

The script of our design

Visualisations of our stakeholders, their context and our product.

Visualising our challenge

Mostly Muslim

Women big role in household

Average age
19.8

10-20 % population

DRY

Stakeholders

Pastoralists

POOR Infrastructure

RURAL LOWLANDS
below 1500 m

Unpredictable Rain fall

Ethnic groups:

- Somali
- Oroma
- Amhara

Birth rate
4.14 per mother

Scarcity of Education

mostly primary
→ then quit

CLEAN
WATER
for
Ethiopia
The Rural Lowlands

FARMING / LIVESTOCK

Barely any improved WATER SOURCES

wash hands?

~~stay home~~

89,860 reported cases

COVID-19

having clean water is essential for fighting the virus

WATER

60-80 % diseases spread

WASH

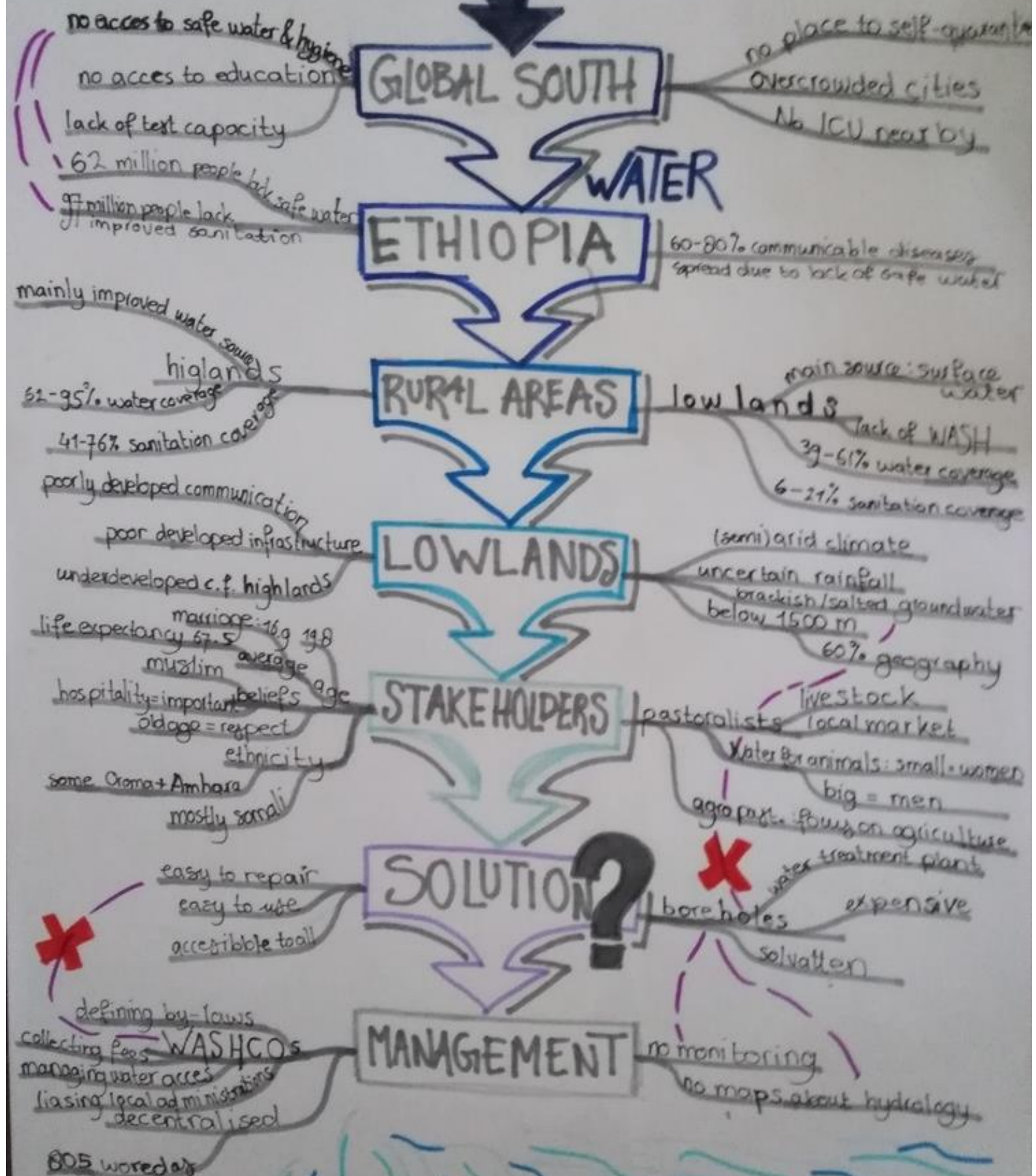
6-21 % Sanitation

~~Keep distance~~

~~stay away from crowded places~~

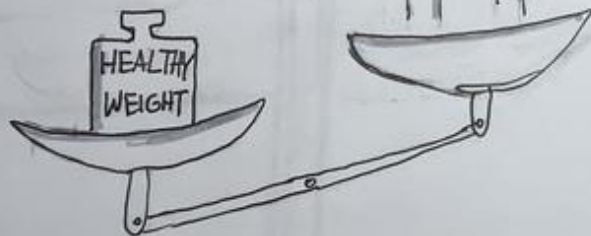
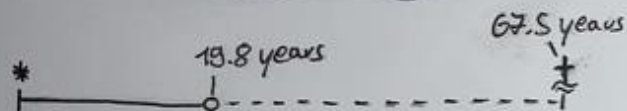
43,149 recovered
1,365 dead?

CHALLENGE: DESIGN FOR PEOPLE AFFECTED BY COVID-19



User Persona

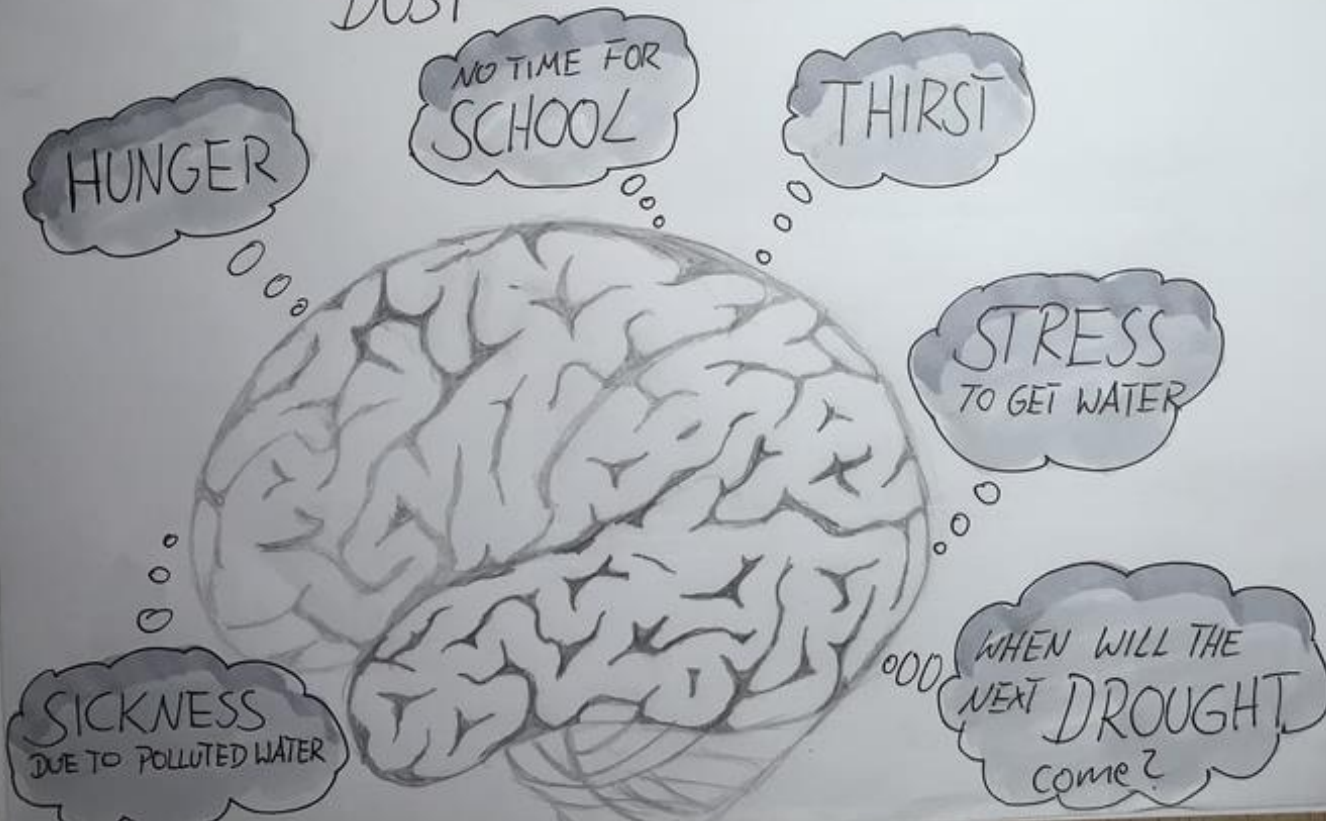
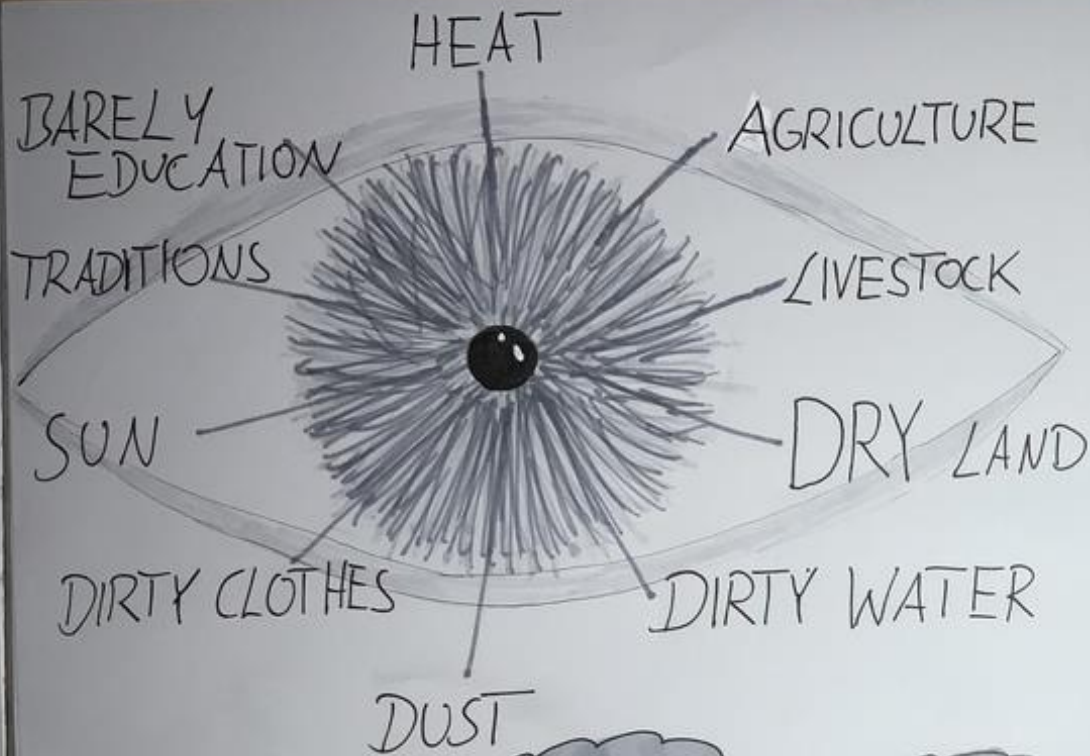
Getting to know our stakeholders by creating empathy maps and storyboards



