

## Session 1: Identifying the Sources of Contamination of Water Points

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### Introduction

This session will help participants in identifying actual and potential sources of contamination of water points and provide tools for the selection of appropriate actions for avoiding water contamination at the source.

Cleanliness in the area of the water point is an important factor. If the surrounding area is not kept clean and free of animals, debris waste and stagnant water, the water point could become a hub for the transmission of many infectious diseases. In this respect, the ability of the community to manage the system and ensure regular cleaning of the water point is vital.

If the area around the well is allowed to become dirty, and waste and stagnant water is allowed to accumulate, it will become a source of infection for other users. Standing in bare feet in stagnant water or mud is a serious health risk in the tropics since the open water provides an ideal breeding ground for many types of parasites and/or disease carrier. Awareness of the direct links between hygiene and water must start at the collection point, otherwise the possible benefits from an improved water supply will be lost.

### Learning Objectives

By the end of this topic, participants will be able to:

1. Identify sources of water point contamination
2. Select appropriate actions to avoid water source contamination
3. Come up with an action plan including responsible parties and timeframe

### Tool Kit

Tool 9: Sanitary Inspection Form

Tool 10: Visual Education Materials

## Content

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### Identify sources of water point contamination

#### Activity 3.1

##### Step 1

Conduct a sanitary inspection of a water supply by taking the participants to the water point to visually identify the actual and potential sources of contamination (latrine, bath-shelter, animal cage, grave yard, cultivation, defects in concrete apron and drainage channel, pool of stagnant water, etc.).

##### Step 2

At the water point, the facilitator can explain the sanitary inspection questionnaire and let participants record their answers in their own survey form. After the survey, let them score and evaluate the risk of contamination.

### Step 3

Measure the distance of sources of contamination to the head of the hand pump which should be located at least 30 m from the head of the hand pump if it is a deep well (Afridev hand pump) or at least 100 m in the case of shallow wells (Malda hand pump) and prepare the drawing in the second page of the Sanitary Inspection Form. Is the 30m away from the water point for all types of soils and terrain? The answer was this was an average, if you do more than the better.

### Definition

Sanitary inspections should be carried out in all water point/facilities used for drinking water on a regular basis. Sanitary inspection can be carried out by communities, especially the WPC/VHWC with some facilitation from the HSA or WMA using a simple, clear report form. These forms consist of a set of questions which have “yes” or “no” answers. These questions are structured so that “yes” answers indicate that there is a risk of contamination and “no” answers indicate that the particular risk is absent. Each “yes” answer scored one point and each “no” answer scores zero points. At the end of the inspection the points are added up, and the higher the total the greater the risk of contamination.

Sanitary Inspection of a Hand Pump				
Date/Time:	Weather:	Name of Enumerator:		
Site No.:				
Village name:	Tal.:	HC:		
Group village name:		Location (site) name:		
GPS coordination:	Southing:	Easting:		
HSA in Charge: Name: Cell No.:				
Village Head Man: Name: Cell No.:				
Chairperson of WPC/VHWC: Name: Cell No.:				
Influential person: Name: Cell No.:				
Code	Specific Information	Risk: YES / NO		Comments
1.	Does the hand pump surrounding need cleaning? <input type="checkbox"/> Grassy <input type="checkbox"/> Rubbish and animal excreta in the surrounding. <input type="checkbox"/> Dirty and slippery floor <input type="checkbox"/> Stagnant water. <input type="checkbox"/> Other:			
2.	Is there a latrine within 30 meters of the well?			
3.	Is the nearest latrine on higher ground than the well?			
4.	Are there any sources of pollution within 30 meters of the well? If yes, what sources? <input type="checkbox"/> Latrine <input type="checkbox"/> Refuse pit <input type="checkbox"/> Bath shelter. <input type="checkbox"/> Cultivation <input type="checkbox"/> Animal cage <input type="checkbox"/> Other:			
5.	Is the hand pump drainage channel faulty (e.g. broken, permitting stagnant water)?			
6.	Is there inadequate fencing around the installation, which would allow animals in?			
7.	Is the cement floor less than 1 meter radius all around the head of the hand pump?			
8.	Are there any cracks on the cement floor around the water point?			
9.	Is the hand pump loose at the point of attachment to base (which could permit water to enter the casing)?			
10.	Are the walls of the well inadequately sealed at any point for 3 meters below ground level?			
Recommendations:		Implementation Date:	Responsible Person/Group:	

Schematic Drawing (Location of Sources of Pollution and Distance to the head of the hand pump)



Sanitary Inspection Form for Hand pumps

Schematic Drawing of location of Sources of Contamination and Distance to the Head of the Hand pump

### Selecting appropriate actions to avoid water source contamination

#### Activity 3.2

##### Step 1

Facilitator asks participants to discuss results of the sanitary inspection questionnaire and choose the visual education material illustrations that correspond to the problems identified.

##### Step 2

Facilitator uses the visual education material to suggest some local solutions that can be considered to improve their water point.

##### Step 3

Participants to discuss and plan a village meeting with the support of EWs to discuss appropriate remedial action(s) with the whole community to improve or protect their water point.

**Step 4**

Prepare an action plan with recommendations, responsible person/group and timeframe for filling out the table in the sanitary inspection form.

The results of the sanitary inspection and the remedial actions that need to be taken to improve conditions should be discussed with the community. In small water supplies it is often possible for community members to carry out most of the inspections themselves using a standard form.

Below are snapshots of the seven visual education materials that can be used in Activity 1.2 to suggest some local solutions that can be considered to improve their water point. At the back of the illustration, the facilitator can find additional explanation for the problem and the suggested solutions to the problems in English and Chichewa.

**FRONT**

**BACK**

<Card 1>

Material 1: A latrine near a borehole as source of contamination.

**ENGLISH:**

- TITLE:** A latrine near a borehole as source of contamination.
- PROBLEMATIC SITUATION:** Nearest latrine is less than 30 meters and is on higher ground than water point.
- SOLUTION OR/AND DESIRABLE SITUATION**
  - > **SOLUTION 1:** Stop using the latrine and relocate it at a safe distance
  - > **SOLUTION 2:** If latrine cannot be relocated, construct a latrine with a septic tank.
  - > **SOLUTION 3:** If latrine cannot be relocated and septic tank cannot be constructed for any reason, the water point should be abandoned for drinking purpose.

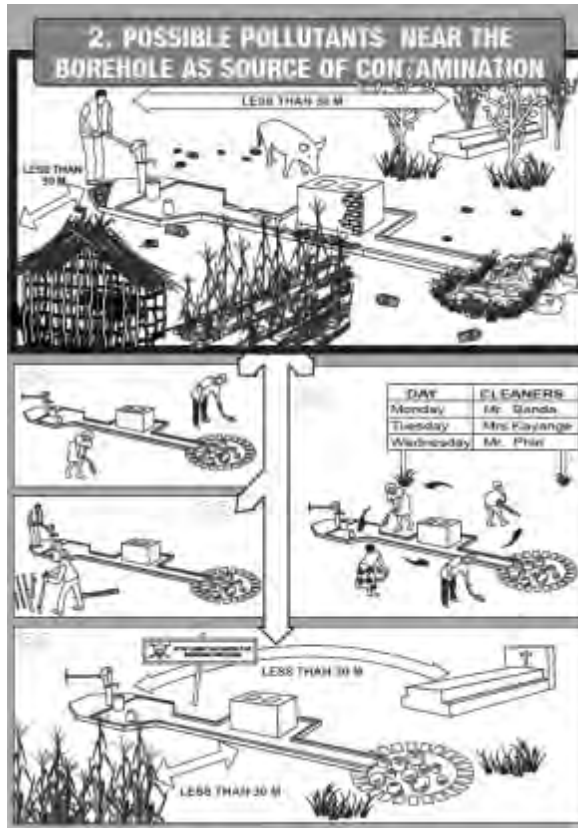
**CHICHEWA:**

**MINGO OMWAS ULI PAPUP NDI CHIMBUZI NDI GWISO LA MATENDA**  
 Malivuto omwe angalibe (kuphokozera)  
 Chimbutzi chomangidwa pakupii ndi Mjigo pa mtunda yochepere milingo makumi atatu kumunda kwa jigo.

**ZOPUMKA KUCHITA KUTHEPSA POTHETSA BVUTOLI**  
 Tsiye kugwiltza echito chimbutzi ndi kuchimangira malo aya otalikirana ndi Mjigo wathu pamunda opitirira milingo makumi atatu.  
 Ngati nyumba yachimbutzi zingatamudwe ndipo funika kukonzata njira ndi kukumba dzerje kumasi kwa nyumba ya chimbutzi  
 Ngati chimbutzi chitayepere katarusidwa ndipo njira yokumba chimbutzi cha nadi itayiphelelako mwathuwo acanwedwe.

**NDEMANGA**  
 Chimbutzi ndi mihanyi dikupwizanzalo, koma pamayankira kulhalala malo coambira emanja kuti chiwonakadi kuti ndi chimbutzi.

<Card 2>



Material 2: Possible pollutants near the borehole as source of contamination

**ENGLISH:**

- TITLE:** Possible pollutants near the borehole as source of contamination.
- PROBLEMATIC SITUATION:** The sources of pollution (such as rubbish dumps, animal cage, feces, grazing, grave yard, cultivation) are less than 30 meters
- SOLUTION OR/AND DESIRABLE SITUATION**
  - SOLUTION 1:** Clean the rubbish dumps.
  - SOLUTION 2:** Remove animal cage, animal dung, grazing around the hand pump.
  - SOLUTION 3:** If the water points are near grave yard and cultivation is taking place, the water point should be abandoned for drinking purpose.
  - SOLUTION 4:** Make roaster among users to clean surrounding and platform.

