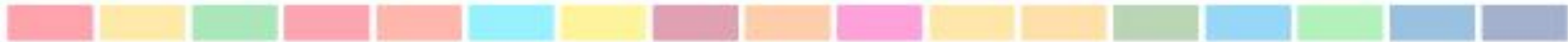




# Development of Bio-Toilet suitable for Mongolia's climate



The Nihon Wellness Sports University supports  
the Sustainable Development Goals.



# Project Rationale

Previous JICA research has shown that the toilet penetration rate in Mongolia is very low, at 29% in rural areas and 64% in the capital.

This indicates that 60% of the population lives without sanitation facilities, and despite the fact that Mongolia is a vast country, the penetration of modern toilets is limited, despite the fact that toilets are becoming more Western-style.



# Project solution



We aim to develop and promote Mongolian-style bio-toilets using the "Asidro® Compost Decomposition Method (patented)" and create safe, environmentally friendly ecological sanitation facilities for everyone. We believe this is needed not only in Mongolia, but also in other Central Asian countries.

Our bio-toilet works well at  $-20^{\circ}\text{C}$ , which is more suitable for the Mongolian environment, and because it works in an acidic environment, there is no ammonia smell.



# Project team members



Anudari



Ulziinaran



Jaraakhai



Tetsuya  
Hoshi



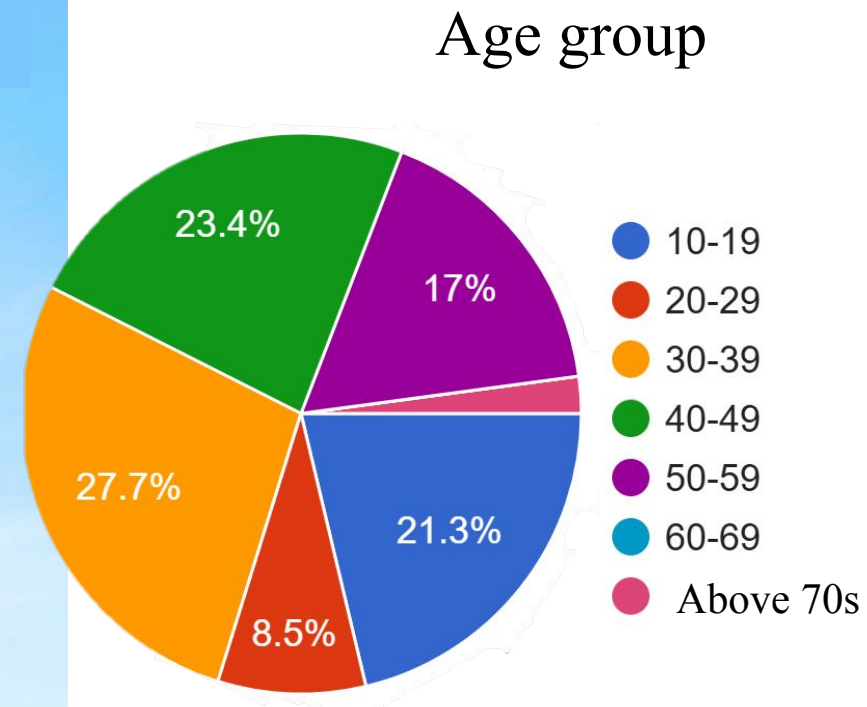
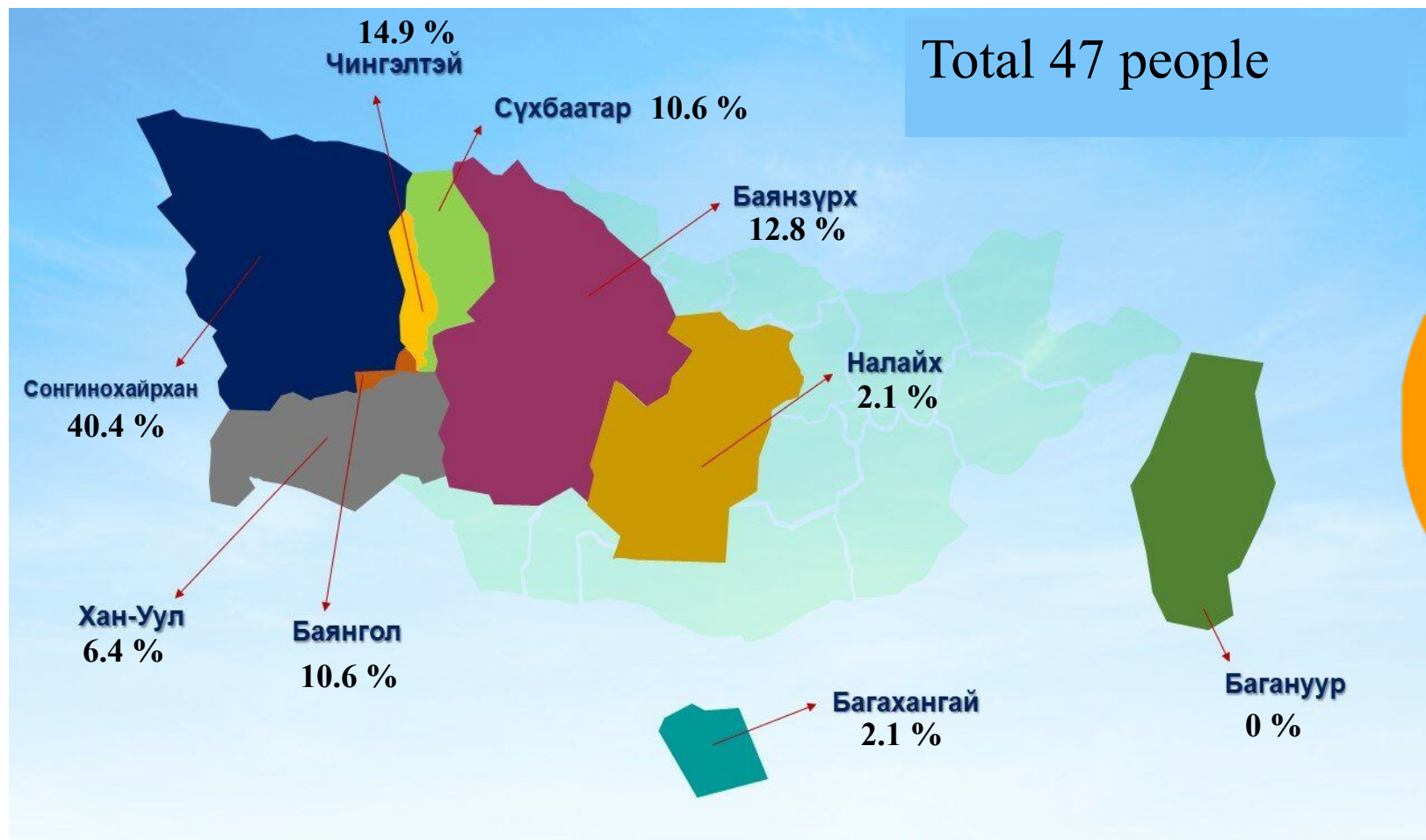
Tomoya  
Yoshizawa