157.6 cm



4.14 CHILDREN



A slice of life of Maya

Amid the dry, scorching heat of the early-July sun, 19-year-old Maya bends down to fill the battered bucket with cloudy water from the lake and prepares to head back home. She raises the bucket and lets it rest on her head, supporting it with one hand, and starts walking.

- Insight: During the dry season, people in Ethiopian lowlands usually stay close to permanent water sources.
- Insight: Water-related labour is gendered.

Maya will be walking for at least an hour but she's used to it by now – **she's done this a thousand times and today won't be any different.** She's long since accepted this daily monotonous cycle – maybe **has even developed some sort of twisted fondness for the routine, but she still can't help but wonder if things could be different...**

- Insight: While it can be comfortable to have some routines, doing the same thing everyday over and over may not be good for mental health.
- Question: How can technology help with repetitive tasks like this?

Maya arrives home an hour and a half later. **Her father, Meleak, and her elder brother, Aman are feeding the cattle.** *Father and mother have always liked Aman better than me, she thinks, sadly, and recalls that one time Aman was running a high temperature; Meleak didn't hesitate to take him to the Health Centre yet when Maya herself was sick, she was only given some herbs to drink.* Maya sweeps aside the nauseating thought and continues walking.

- Insight: In many communities in Ethiopian lowlands, there is a strong bias towards men. Sons are usually preferred over daughters and hence are

often treated better by parents.