**CHICHEWA:**

KAMANGIDWE KA APULONI KOMWE KANGABWELETSE CHIOPYSEZO PA DILAWO PATHU CHOMWE CHINGABWERETSE BVUTO

Ngati apuloni yathu ichepa ndi 1 meter kuzungulira Mjigo /dilawo yathu. Komanso ngati popondera pojiga pachepa ndi mamita atatu, kuchokera pa Mjigo/dilawo kapena Apuloni yathu yasweka, kapena ili ndi ming'alu ndi maenje.

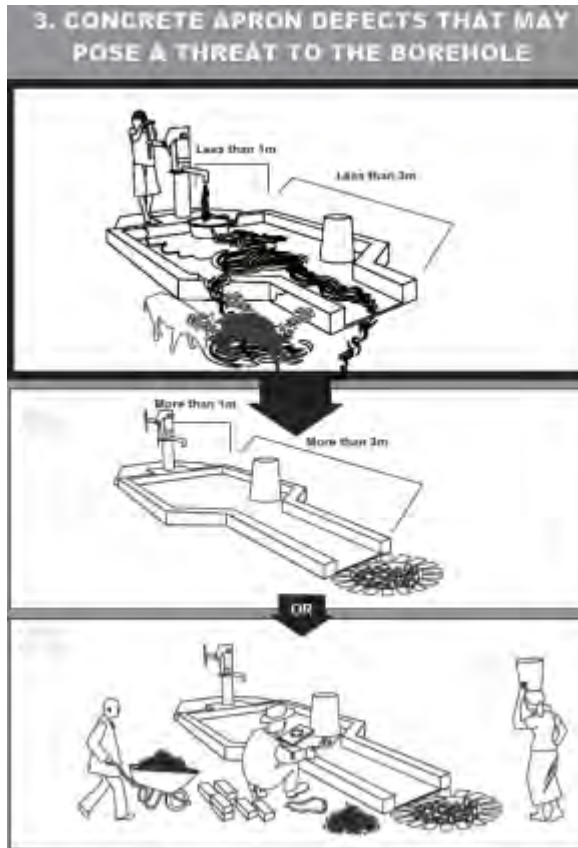
**NIRA YOTHETSERA BVUTO**

Mangani Apuloni yatsopano yotalika ndi meter imodzi kapena kuposera apo, ndi popondera pojiga patalike ndi mamita atatu kapena kuposera apo. Mothandizidwa ndi a eria makaniki ndi a builder a m'mudzi ngati palibe ena.

**NDEMANGA**

Chithunzi choyamba chikhale choyamambilira  
Chithunzi chachiwiri chikhale chomwe chikukonzedwa  
Chithunzi chachitatu chikhale chomwe chilli pakati chokonzedwa bwino

<Card 3>



Material 3: Concrete apron defects that may pose a threat to the borehole

**ENGLISH:**

- TITLE:** Concrete apron defects that may pose a threat to the borehole.
- PROBLEMATIC SITUATION:** Concrete apron is less than 1 meter around the pump stand and with less than 3 meters of concrete sanitary protection with borehole or the concrete apron is broken, cracks and potholes.
- SOLUTION OR/AND DESIRABLE SITUATION**
  - SOLUTION 1:** Construct a new apron with 1 meter or more long and sanitary protection with 3 meters more long with the support of Area Mechanics and Village Builders.
  - SOLUTION 2:** Repair existing apron to remove cracks and potholes and improve slope towards drainage.

**CHICHEWA:**

KAMANGIDWE KA APULONI KOMWE KANGABWELETSE CHIOPYSEZO PA DILAWO PATHU CHOMWE CHINGABWERETSE BVUTO

Ngati apuloni yathu ichepa ndi 1 meter kuzungulira Mjigo /dilawo yathu. Komanso ngati popondera pojiga pachepa ndi mamita atatu, kuchokera pa Mjigo/dilawo kapena Apuloni yathu yasweka, kapena ili ndi ming'alu ndi maenje.

**NIRA YOTHETSERA BVUTO**

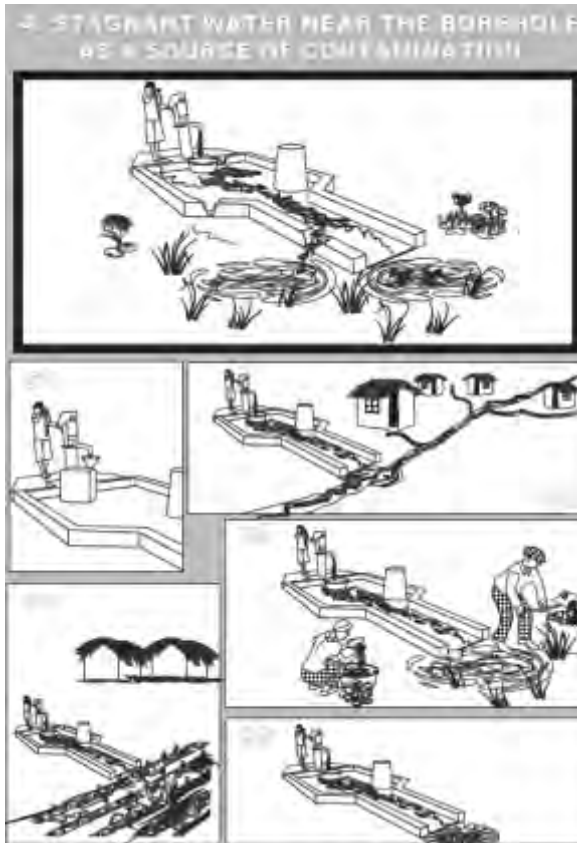
Mangani Apuloni yatsopano yotalika ndi meter imodzi kapena kuposera apo, ndi popondera pojiga patalike ndi mamita atatu kapena kuposera apo. Mothandizidwa ndi a eria makaniki ndi a builder a m'mudzi ngati palibe ena.

**NDEMANGA**

Chithunzi choyamba chikhale choyamambilira  
Chithunzi chachiwiri chikhale chomwe chikukonzedwa  
Chithunzi chachitatu chikhale chomwe chilli pakati chokonzedwa bwino



<Card 4>



Material 4: Stagnant water near the borehole as a source of contamination

ENGLISH:

1. **TITLE:** Stagnant water near the borehole as a source of contamination.
2. **PROBLEMATIC SITUATION:** Stagnant water sources (pool of water from soak away pits, improper drainage and fish/ duck ponds) are less than 30 meters from water points.
3. **SOLUTION OR/AND DESIRABLE SITUATION**
  - **SOLUTION 1:** Use funnels when jerrycan with small mouths are being used to avoid spill over that can enhance the pool of water, waste water to be minimized.
  - **SOLUTION 2:** Improve drainage so that waste water flows into natural drainage.
  - **SOLUTION 3:** Develop vegetable garden using waste water.
  - **SOLUTION 4:** Remove litter and wash stones in a soak away pit.
  - **SOLUTION 5:** Divert the direct the direction of the soak away pit and drain off the pool of water.

CHICHEWA:

ZITHAPHWI ZOYANDIKANA NDI MIIGO MOMWE ZINGAONONGELE MADZI

Mbavuto ake: Momwe zithaphwi zimabwelera

Kutayikira kwa madzi a Mngalande, njira yolakwika yochotsera madzi otayikira pa mjigo ndinso kupezeka

kwa mayenje a nsomba ndi a bakha malipande osachepera makumi atatu kuchokera pa mjigo.

**NJIRA ZOTHETSERA / NJIRA ZOBVOMEREZEKA**

**Njira yoyamba**

Kugwintsa ntchito fanulo potunga madzi mzigubu zakukamwa kochepa

**Njira ya Chiwiri**

Kukonza njira zabwino zoti madzi adziowa moyendera

**Njira ya Chitatu**

Kulimapo Dimba pogwintsa ntchito madzi otakira

**Njira ya Chinayi**

Kuchotsa zinyalala, kutuka miyala ndi kukapa dzenje.

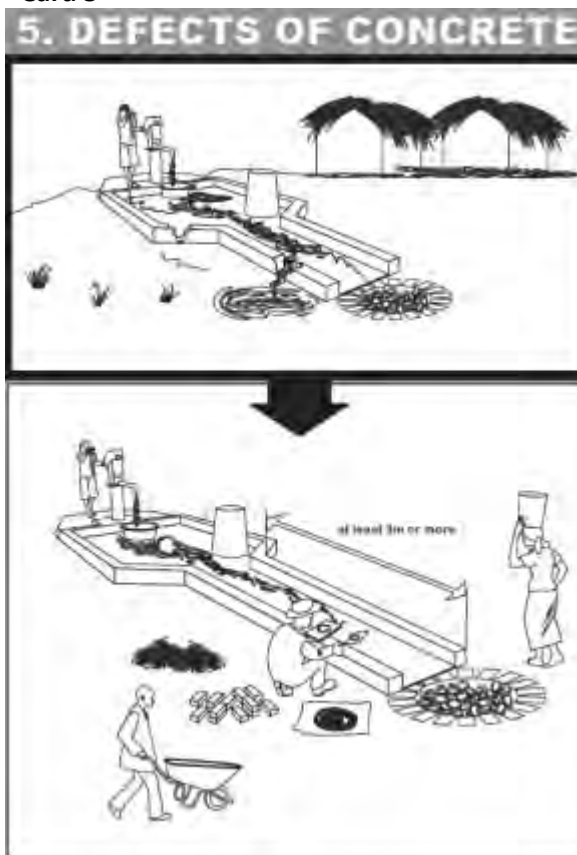
**Njira ya Chisanu**

Kupatutsa njira yodutsa madzi ndi Cholinga chokapa darrije

**NDEMANGA**

Zithunzi ndi uthenga zikugwirizana

<Card 5>



Material 5: Defects of concrete

ENGLISH:

1. **TITLE:** Defects of concrete
2. **PROBLEMATIC SITUATION:** Concrete drainage channel attached to apron is less than 3 meters long ending a soak away pit or vegetable garden.
3. **SOLUTION OR/AND DESIRABLE SITUATION**
  - **SOLUTION 1:** Improve natural drainage by lengthening it up to at least 3 meters or more or mobilize resources and extend drainage channel to at least 3 meters.

