay in half with help of "excuse" of poor quality and performance. Second, no responsibility to be required from companies. It is a matter of life which is not irreplaceable for anything. Thirdly, zero money will be used for insurances, taxes,

labor protection equipment and clothing for the members of brigades.

The major members of brigades are usually 3 to 6 people and brigades are formed by adding sub or minor members as needed. Brigades have more workload from March to December, while 23 percent of respondents operates in the four-seasons of the year.

About 70 percent of the surveyed brigades work and earns up to 30 million MNT annually. This is closely related to the purpose of the project to identify micro and small contractors: by avoiding large contractors and involving more brigades which works with them.

Incomes of brigades are not dependent on the status of the official company (LLC), companies with construction licenses or whether they registered or not. Therefore, the incomes of brigades are not dependent on the number and size of its members. It is related to their ways of finding new works – from their network and previous clients.

48 percent of brigade members are rural residents. According to the findings of social status of the brigade members, 37 percent live in a ger and 38 percent live in the house around ger areas.

Therefore, these brigades have been addressing the following issues as the most serious urgent obstacles: financial, human resource scarcity and reliable contracts. The quality of the brigades' social issues, their training and their knowledge of legal issues, and the quality of the work they perform, their business principles and trends are very crucial.

The work value has been increased by at least 50,000 MNT per day since 2018. Unfortunately, due to the seasonal effect, the sustainability of human resource has not formed yet in the construction sector. If so then, there are many difficulties, obstacles and illegal activities that surrounding brigades should be considered and need to be solved.

When the brigades are belonging to the organization, improves not only their financial documents will become more systematic and legal, there will be more positive outcomes and improvements in their health and safety.

### **Within the maintenance and sustainability of selected MSMEs:**

A total of 217 brigades were involved in the survey and 96 brigades who showed their willingness to insulate houses in ger area were selected in the first stage of the selection and its database have been developed.

The following 10 criterias and process took place for the first-stage selection of individuals with high interests in insulation of houses in ger area.

1. Willing to join in install insulation in houses in ger areas
2. Willing to be sustainable
3. Willing to specialise and work in this field by individual itself
4. Willing to be sustainable
5. Working experience and capacity
6. Working experience and capacity-2
7. Have your own tools related to work
8. Entrepreneurial tendency
9. Belief indicator to work in construction sector.

The first 9 criterias have been analyzed from questionnaire of individual.

And 10<sup>th</sup> criteria should provide researchers ability to perform during the collection of surveys by involving their close surroundings, target khoroo, disabled but capable to work and women.

The survey covered 665 individuals who interested in working in construction sector and 97 individuals have been selected based on these 10 criterias for the first stage of selection.

In total of 96 brigades and 97 individuals were invited to the second stage of selection and interviewed by professional experts according to prepared application and interview sheets. The decision was made based on interview and documents and in total 33 brigades and 19 individuals were identified to carry out in the project.

But selected brigades and individuals need to be trained and specialized in insulation works and signing contracts with them should be done promptly. Because selected brigades are likely to be involved in other jobs along the commencement of

the construction work, it is important to identify the further activities closely within this project. Thus, we will have an opportunity to work with these stable and skilled human resources.



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## Appendix 1. Survey questionnaire (Brigades)

37. Please write brief info of construction works your SME/Brigade done during 2016-2018?

No.	Work name	Year	Budget	Amount of work	Fulltime	Contract	Location	Client name	Phone
1									
2									
3									
4									
5									
6									
7									

38. What kind of challenges SME/Brigade face?

1	Undertaffed	5	Don't get paid
2	Financial constraints	6	Lack of professional skills
3	Work done with unreliable contract	7	Not enough work organization
4	Poor discipline and accountability	8	Other

39. Please provide us with other brigade contact information

No	Brigade	Утас	Ажлаачууд тоо	Ямар хамраатай татаар
1				
2				
3				
4				
5				
6				
7				
8				

40. Which source do you use for finding work?

1	Previous client	5	Newspaper, magazine :
2	Friends, partners	6	Website :
3	TV :	7	Facebook/social site :
4	Radio, FM	8	Other :

41. What kind of training programs do you need?

1	Professional	5	Technical
2	Business	6	Labor protection and safety
3	Legal	7	Other :

42. If we offer "Insulation for ger area housing" work porposal with free technical training to your brigade, will you accept?