- Insight: Men are usually responsible for taking care of large animals.
- Question: How can technology help neutralise this gender bias and allow women the same choices and opportunities as men?

She makes a stop at a small fenced area where injured cattle and smaller animals live and empties half of the bucket into the rusty trough. A short walk from there, **she empties the rest of the bucket into the storage tank. The water comes out sooty and cloudy – that's the best we have.** Deeply, though, Maya is quite concerned for the well-being of herself and her family. She heard that the coronavirus is spreading fast and good hygiene is more important than ever, *but what else can I do?*

- Insight: Women are usually responsible for taking care of weak and injured animals as well as making sure there is enough water for domestic use.
- Insight: Access to clean water is vital in preventing the spread of COVID-19. Hand washing has been shown to be one of the most effective preventative measures.
- Question: How can technology create access to clean water in Ethiopian lowlands?

19/10/2020 - Storyboarding

- Everyday feels the same
This is the best I can do.

SAYS

My parents like my brother more than me.

THINKS

My family need water to survive. The water doesn't look clean but this is all we have.

cares for young and weak animals
water-related talent.

DOES

Take care of water for domestic use.

acceptance / surrender that things will not change - but slightly hopeful.

FEELS

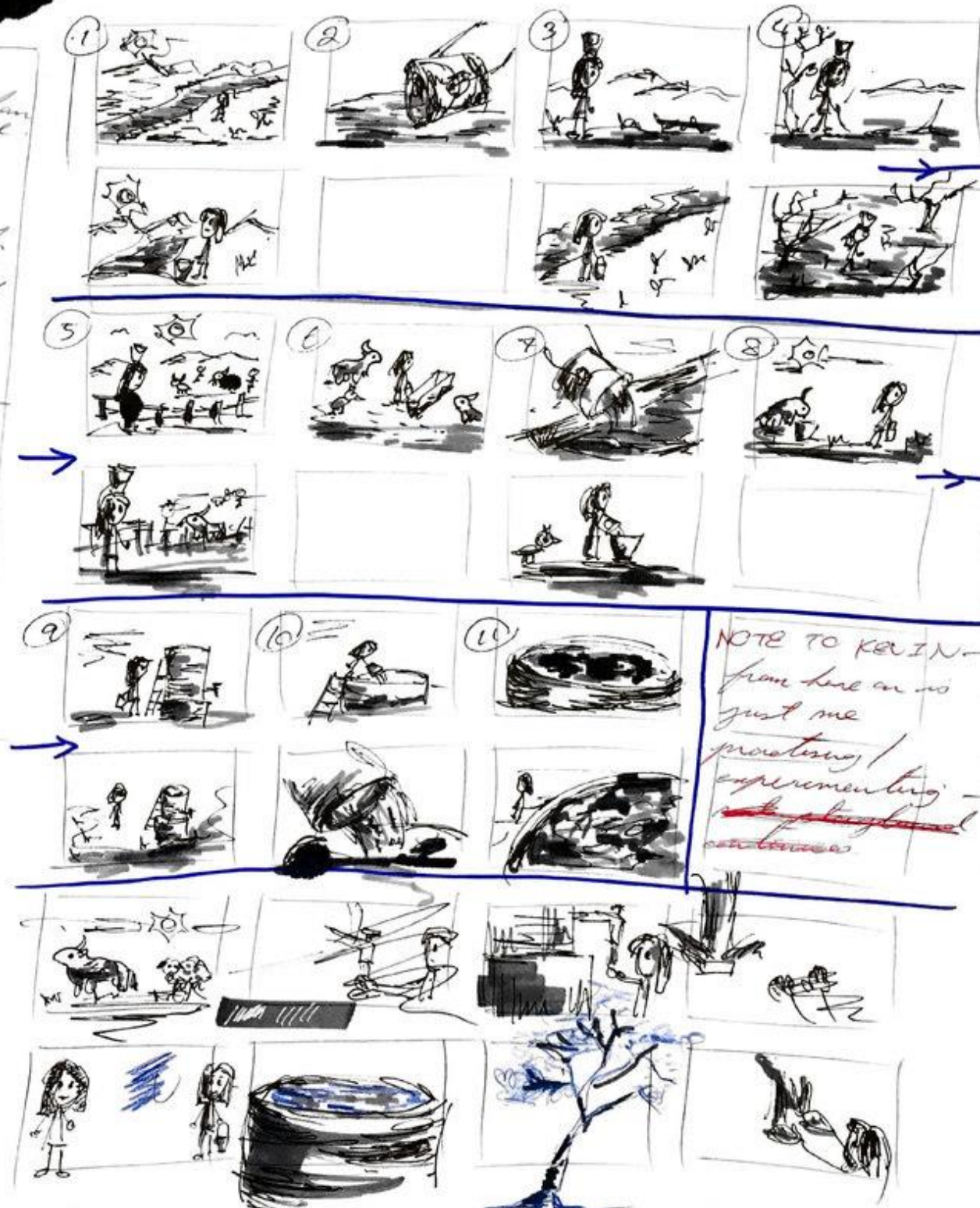
concerned about hygiene and COVID-19 but can't do much.