CHICHEWA:

Kuonongeka kwa konkileti pa Mjigo

BVUTO:

Ngalande inapwanyikapwanyika

Ngalande ndi Yayifupi ndipo madzi amatulukira pambali

Madzi adekha pa mjigo

KUKONZA BVUTO

Timange ngalande yaitali, mamita osachepela atatu

Tipeze njira yopezera zipangizo zoti tikonzere ngalande yaitali ndi malo onse owonongeka pa mjigo monga kukwilitira mayenje onse

<Card 6>



Material 6: Defects of apron and drainage channel

ENGLISH:

1. TITLE: Defects of apron and drainage channel
2. PROBLEMATIC SITUATION: Apron and 3 meters long drainage channel has cracks and pot holes with stagnant water.
3. SOLUTION OR/AND DESIRABLE SITUATION:
  - SOLUTION 1: Mobilize resources and repair the drainage and the slope of the channel.

CHICHEWA:

KUSWEKA / KUWONONGEKA KWA APOLONI NDI NGALANDE YOYENDAMO MADZI

BVUTO

Kusweka kwa apoloni ndi ngalande yoyendamo madzi ndi mayenje modikha madzi

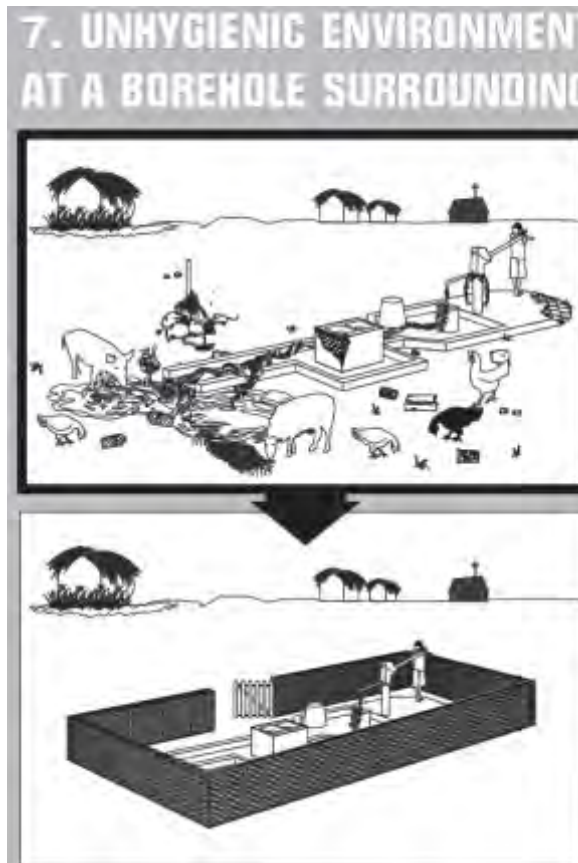
KUKONZA KUTHETSA BVUTO

Kupeza zipangizo zokonzera Apoloni ndi Ngalande yoyendamo madzi monga izi:-  
Simenti - Njerwa - Mchenga - Miyala - Wilibala - Makasu - Madzi ndi anthu ogwira ntchito

NDEMANGA

Zithuzi ndi uthengawu zikugwirizana

<Card 7>



Material 7: Unhygienic environment at a borehole surrounding

ENGLISH:

1. TITLE: Unhygienic environment at a borehole surrounding
2. PROBLEMATIC SITUATION: General surrounding of a borehole is unhygienic (borehole untidy / dirty grown up grasses, shrubs/ vegetation).
3. SOLUTION OR/AND DESIRABLE SITUATION:
  - SOLUTION 1: A tidy / clean borehole surrounding.

CHICHEWA

UMVE PA MALO OZUNGULIRA MJIGO ZOTSATIRA ZAKUSASAMALA PA MJIGO (MABVUTO)

Malo ozungulira pa mjigo amakhala osasesedwa, osalambulidwa komanso osatchchedwa

ZOYENERA KUCHITA / ZOYEMBEKEZERA

Malo a mjigo akhale osasesedwa okolopedwa, olambulidwa, okhala ndi mpanda komanso dzenje logwelamo

Madzi.

CHITHUNZI CHOYAMBA

Palibe dzenje logweramo madzi

Palibe mpanda

Posasesedwa / kulambulidwa

Pali ziweto

Mjigo womasuka ( ma bouti)

Mjigo wasasamalidwa

**Kauniuni wa ukhondo wa pamjigo**

Tsiku:

Nyengo:

Dzina la ofunsa mafunso:

Site No.:

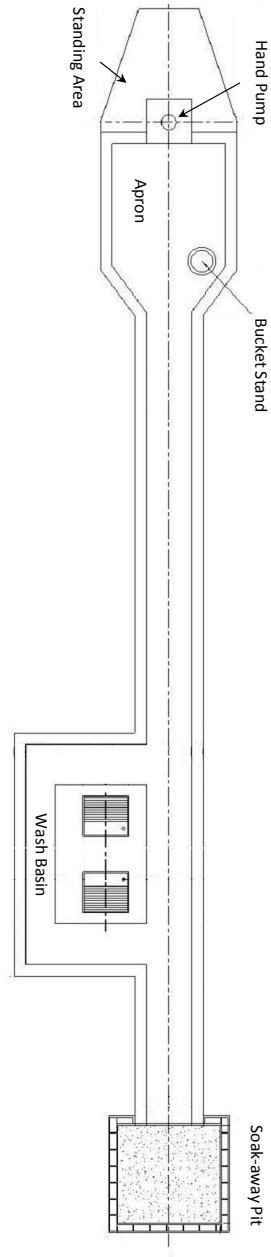
Mudzi:	TA:	H/C:
Agulupu:	Dzina la Malo:	
Jogalafe ya malo	Kum'mwera:	Kummawa:

Mlangizi wa zaumoyo wa dela	Dzina:	Nambala ya foni:
Amfumu	Dzina:	Nambala ya foni:
Wapampando wa Komiti ya Madzi	Dzina:	Nambala ya foni:
Wolemekezeka	Dzina:	Nambala ya foni:

No	Zomwe zikufunika	Pali chiopsezo		Ndemanga
		Eya	Ayi	
1	Kodi malo ozungulira mjigo ndiwofunika kutchetcha/kukonzapo? <input type="checkbox"/> Pali udzu <input type="checkbox"/> Zinyasi komanso ndowe ya ziweto <input type="checkbox"/> Ndipakuda komanso pali ndere <input type="checkbox"/> Pali zithaphwi <input type="checkbox"/> Zina:			
2	Kodi pali chimbuzi pa mtunda wosakwana 30 mitazi?			
3	Kodi chimbuzi chapafupi chili kumtunda kwa Mjigo?			
4	Kodi pa malo ozungulira Mjigo pali zithu zilizonse zomwe zingachititse madzi kuonongeka? Ngati ndi eya, Ndichiyani? <input type="checkbox"/> Chimbuzi <input type="checkbox"/> Dzenje la zinyalala <input type="checkbox"/> Bafa <input type="checkbox"/> Cultivation <input type="checkbox"/> Khola la Ziweto <input type="checkbox"/> Zina:			
5	Kodi ngalande ya madzi apamjigo ili ndi vuto? (e.g., monga kusweka, ikulola kudikha madzi)?			
6	Kodi pamjigo pali mpanda umene umalola nyama kulowa?			
7	Kodi konkiriti yozungulira thunthu la mjigo ndi yochepera 1 mita?			
8	Kodi konkiriti ili ndi ming'alu ina iliyonse?			
9	Kodi thunthu la mjigo limagwadera kotero kuti madzi akhoza kulowa mbali mwake?			
10	Kodi konkiriti ndi apuloni yonse ndiyosangambika kapena kusweka?			