Yes ☐ No ☐ Don't know ☐

43. If yes, interview with following questions:

Interview questions:

- Can you recommend us other brigade to perform insulation work in the ger district?
- How would you pick your workforce to perform these activities?
- How many staffed brigades can you recommend to us?
- How would you ensure sustainable operation for the recommended brigade?

Invitation number to participate in the next selection:

Supervisor's signature:

## Appendix 2. Survey questionnaire (Individual)

### QUESTIONNAIRE FOR INDIVIDUALS / Interested to work in the construction sector/

Survey	Year	Month	Day	Hour	Minute	Interviewer's name, code		
Start	2018					Operator's name, code		
End	2018					Supervisor name, code		
Questionnaire #						Note:		

Questionnaire result	<input type="checkbox"/> Complete	<input type="checkbox"/> Refused	<input type="checkbox"/> Incomplete	<input type="checkbox"/> Other
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Thank you for agreeing to take part in this important survey creating database for "MSME's and Brigades" in Construction sector as a part of "Reducing air pollution in Ulaanbaatar's unplanned Ger areas through energy efficiency housing construction" project. Funded by European Union and implemented by Mongolian National Construction Association, cooperating with GERES France - Group for the Environment, Renewable Energy and Solidarity; the project aims to improve quality and awareness of energy efficiency buildings, conduct technical training and provide technological support.

All information collected will be treated with utmost discretion and confidentiality. No names of individuals or enterprises will be mentioned in draft and final reports of this study..

1.	If we offer "Insulation for ger area housing" work proposal with free technical training to you, will you accept?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know	Reason:
			Question: Chapter One+13-17, 21, 33-36, 41		

Survey conducted address:

Participant home address:

Ulaanbaatar		Province/city name, code		
District name, code		Soum/district name, code		
Khoroo name, code		Bag/khoroo name, code		
Location		Address		

#### Chapter one. General Information

No	Question	Answer				
2.	Full name (write)			<input type="checkbox"/> Male	<input type="checkbox"/> Female	
3.	Phone	<input type="checkbox"/> :		<input type="checkbox"/> :		
4.	Age	<input type="checkbox"/> 20-24	<input type="checkbox"/> 25-29	<input type="checkbox"/> 30-34		
		<input type="checkbox"/> 35-39	<input type="checkbox"/> 40-55	<input type="checkbox"/> over 56		
5.	# of family member	<input type="checkbox"/> up to 3	<input type="checkbox"/> 4-7	<input type="checkbox"/> over - 8		
6.	Type of housing you live in	<input type="checkbox"/> Ger	<input type="checkbox"/> Detached house	<input type="checkbox"/> Apartment		
		<input type="checkbox"/> House	<input type="checkbox"/> Dormitory	<input type="checkbox"/> Other		
7.	Housing ownership	<input type="checkbox"/> Own	<input type="checkbox"/> Other person/Rent	<input type="checkbox"/> Another person/no rent		
8.	Marital status:	<input type="checkbox"/> Unmarried	<input type="checkbox"/> Married	<input type="checkbox"/> Live together		
		<input type="checkbox"/> Single	<input type="checkbox"/> Divorced	<input type="checkbox"/> Widowed		
9.	Level of education	<input type="checkbox"/> Illiterate	<input type="checkbox"/> Primary school	<input type="checkbox"/> Secondary school	<input type="checkbox"/> High school	<input type="checkbox"/> University
		<input type="checkbox"/> Vocational school, which one:				
10.	Average monthly income of your household /thousand tugrugs/	<input type="checkbox"/> up to 185	<input type="checkbox"/> 186-500	<input type="checkbox"/> 501-800		
		<input type="checkbox"/> 801-1200	<input type="checkbox"/> 1201-1500	<input type="checkbox"/> over - 1501		
11.	Do you have drivers license?	<input type="checkbox"/> Yes	<input type="checkbox"/> No			
12.	How many years have you lived in Ulaanbaatar?					