Sympathy map - Mayan.

MOMENTS

KEY ~~MOMENTS~~ FROM STORY -

- ① Lake, dried land, and Mayan.
- ② Mayan fills bucket with water
- ③ Mayan prepares to walk back
- ④ Mayan walks home...
- ⑤ Mayan passes Maleah and Anan feeling cattle stops at fenced area for weak animals
- ⑥ empties half of bucket to trough
- ⑦ leaves and continues walking
- ⑧ arrives at water storage
- ⑨ the water. Mayan empties bucket into storage
- ⑩ the water comes out dirty



20/10/20 — Storyboarding — cont.

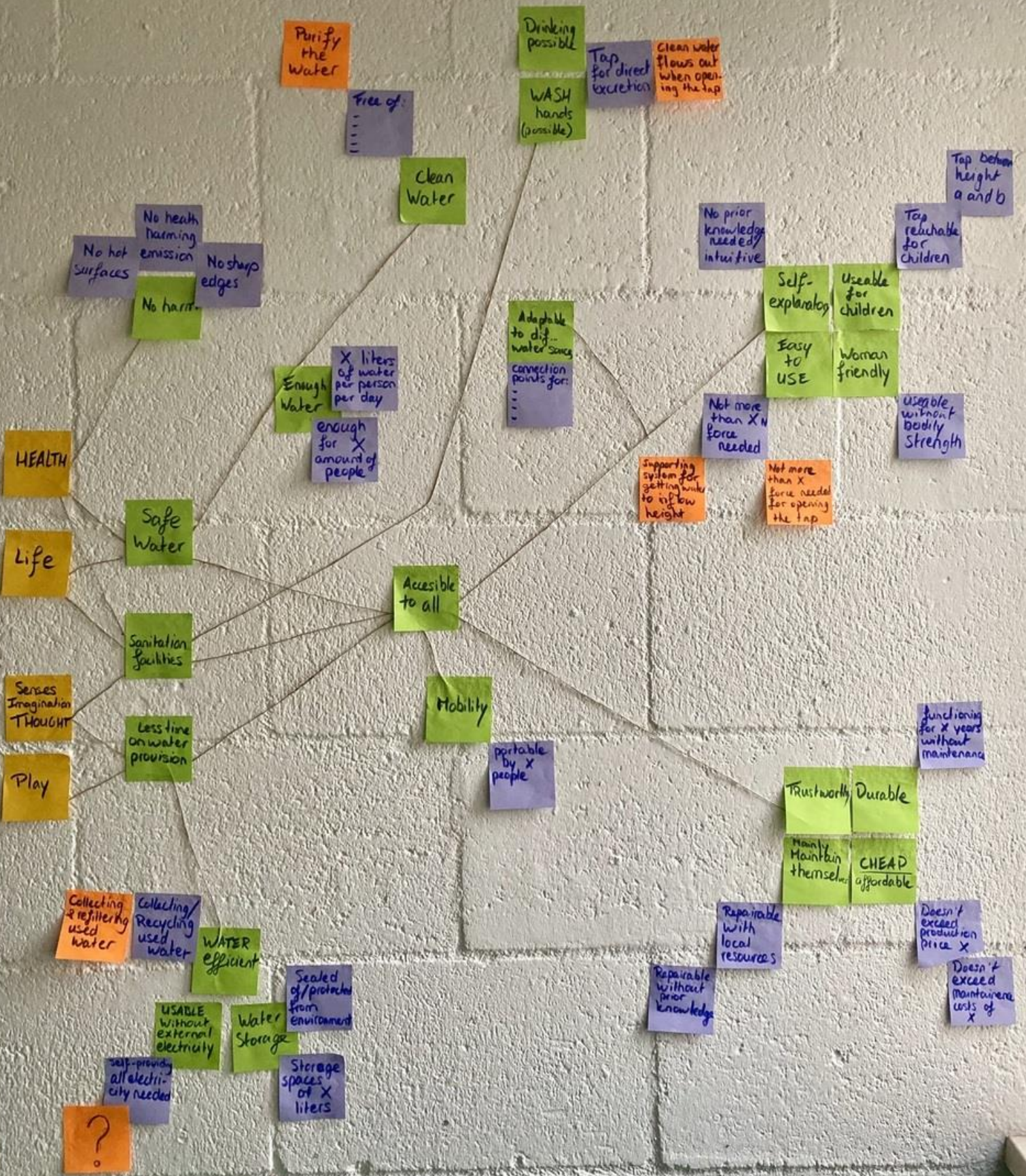


Zala wakes up early, as she does every morning. She goes to the water bucket in order to drink, but only a few drops are left. Therefore she picks two buckets of the shelf and walks outside. She walks for 2 hours until she finds a little river. She fills the buckets and washes hand and face. Now she walks back. Due to the heavy buckets, she needs to stop and take a break. She meets her friend who is really sick. When she is home she starts coughing and gets a fever.