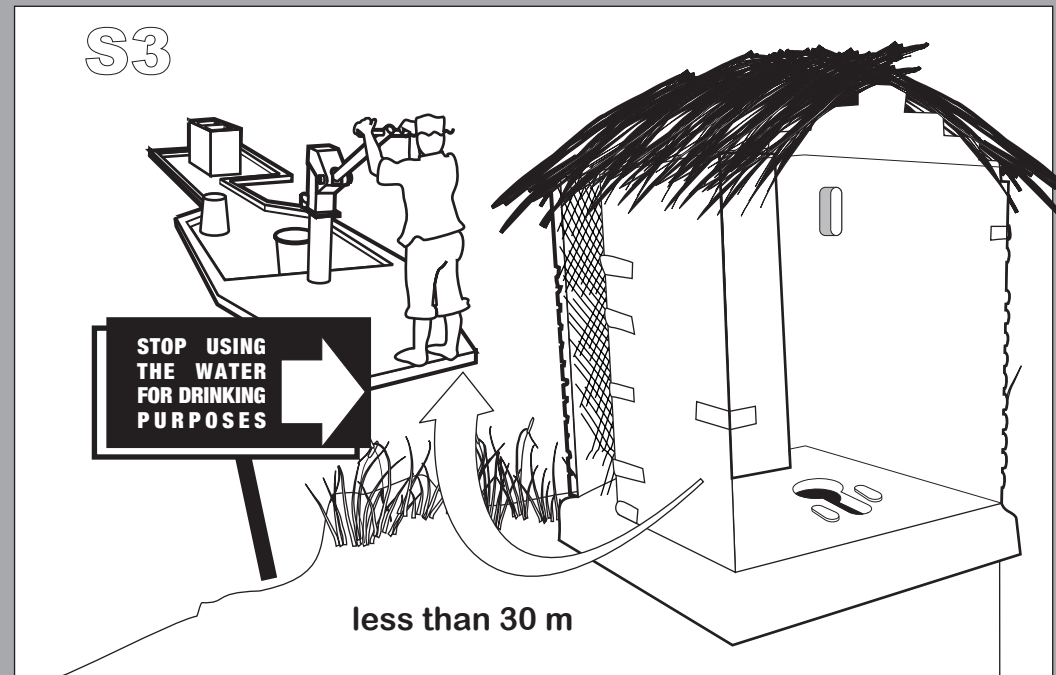
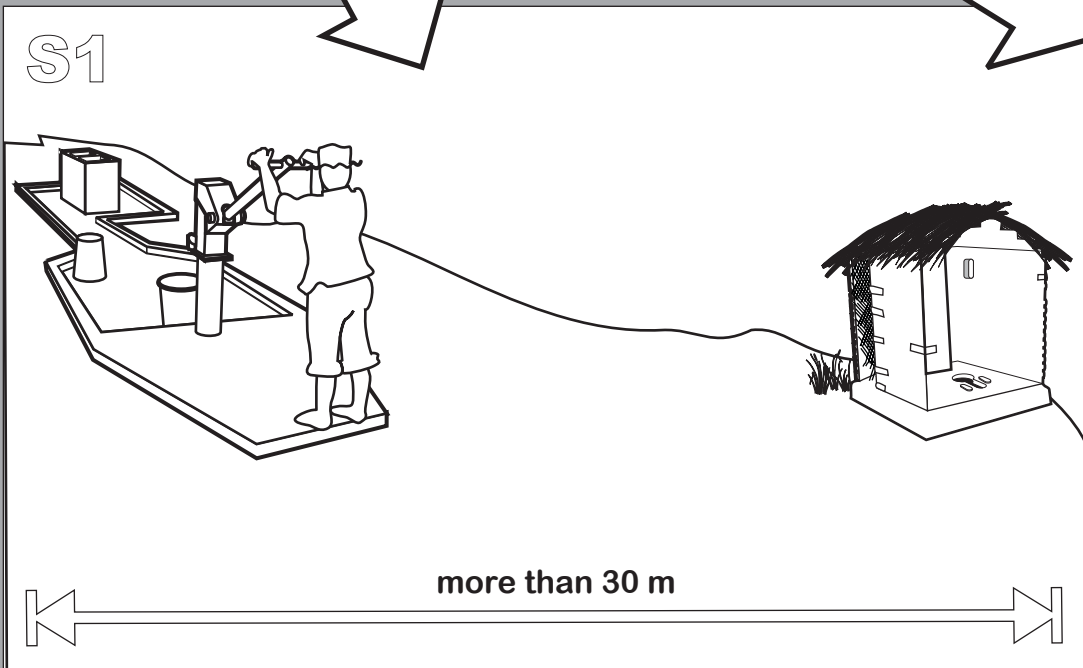
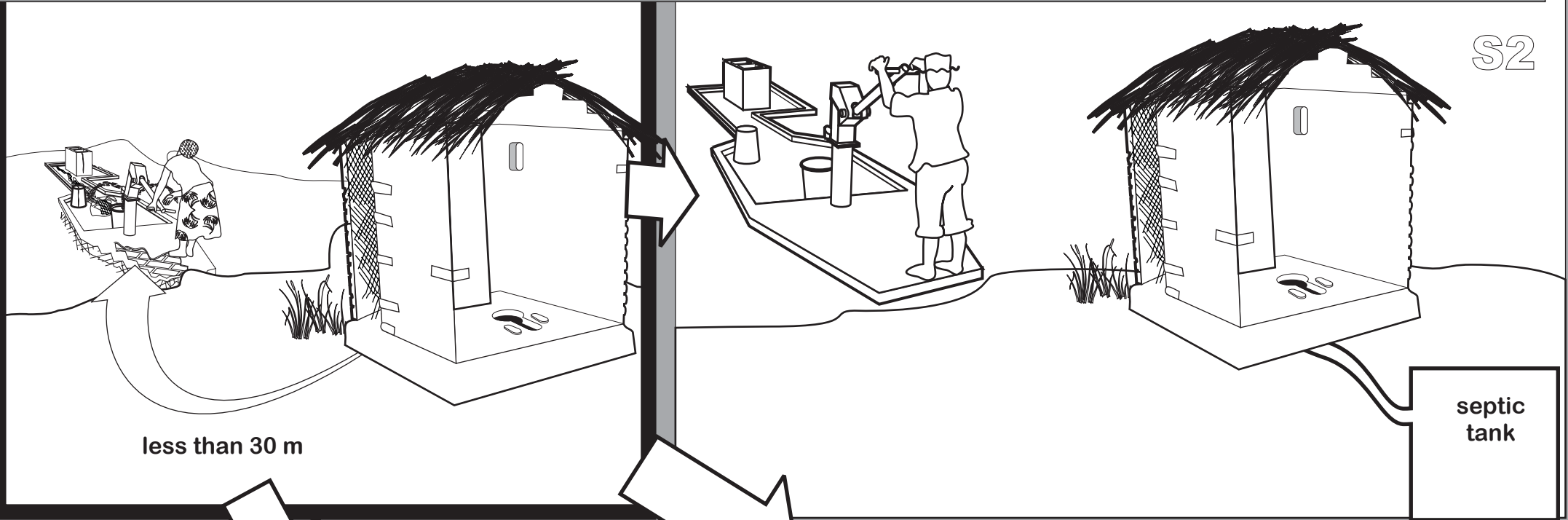
Zoyenera kuchita kuti tikonze vuto	Tsiku lomwe tigwire ntchitoyo	Wotsogolera	Ndalama zomwe zifunike

**Chithunzi cha pansi cha Mjigo(Kuwonetsa mtunda wa malo amene muli zinthu zomwe zingachititse madzi apa Mjigo kuwonongeka)**





# 1. A LATRINE NEAR A BOREHOLE AS SOURCE OF CONTAMINATION



**Material 1: A latrine near a borehole as source of contamination.**

ENGLISH:

1. TITLE: A latrine near a borehole as source of contamination.
2. PROBLEMATIC SITUATION: Nearest latrine is less than 30 meters and is on higher ground than water point.
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Stop using the latrine and relocate it at a safe distance
  - SOLUTION 2: If latrine cannot be relocated, construct a latrine with a septic tank.
  - SOLUTION 3: If latrine cannot be relocated and septic tank cannot be constructed for any reason, the water point should be abandoned for drinking purpose.

CHICHEWA:

**MJIGO OMWE ULI PAFUPI NDI CHIMBUDZI NDI GWELO LA MATENDA**

**Mabvuto omwe angadze (kufotokozer)**

Chimbudzi chomangidwa pafupi ndi Mjigo pa mtunda wochepera milingo makumi atatu kumtunda kwajigo.