Advisor

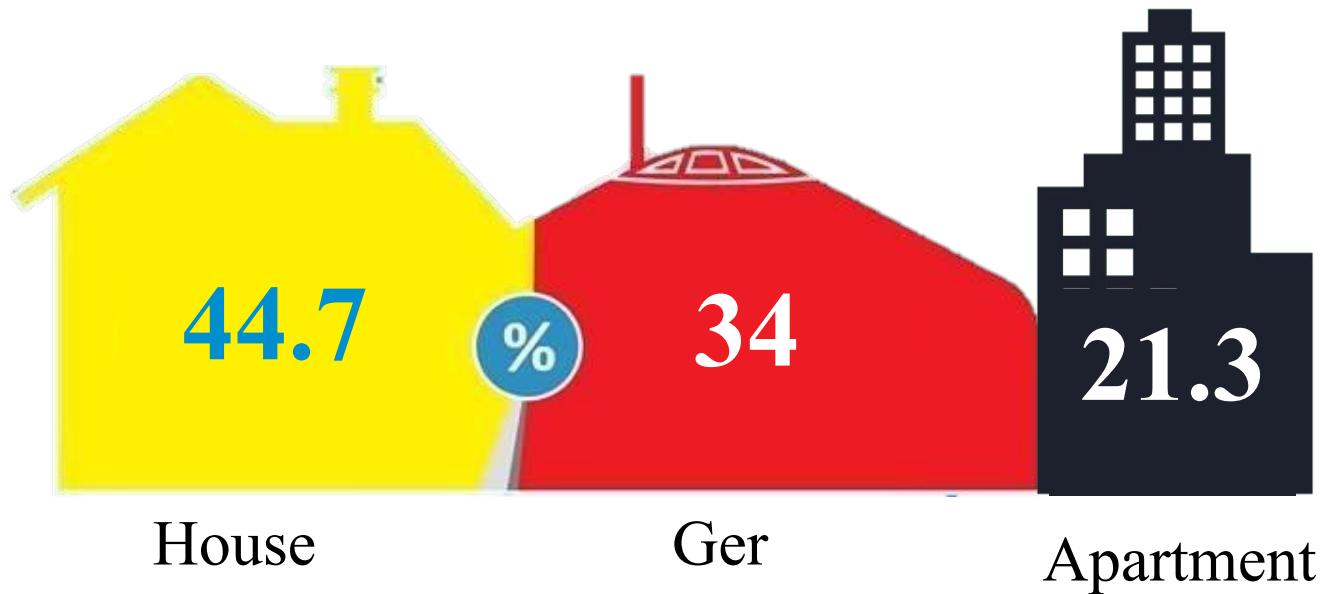
Gan-Od

# Results of needs survey

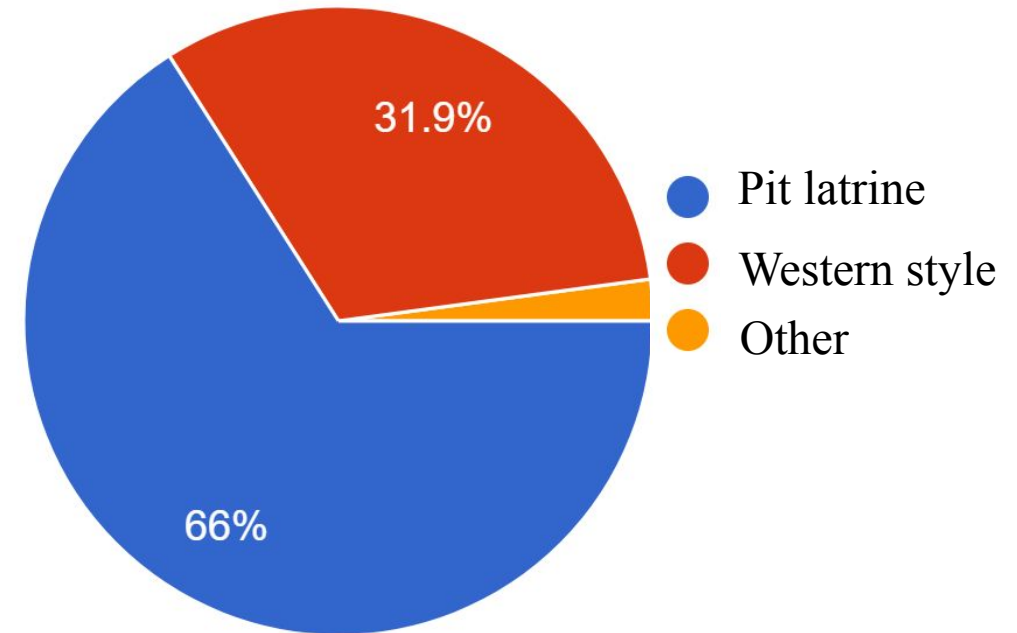


# Results of needs survey

Residence

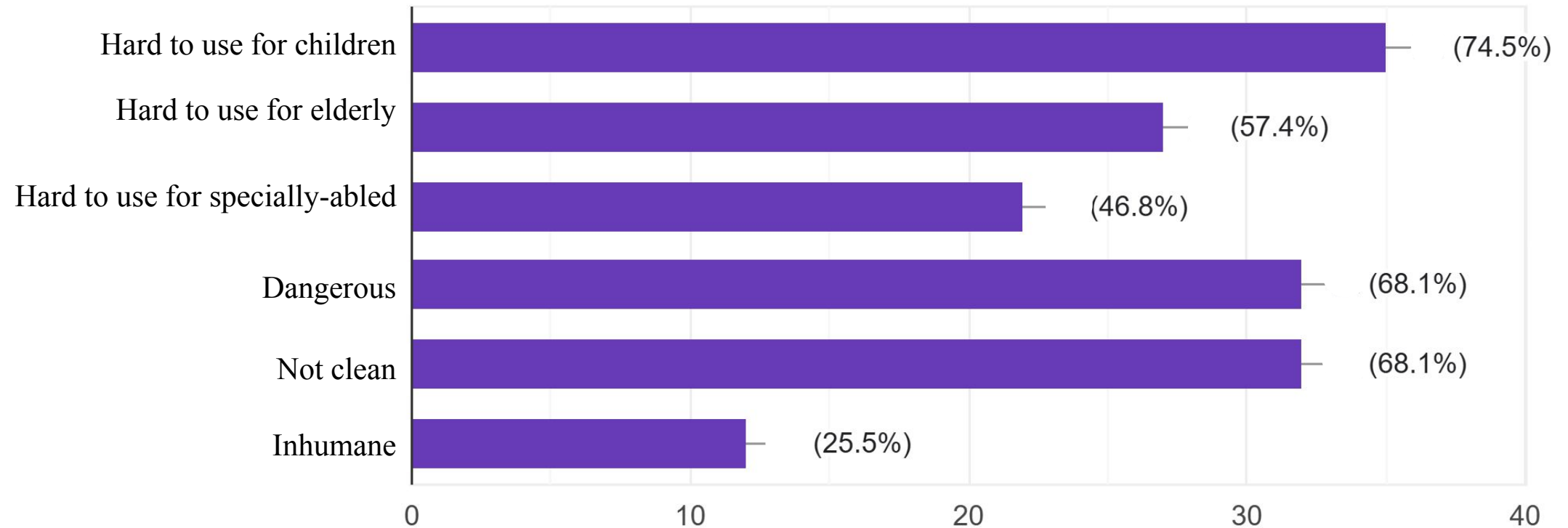


Types of toilet



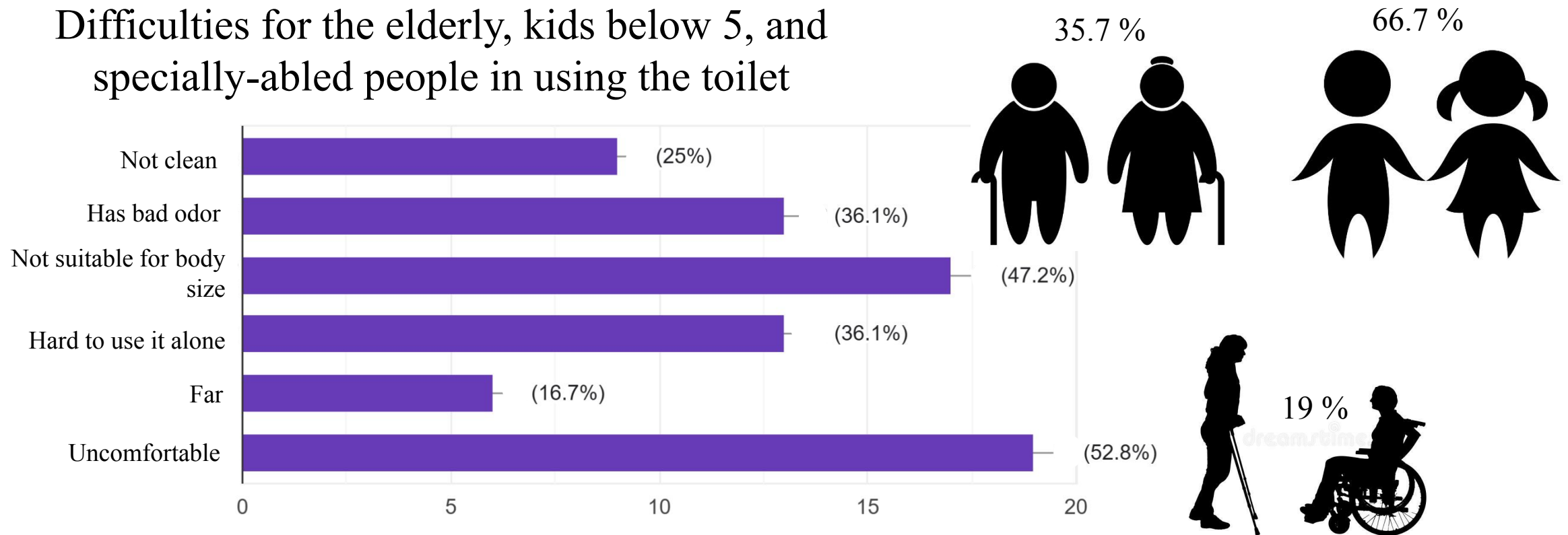
# Results of needs survey

## Disadvantages of pit toilet



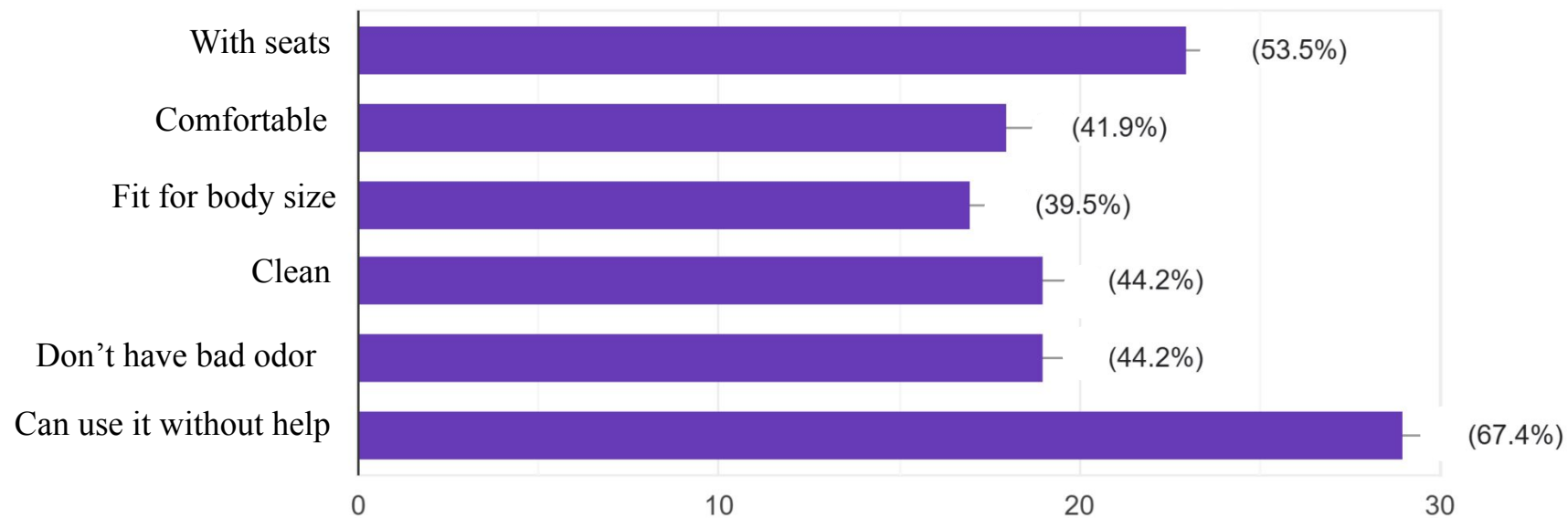
# Results of needs survey

Difficulties for the elderly, kids below 5, and specially-abled people in using the toilet



# Results of needs survey

Properties for the elderly, kids below 5, and specially-abled people to use the toilet easier



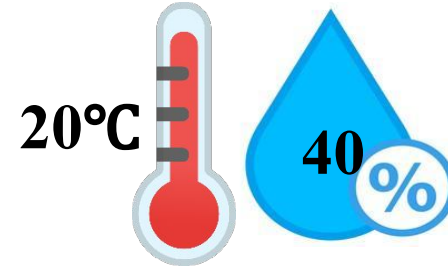
# Usage research

We initiated our usage research on bio-toilets on September 1st, involving 4th and 5th-year students from Mongol Koosen College of Technology. Conducting the research within Mongol Koosen allows us to efficiently and effectively gather valuable data.