## Appendix 2. Survey questionnaire (Individual)

### QUESTIONNAIRE FOR INDIVIDUALS / Interested to work in the construction sector/

#### Chapter two. Work experience, skills

No	Question	Answer			
13.	How long have you been working?	<input type="checkbox"/> <sub>1</sub> up to 4	<input type="checkbox"/> <sub>2</sub> 5 – 9	<input type="checkbox"/> <sub>3</sub> 10-14	<input type="checkbox"/> <sub>4</sub> over 15
14.	How many years have you worked in the construction sector?	<input type="checkbox"/> <sub>1</sub> up to 4	<input type="checkbox"/> <sub>2</sub> 5 – 9	<input type="checkbox"/> <sub>3</sub> 10-14	<input type="checkbox"/> <sub>4</sub> over 15
15.	In which sector did you work in the last 3 years? <sup>1</sup>	16. Work position <sup>2</sup>		17. Wage <sup>3</sup>	
	Code (find code from Pending 1) .....	Code (find code from Pending 2).....		Code (find code from Pending 3)	
18.	Where did you work in the last 3 years?	<input type="checkbox"/> <sub>1</sub> Soum <input type="checkbox"/> <sub>4</sub> Capital city		<input type="checkbox"/> <sub>2</sub> Province <input type="checkbox"/> <sub>5</sub> Other	<input type="checkbox"/> <sub>3</sub> Overseas
19.	How do you find your jobs? (select the 3 most important answer)	<input type="checkbox"/> <sub>1</sub> Personally searched <input type="checkbox"/> <sub>5</sub> Labor and Social Welfare Organization	<input type="checkbox"/> <sub>2</sub> Acquaintance	<input type="checkbox"/> <sub>3</sub> Newspaper ad <input type="checkbox"/> <sub>6</sub> TV	<input type="checkbox"/> <sub>4</sub> Website <input type="checkbox"/> <sub>7</sub> Other
20.	How many times have you changed your job in the last 3 years?	<input type="checkbox"/> <sub>1</sub> Not changed		<input type="checkbox"/> <sub>2</sub> 1-3 times	<input type="checkbox"/> <sub>3</sub> more than 4
21.	What is the reason for your job being stable or unstable? (select from each columns most important 3 Answer)	A. Sustainable condition:		B. Reasons for not stable:	
		<input type="checkbox"/> <sub>1</sub> Workplace is rare <input type="checkbox"/> <sub>2</sub> Working conditions are good <input type="checkbox"/> <sub>3</sub> Accustomed <input type="checkbox"/> <sub>4</sub> Likes work <input type="checkbox"/> <sub>5</sub> Affordable salary <input type="checkbox"/> <sub>6</sub> Long term loan		<input type="checkbox"/> <sub>1</sub> Seasonal <input type="checkbox"/> <sub>2</sub> Hard working conditions <input type="checkbox"/> <sub>3</sub> Many transition and mobility <input type="checkbox"/> <sub>4</sub> Not enough work skill <input type="checkbox"/> <sub>5</sub> Low salary <input type="checkbox"/> <sub>6</sub> Nonprofessional	
22.	Have you done the following work in the construction sector?	<input type="checkbox"/> <sub>1</sub> No <input type="checkbox"/> <sub>2</sub> Roof works <input type="checkbox"/> <sub>3</sub> Doors and windows installation <input type="checkbox"/> <sub>4</sub> Exterior façade <input type="checkbox"/> <sub>5</sub> Build, cement work <input type="checkbox"/> <sub>6</sub> Security		<input type="checkbox"/> <sub>7</sub> Oper, opener <input type="checkbox"/> <sub>8</sub> Plaster, interior works <input type="checkbox"/> <sub>9</sub> Water supply and wastewater treatment <input type="checkbox"/> <sub>10</sub> Electrical work <input type="checkbox"/> <sub>11</sub> Alarm & automation service <input type="checkbox"/> <sub>12</sub> Building insulation	
23.	Have you done any construction work by someone's offer or request?	<input type="checkbox"/> <sub>1</sub> Yes (write)		<input type="checkbox"/> <sub>2</sub> No	
24.	Please list your tools	Ownership Personal /price/ Company/rent			
25.	What are the advantages and disadvantages of working with women?	A. Advantage <input type="checkbox"/> <sub>1</sub> Responsible <input type="checkbox"/> <sub>2</sub> Stable workers <input type="checkbox"/> <sub>3</sub> Good at internal designing		B. Disadvantage: <input type="checkbox"/> <sub>1</sub> Construction sector work is hard <input type="checkbox"/> <sub>2</sub> Few women are skilled in construction <input type="checkbox"/> <sub>3</sub> Leaves work for maternity leave	