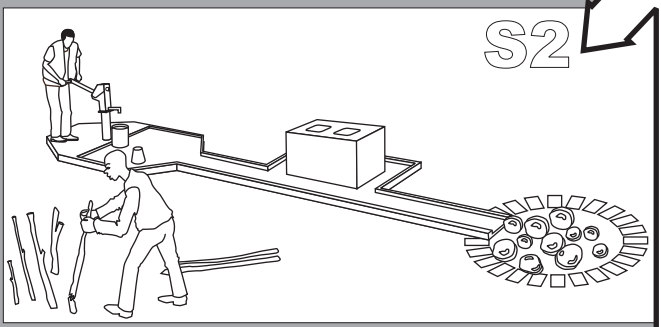
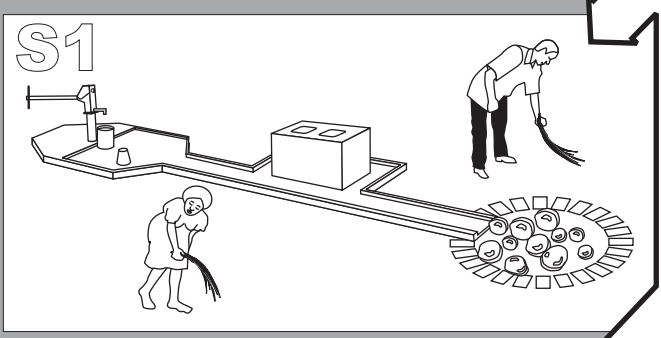
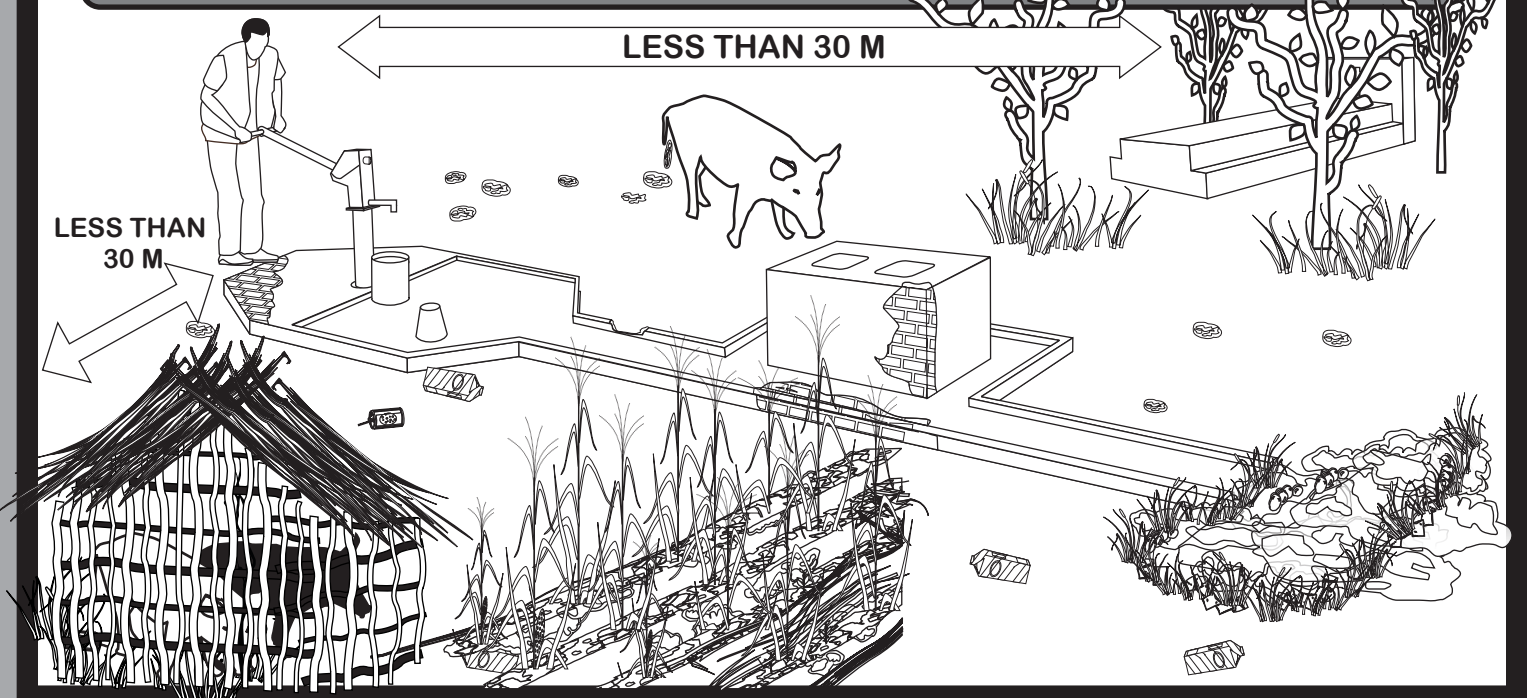
**ZOFUNIKA KUCHITA POTHETSA VUTOLI**

Tisiye kugwiritsa ntchito chimbudzi ndi kuchimangira malo ena otalikirana ndi Mjigo wathu pamtunda opitilira milingo makumi atatu.

Ngati nyumba yachimbudzi singasamusidwe ndipofunika kukonza njira ndi kukumba dzenje kumusi kwa nyumba ya chimbudzi

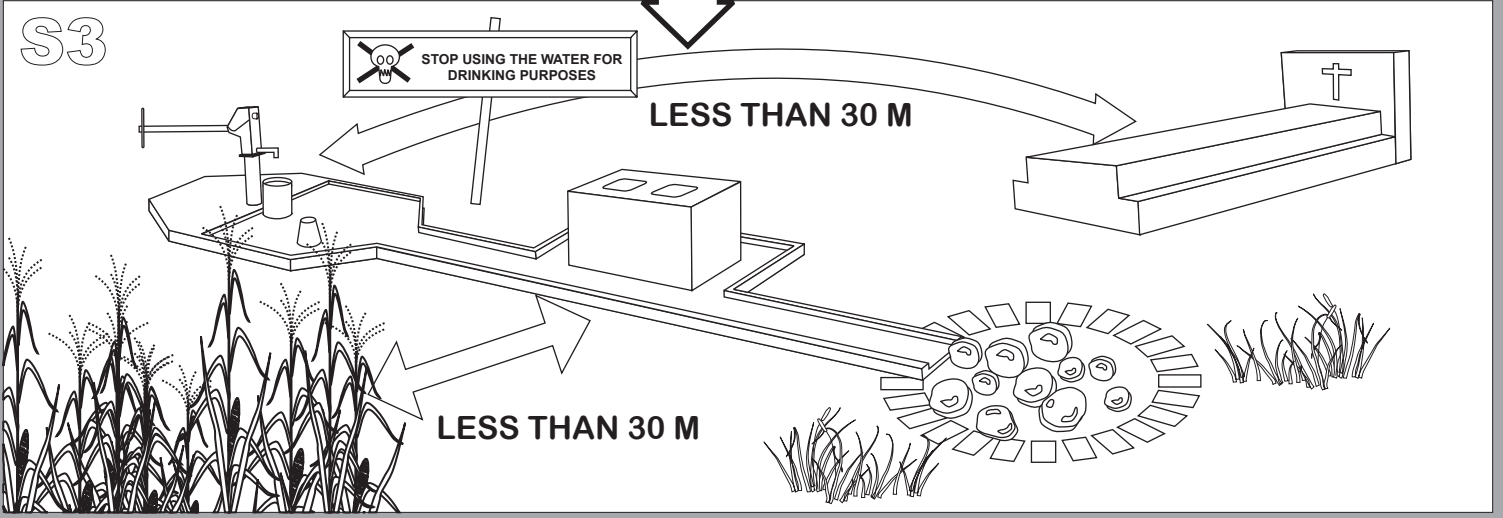
Ngati chimbudzi chitalephere kusamusidwa ndipo njira yokumba chimbudzi cha madzi italephelekanso madziwo asamwedwe.

## 2. POSSIBLE POLLUTANTS NEAR THE BOREHOLE AS SOURCE OF CONTAMINATION



S4

DAY	CLEANERS
Monday	Mr. Banda
Tuesday	Mrs. Kayange
Wednesday	Mr. Phiri



## **Material 2: Possible pollutants near the borehole as source of contamination**

### ENGLISH:

1. TITLE: Possible pollutants near the borehole as source of contamination.
2. PROBLEMATIC SITUATION: The sources of pollution (such as rubbish dumps, animal cage, feces, grazing, grave yard, cultivation) are less than 30 meters
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Clean the rubbish dumps.
  - SOLUTION 2: Remove animal cage, animal dung, grazing around the hand pump.
  - SOLUTION 3: If the water points are near grave yard and cultivation is taking place, the water point should be abandoned for drinking purpose.
  - SOLUTION 4: Make roster among users to clean surrounding and platform.

### CHICHEWA:

#### **KAMANGIDWE KA APULONI KOMWE KANGABWERETSE CHIOPYSEZO PA DILAWO PATHU CHOMWE CHINGABWERETSE BVUTO**

Ngati apuloni yathu ichepa ndi 1 meter kuzungulira Mjigo /dilawo yathu.

Komanso ngati popondera pojiga pachepa ndi mamita atatu, kuchokera pa Mjigo/dilawo kapena Apuloni yathu yasweka, kapena ili ndi ming'alu ndi maenje

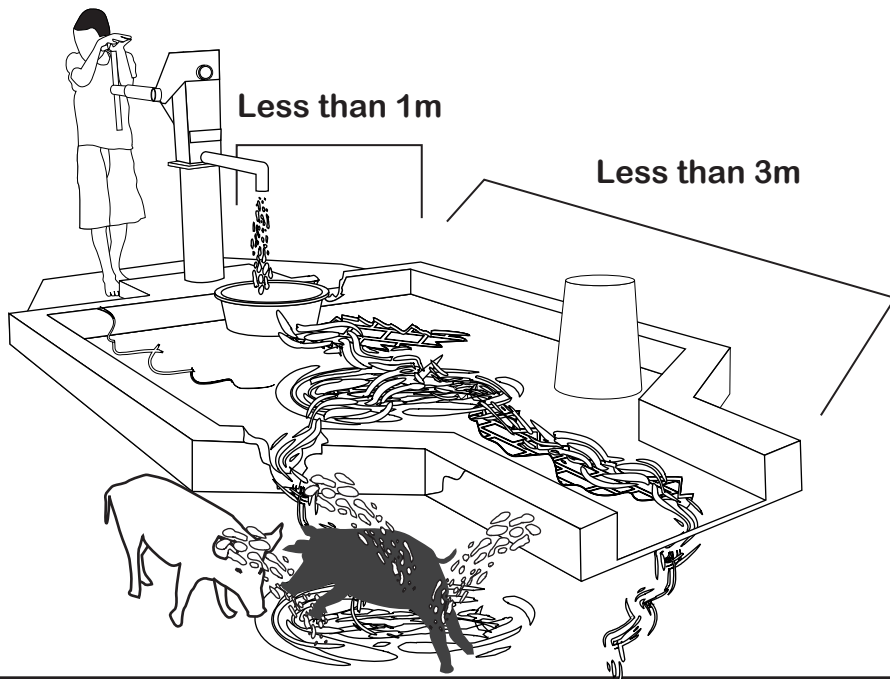
#### **NJIRA YOTHETSERA VUTO**

Mangani Apuloni yatsopano yotalika ndi meter imodzi kapena kuposera apo, ndi popondera pojiga patalike ndi mamita atatu kapena kuposera apo.