This includes monitoring environmental factors such as temperature and humidity, evaluating the comfort and usability of bio-toilets for Mongolian users, and assessing their potential functionality in Mongolia's harsh climatic conditions in the future.



# Mongolian model bio-resource research



Before putting  
in the bio-toilet



After 10 hours



After 20 hours



After 24 hours

# Mongolian model bio-resource research

Students initially encountered challenges when using the bio-toilet, such as unpleasant odors and the accumulation of sawdust in the surrounding area caused by low humidity levels.

To address these issues, we implemented two key solutions: first, we increased the water content within the bio-toilet system to maintain optimal moisture levels; second, we connected a drain pipe to allow odors to dissipate effectively. These adjustments have successfully resolved the problems, improving both functionality and user experience.





# Project plan

Needs survey  
On going

Usage research  
On going

Develop  
prototype

Targeted funding\1,000,000 ¥ = \$ 6,435.99\

Project finance\407,320.82 ¥ = \$ 2630.87\



# Prototype development

Based on the results of the survey, we would like to produce a prototype model that can be used by children, the elderly, and people with disabilities. We are also looking for companies that would like to actually use our prototypes.

These include models tailored to the body size of children under the age of 5, as well as easy-to-use prototypes for elderly individuals and people with special needs. Each prototype is estimated to cost approximately **2 million MNT.(100,000 ¥)**





We hope you will support our project and  
help spread the suitable toilets that  
Mongolia deserves.



WELLNESS



The Nihon Wellness Sports University supports  
the Sustainable Development Goals.