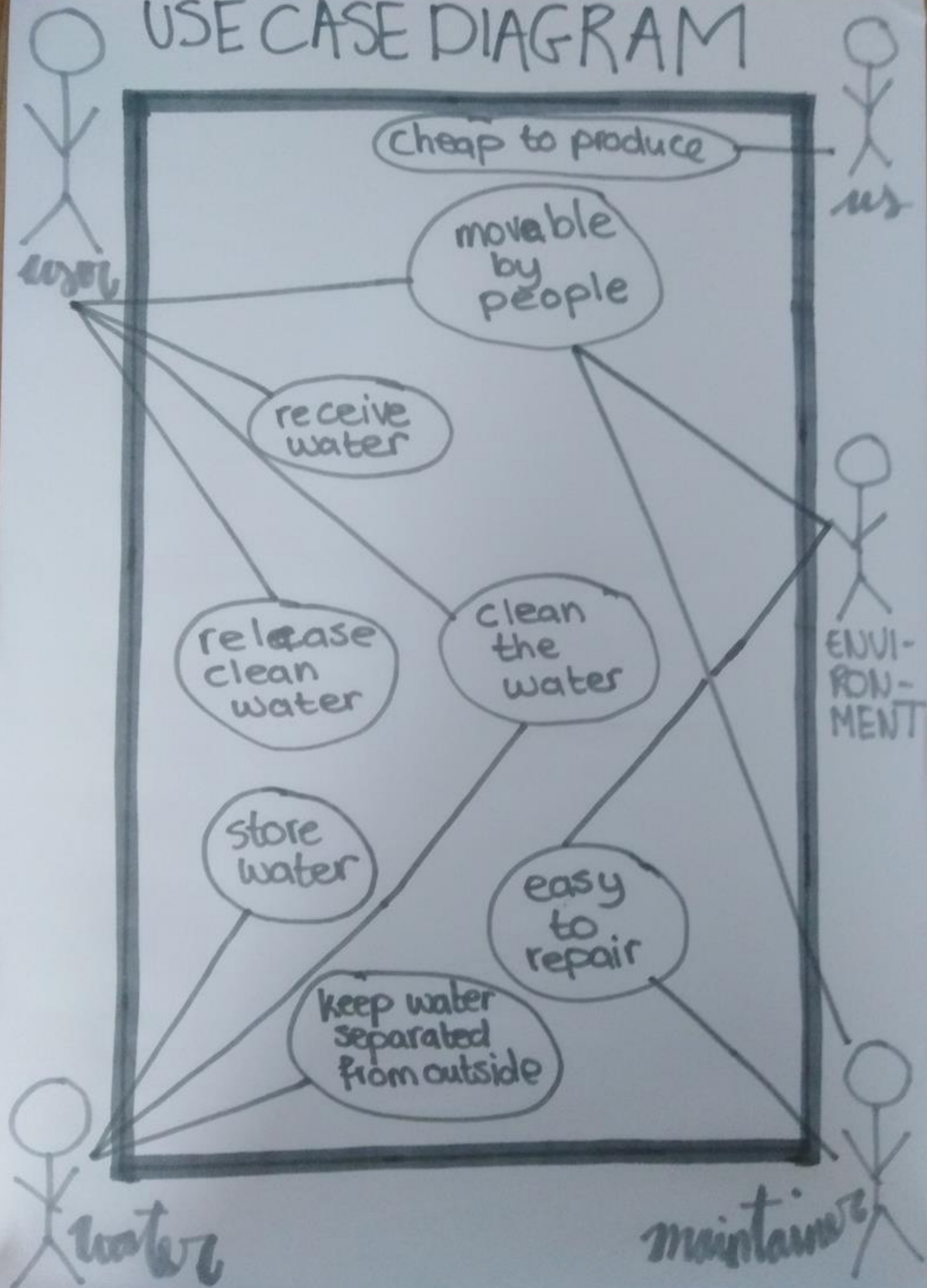


Connecting

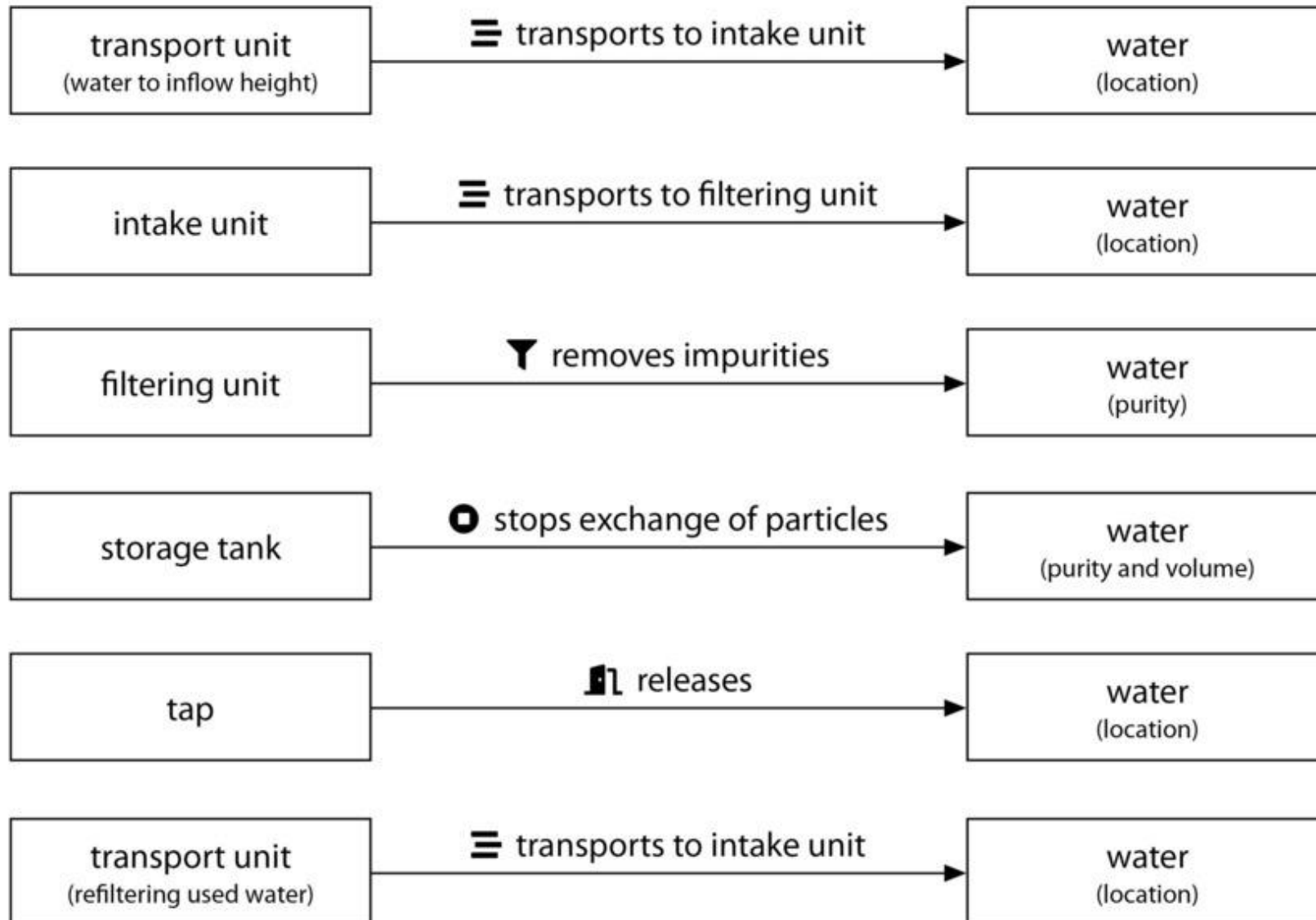
Identifying and classifying our stakeholders needs, and translating these needs into actual product requirements and functions by creating a visual, a use case diagram and by formulating the internal functions of our product.