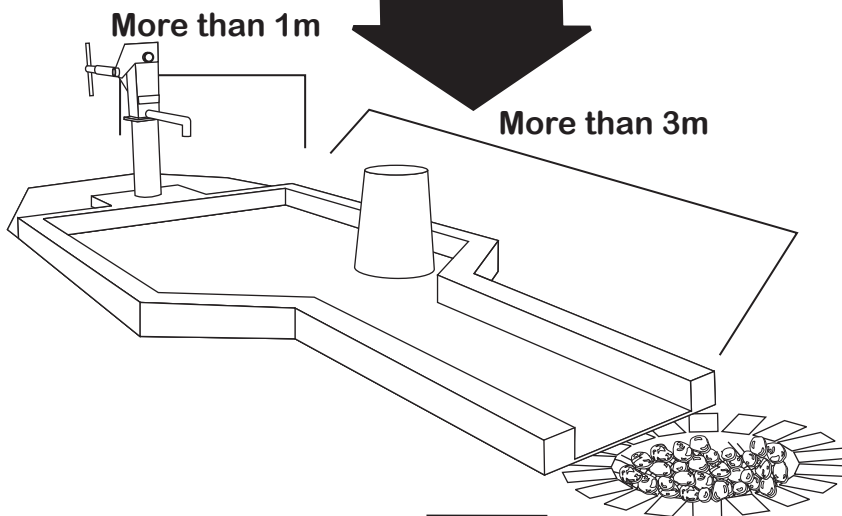
Mothandizidwa ndi a makaniki ndi a misiri a m'mudzi ngati palibe ena.



### 3. CONCRETE APRON DEFECTS THAT MAY POSE A THREAT TO THE BOREHOLE

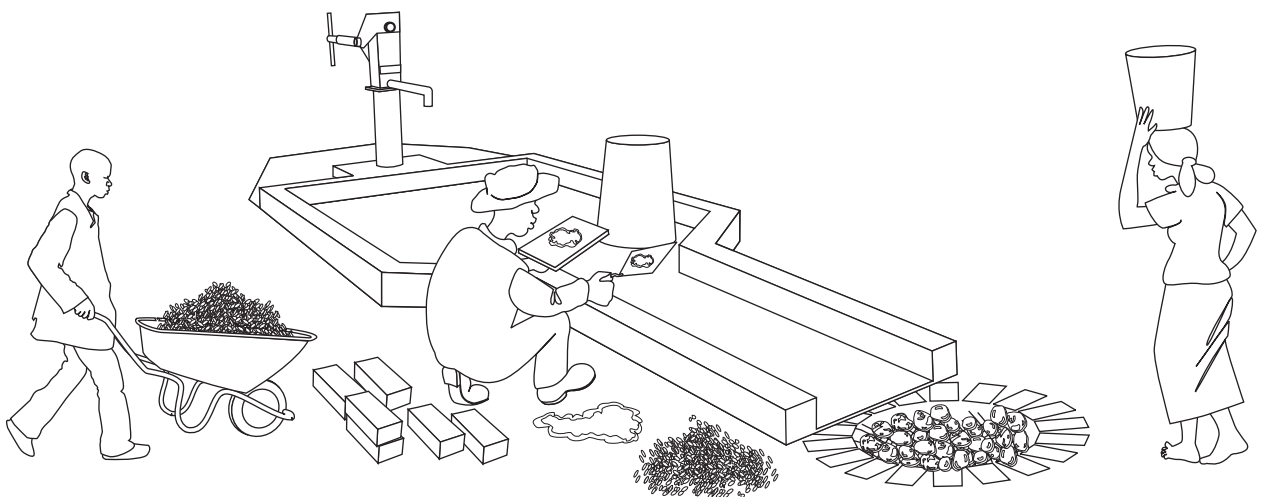


S1



OR

S2



### **Material 3: Concrete apron defects that may pose a threat to the borehole**

#### ENGLISH:

1. TITLE: Concrete apron defects that may pose a threat to the borehole.
2. PROBLEMATIC SITUATION: Concrete apron is less than 1 meter around the pump stand and with less than 3 meters of concrete sanitary protection with borehole or the concrete apron is broken, cracks and potholes.
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Construct a new apron with 1 meter or more long and sanitary protection with 3 meters more long with the support of Area Mechanics and Village Builders.
  - SOLUTION 2: Repair existing apron to remove cracks and potholes and improve slope towards drainage.

#### CHICHEWA:

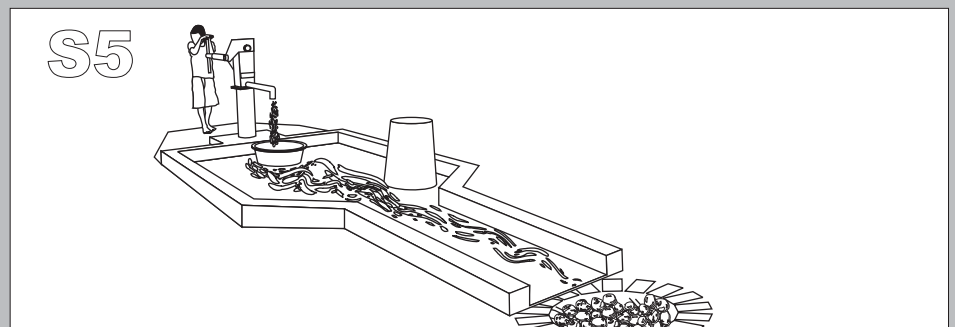
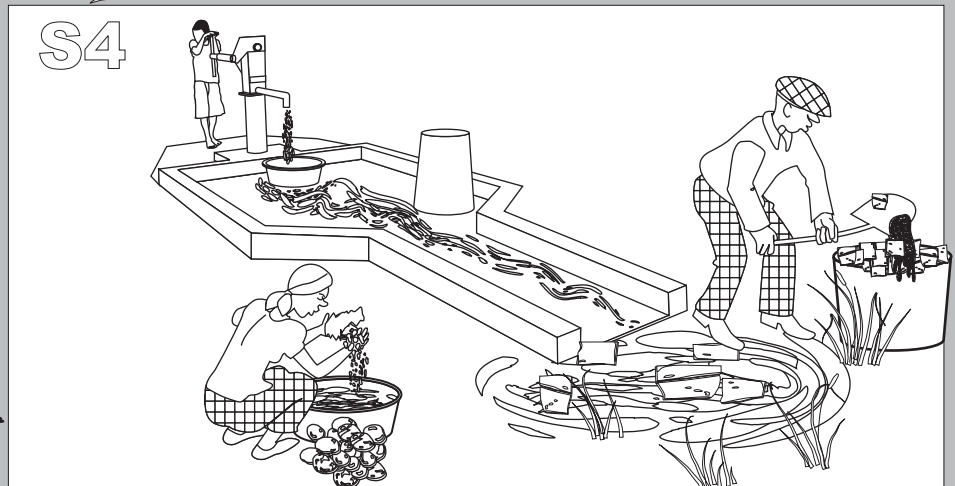
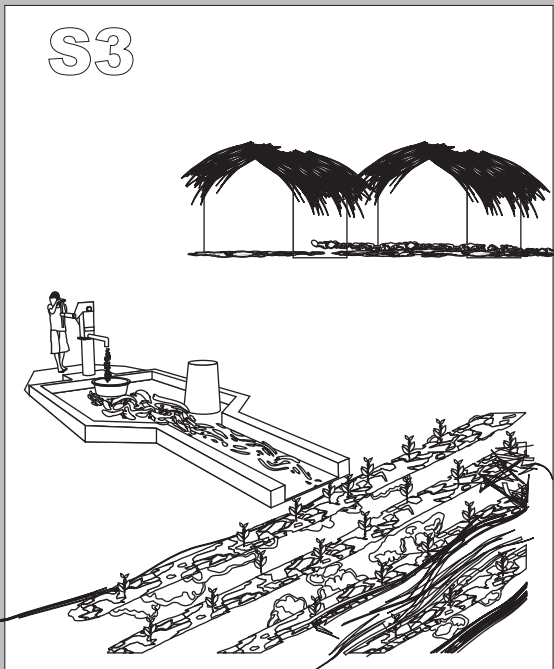
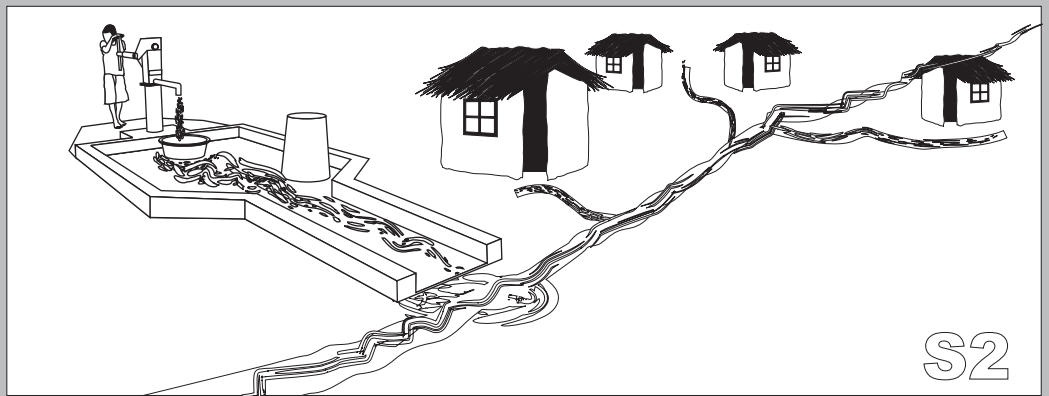
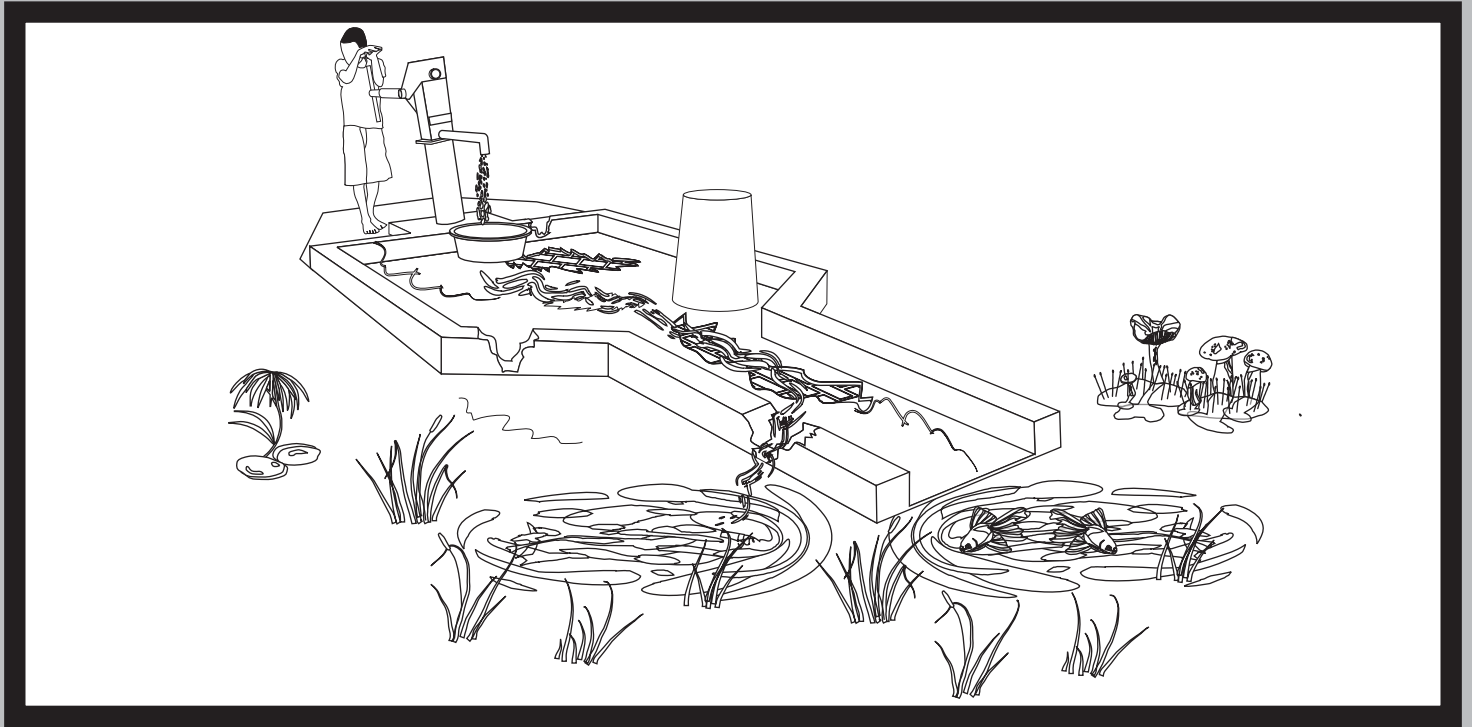
#### **KAMANGIDWE KA APULONI KOMWE KANGABWELETSE CHIOPYSEZO PA DILAWO PATHU CHOMWE CHINGABWERETSE VUTO**