<sup>1</sup> ☐<sub>1</sub> Agriculture, livestock production, hunting and related support activities, ☐<sub>2</sub> Mining and quarrying, (Processing plant), ☐<sub>3</sub> Food processing, ☐<sub>4</sub> Mining, ☐<sub>5</sub> Textile manufacturing, ☐<sub>6</sub> Clothing industry, ☐<sub>7</sub> Leather and leather products industry, ☐<sub>8</sub> Manufacturing of wooden products, ☐<sub>9</sub> Pulp and paper industry, ☐<sub>10</sub> Plastic manufacturing industry, ☐<sub>11</sub> Iron and Steel Industry ☐<sub>12</sub> Metallurgy, ☐<sub>13</sub> Machinery and Spare Parts Manufacturing, ☐<sub>14</sub> Other processing industries), ☐<sub>15</sub> Electricity, gas, steam and air conditioning, water supply, ☐<sub>16</sub> Construction, ☐<sub>17</sub> Wholesale and retail trade, repair of household goods, ☐<sub>18</sub> Hotel and restaurant, ☐<sub>19</sub> Transportation and warehousing, ☐<sub>20</sub> Hotels, accommodation, catering services, restaurants, ☐<sub>21</sub> Information technology, postal and telecommunications sector, ☐<sub>26</sub> Financial and insurance services, ☐<sub>27</sub> Real estate and leasing activities, ☐<sub>28</sub> Education sector ☐<sub>29</sub> Health and Social Welfare, ☐<sub>30</sub> Other social services ☐<sub>31</sub> Other (write).....

<sup>2</sup> ☐<sub>1</sub> Fulltime ☐<sub>2</sub> Contract

<sup>3</sup> ☐<sub>1</sub> Per day ☐<sub>2</sub> Per work

## Appendix 2. Survey questionnaire (Individual)

### QUESTIONNAIRE FOR INDIVIDUALS / Interested to work in the construction sector/

	<input type="checkbox"/> Low salary	<input type="checkbox"/> Complain lot
	<input type="checkbox"/> Reliable	<input type="checkbox"/> Other

#### Chapter three. Participants interest

Nº	Question	Answer		
26.	In the next 2 years, I will continue to work in the construction industry.	<input type="checkbox"/> No	<input type="checkbox"/> Disagree	<input type="checkbox"/> Don't know
		<input type="checkbox"/> Yes mostly	<input type="checkbox"/> Agree	
27.	I offer/recommend construction work to others.	<input type="checkbox"/> No	<input type="checkbox"/> Disagree	<input type="checkbox"/> Don't know
		<input type="checkbox"/> Yes mostly	<input type="checkbox"/> Agree	
28.	Which of the following are important for you to do any work? (select the 3 most important answer)	<input type="checkbox"/> Salary is important	<input type="checkbox"/> Sustainable for long term	<input type="checkbox"/> Team, coworkers
		<input type="checkbox"/> Skills, profession	<input type="checkbox"/> Safety, health	<input type="checkbox"/> Other
29.	Are you interested in training and having a specialization in construction insulation?	<input type="checkbox"/> Yes	<input type="checkbox"/> No (Go to Question 31)	<input type="checkbox"/> Don't know
30.	Can you do the following jobs if you receive training for a period of time? (choose the 3 most important question)	<input type="checkbox"/> Roof insulation	<input type="checkbox"/> Exterior façade	<input type="checkbox"/> Basement insulation
		<input type="checkbox"/> Window insulation, plaster and mortar	<input type="checkbox"/> Craftsman	<input type="checkbox"/> Unable
31.	Can you work in insulating ger area housings regularly?	<input type="checkbox"/> Can do.	<input type="checkbox"/> Part time.	
		<input type="checkbox"/> Can't, Don't know (Skip 32)	<input type="checkbox"/> Fulltime.	
32.	If you do work, how do you pick a team to work with? (choose the 3 most important question)	<input type="checkbox"/> Only work by myself	<input type="checkbox"/> Work with my wife/husband/children.	
		<input type="checkbox"/> Have some friends who can do this job.	<input type="checkbox"/> Work with brigade	
		<input type="checkbox"/> Find from newspaper ads.	<input type="checkbox"/> Don't know	