USE CASE DIAGRAM



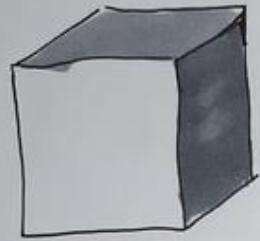
INTERNAL FUNCTIONS



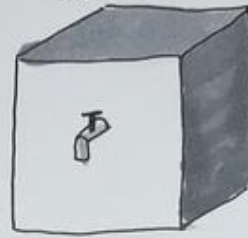
General solution

Translating the needs , requirements and functions into a general potential solution to our challenge.

WE START WITH A BOX



CLEAN WATER
OUT



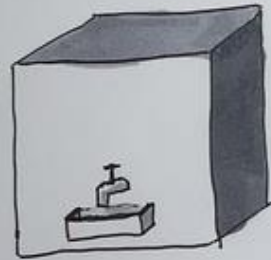
REACHABLE FOR
CHILDREN



DIRTY WATER IN



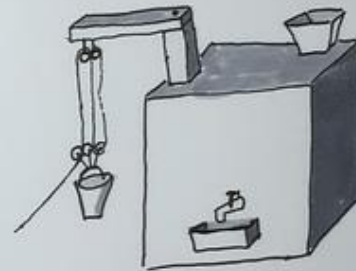
COLLECT USED WATER



POUR WATER IN
WITHOUT PIPE



EASY TO USE
↳ SUPPORT SYSTEM



USE A PUMP?



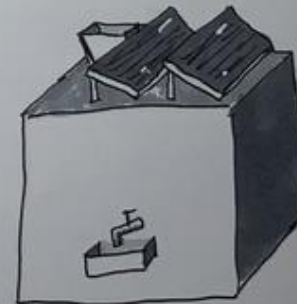
NO EXTERNAL ELECTRICITY
NEEDED



INCREASE SOLAR-
PANEL EFFICIENCY

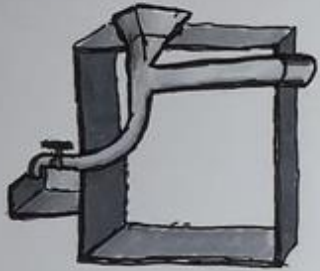


CHANGE POSITION
OF FUNNEL

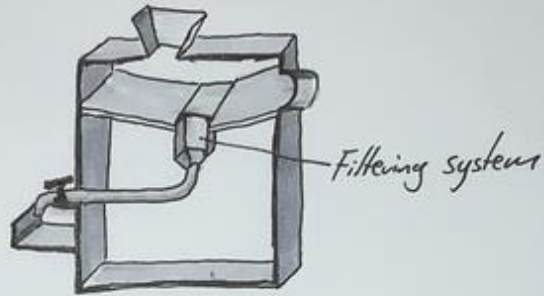


INTERIOR

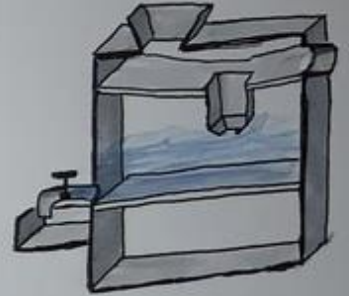
WATER IN, WATER OUT



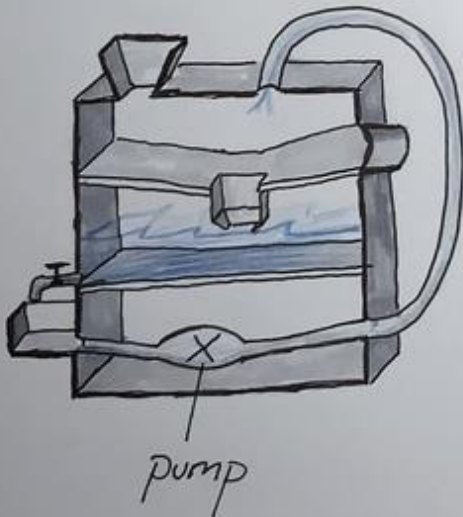
DIRTY WATER IN, CLEAN WATER OUT



STORE THE WATER



REFILTER USED
WATER



USE THE PUMP TO
EASE INFILL