Ngati apuloni yathu ichepa ndi I meter kuzungulira Mjigo /dilawo yathu. Komanso ngati popondera pojiga pachepa ndi milingo itatu kuchokera pa mjigo kapeana Apuloni yathu yasweka , kapena ili ndi mingálu ndi maenje.

#### **NJIRA YOTHETSERÁ VUTO**

Mangani Apuloni yatsopano yotalika ndi mulingo r umodzi kapena kuposera apo, ndi popondera pojiga patalike ndi milingo itatu kapena kuposera apo.Mothandizidwa ndi amakaniki ndi a womanga a mmudzi ngati palibe.

# 4. STAGNANT WATER NEAR THE BOREHOLE AS A SOURCE OF CONTAMINATION



#### **Material 4: Stagnant water near the borehole as a source of contamination**

##### ENGLISH:

1. TITLE: Stagnant water near the borehole as a source of contamination.
2. PROBLEMATIC SITUATION: Stagnant water sources (pool of water from soak away pits, improper drainage and fish/ duck ponds) are less than 30 meters from water points.
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Use funnels when jerry can with small mouths are being used to avoid spill over that can enhance the pool of water, waste water to be minimized.
  - SOLUTION 2: Improve drainage so that waste water flows into natural drainage.
  - SOLUTION 3: Develop vegetable garden using waste water.
  - SOLUTION 4: Remove litter and wash stones in a soak away pit.
  - SOLUTION 5: Divert the direction of the soak away pit and drain off the pool of water.

##### CHICHEWA:

#### **ZITHAPHWI ZOYANDIKANA NDI MJIGO MOMWE ZINGAONONGELE MADZI**

##### **Mabvuto ake: Momwe zithaphwi zimabwelera**

Kutayikira kwa madzi a Mngalande, njira yolakwika yochotsera madzi otayikira pa mjigo ndinso kupezeka kwa maenje a nsomba ndi a bakha malipande osachepera maku atatu kuchokera pa mjigo. **NJIRA ZOTHETSERA / NJIRA ZOBVOMEREZEKA**