#### Chapter four. Training, financial needs

Nº	Question	Answer		
33.	Do you have loan?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Don't know
34.	Where do you apply for a loan? (choose the 3 most important question)	<input type="checkbox"/> Lombard	<input type="checkbox"/> Savings and Credit	<input type="checkbox"/> Non-banking financial Institute
		<input type="checkbox"/> Bank	<input type="checkbox"/> Organization	<input type="checkbox"/> Individuals
		<input type="checkbox"/> Relatives	<input type="checkbox"/> Wife, children	<input type="checkbox"/> Don't know
35.	What kinds of difficulties do you get? (choose the 3 most important question)	<input type="checkbox"/> High interest	<input type="checkbox"/> Not available	<input type="checkbox"/> No collateral
		<input type="checkbox"/> Prior loan not finished	<input type="checkbox"/> Difficult to apply material	<input type="checkbox"/> Takes times
		<input type="checkbox"/> Lack professional advice	<input type="checkbox"/> Fee	<input type="checkbox"/> Not difficult
				<input type="checkbox"/> Other

36. If you applied for loan when, from where?

	Date	Loan purpose	Amount	Interest
<input type="checkbox"/> Lombard				
<input type="checkbox"/> Savings and Credit				
<input type="checkbox"/> Non-banking financial Institute				
<input type="checkbox"/> Bank				
<input type="checkbox"/> Organization				
<input type="checkbox"/> Individuals				
<input type="checkbox"/> Relatives				
37.	Have you participated in any training programs?? (Please write your last 2 courses)	<input type="checkbox"/> None	<input type="checkbox"/> .....	<input type="checkbox"/> .....
38.	Do you need to acquire profession or improve your profession?	<input type="checkbox"/> Yes	<input type="checkbox"/> No (Go to Question 41)	<input type="checkbox"/> Don't know
39.	What kind training programs do you need?	<input type="checkbox"/> Construction sector related	<input type="checkbox"/> Security guard	<input type="checkbox"/> Services and trade

## Appendix 2. Survey questionnaire (Individual)

### QUESTIONNAIRE FOR INDIVIDUALS / Interested to work in the construction sector/

		<input type="checkbox"/> <sub>4</sub> Driver	<input type="checkbox"/> <sub>5</sub> Accountant	<input type="checkbox"/> <sub>6</sub> Improving my profession
		<input type="checkbox"/> <sub>7</sub> Management	<input type="checkbox"/> <sub>8</sub> Don't need any training	

40. Available time period for training

Months:	Days:	Duration:	Time:

41. Can you recommend us other brigade to perform insulation work in the ger district??

Nº	Fullname	Phone	Relationship
1			
2			
3			
4			
5			
6			

42.	How difficult is it to work in Ulaanbaatar from rural areas? (Only ask residents from rural areas.)	<input type="checkbox"/> <sub>1</sub> Housing	<input type="checkbox"/> <sub>3</sub> Transportation cost
		<input type="checkbox"/> <sub>2</sub> Contacts	<input type="checkbox"/> <sub>4</sub> Skills
		<input type="checkbox"/> <sub>5</sub> Financial	<input type="checkbox"/> <sub>6</sub> Other

43. Invitation number to participate in the next selection:

Individuals signature: .....

*Thank you very much.*