##### **Njira yoyamba**

Kugwiritsa ntchito fanulo potunga madzi mzigubu zakukamwa kochepe

##### **Njira ya Chiwiri**

Kukonza njira zabwino zoti madzi adzilowa moyendera

##### **Njira ya Chitatu**

Kulimapo Dimba pogwiritsa ntchito madzi otaikira

##### **Njira ya Chinayi**

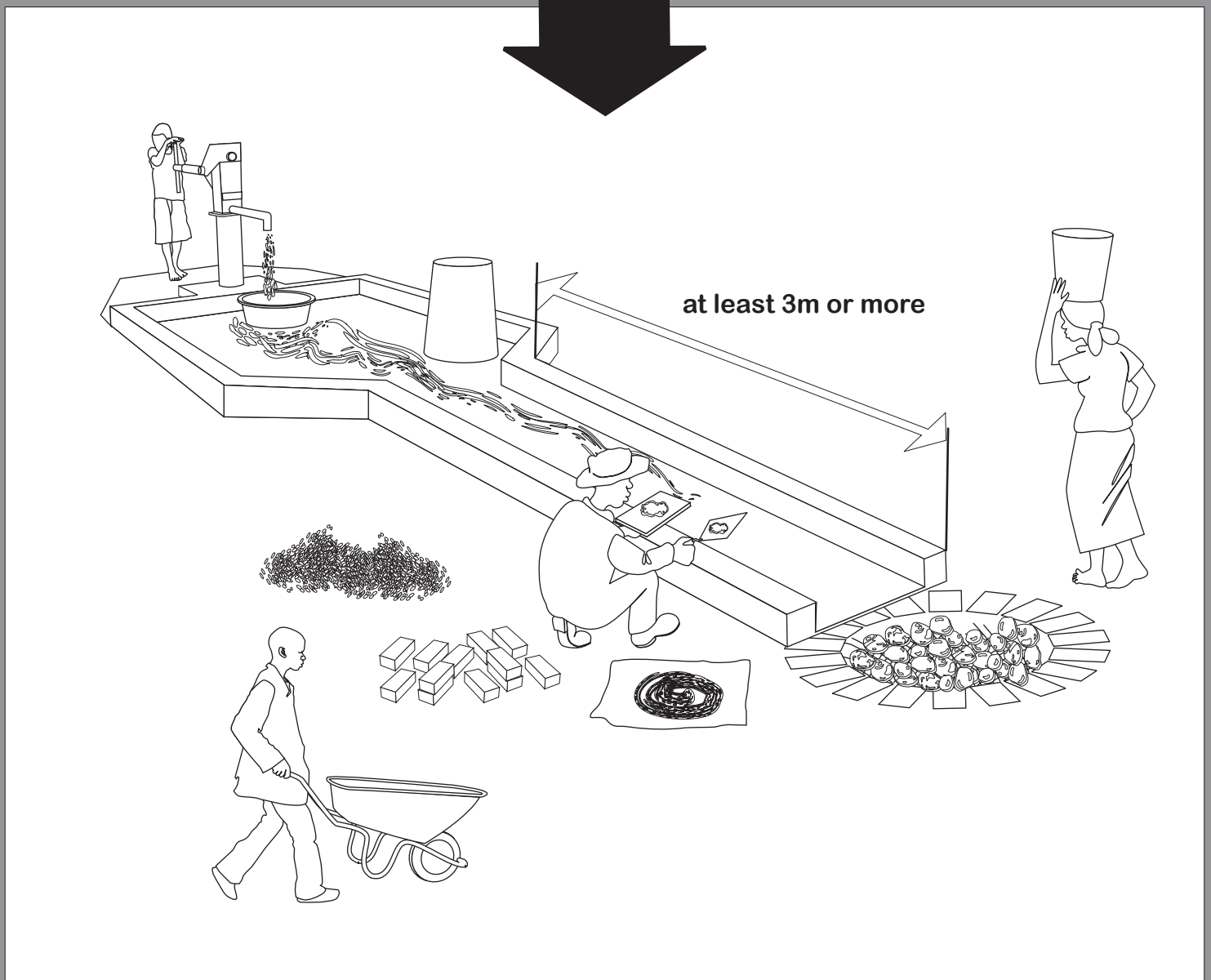
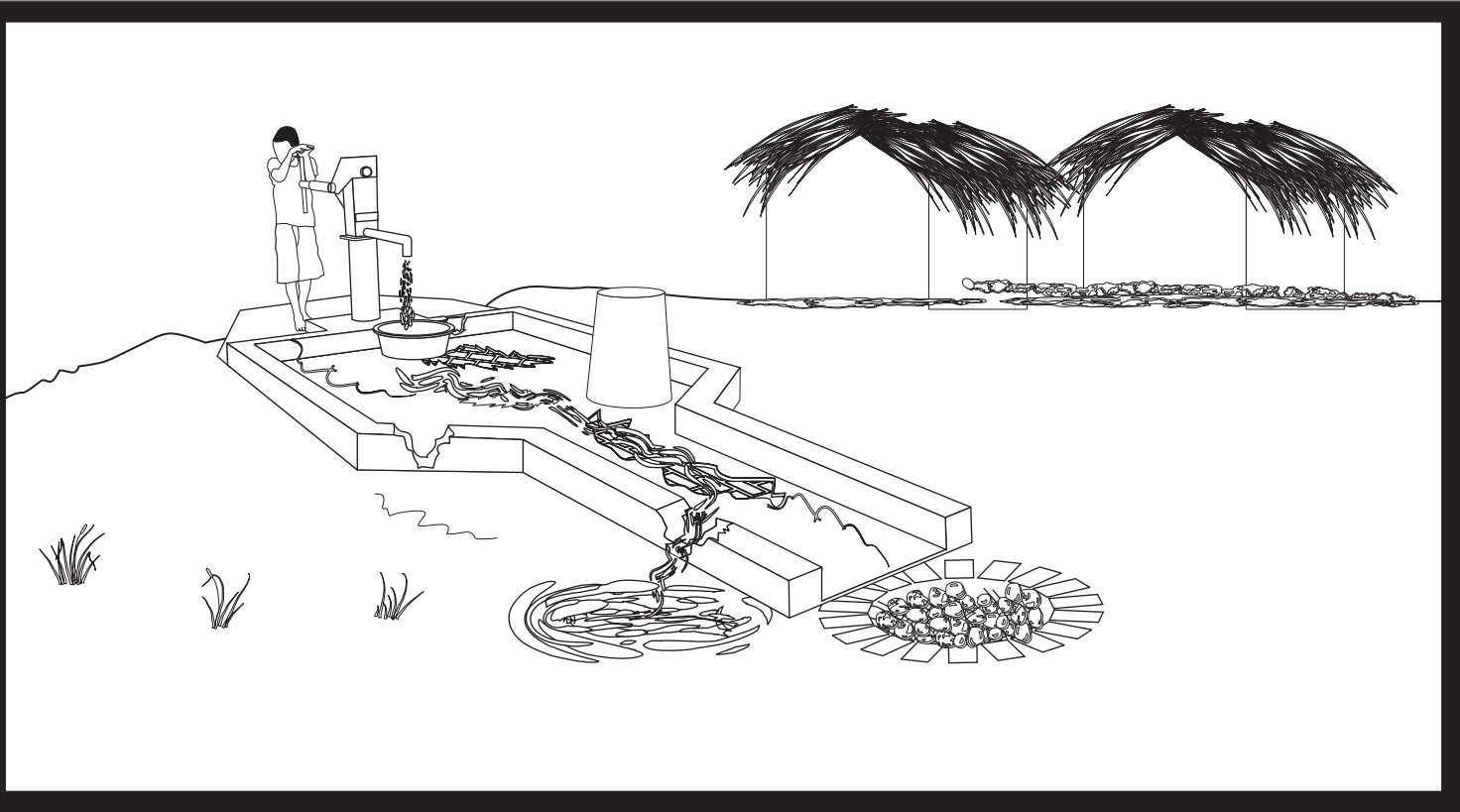
Kuchotsa zinyalala, kutsuka miyala ndi kukapa dzenje.

##### **Njira ya Chisanu**

Kupatutsa njira yodutsa madzi ndi Cholinga chokapa dzenje



# 5. DEFECTS OF CONCRETE



## **Material 5: Defects of concrete**

### ENGLISH:

1. TITLE: Defects of concrete
2. PROBLEMATIC SITUATION: Concrete drainage channel attached to apron is less than 3 meters long ending into a soak away pit or vegetable garden.
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Improve natural drainage by lengthening it up to at least 3 meters or more or mobilize resources and extend drainage channel to at least 3 meters.

### CHICHEWA:

Kuonongeka kwa konkileti pa Mjigo

### **VUTO:**

Ngalande inapwanyikapwanyika

Ngalande ndi Yayifupi ndipo madzi amatulukira pambali

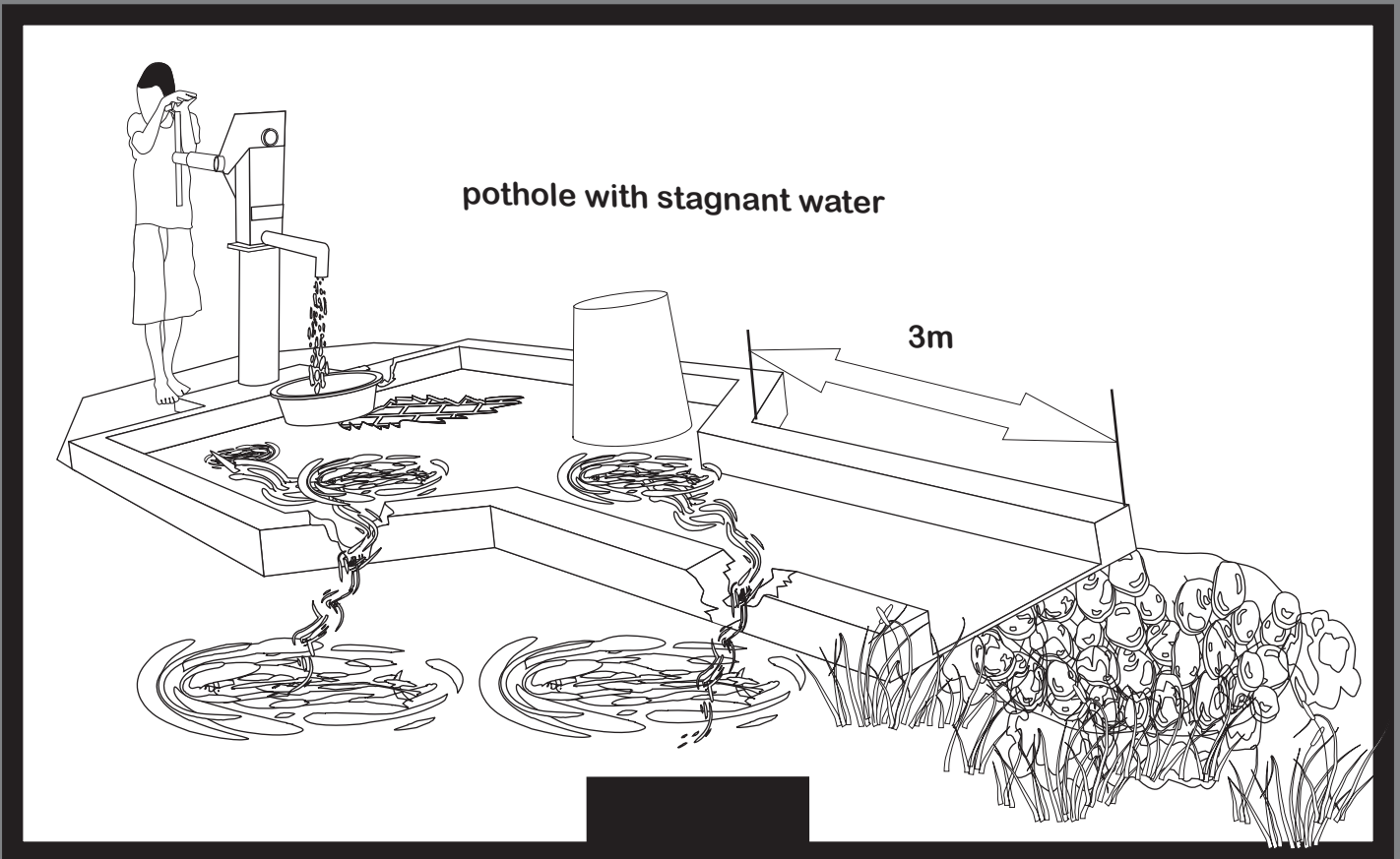
Madzi adekha pa mjigo

### **KUKONZA VUTO**

Timange ngalande yaitali, malipande osachepela atatu

Tipeze njira yopezera zipangizo zoti tikonzere ngalande yaitali ndi malo onsewonongeka pa mjigo monga kukwilira mayenje onse

# 6. DEFECTS OF APRON AND DRAINAGE CHANNEL



## **Material 6: Defects of apron and drainage channel**

### ENGLISH:

1. TITLE: Defects of apron and drainage channel
2. PROBLEMATIC SITUATION: Apron and 3 meters long drainage channel has cracks and pot holes with stagnant water.
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: Mobilize resources and repair the drainage and the slope of the channel.

### CHICHEWA:

#### **KUSWEKA / KUWONONGEKA KWA APOLONI NDI NGALANDE YOYENDAMO MADZI**

#### **VUTO**

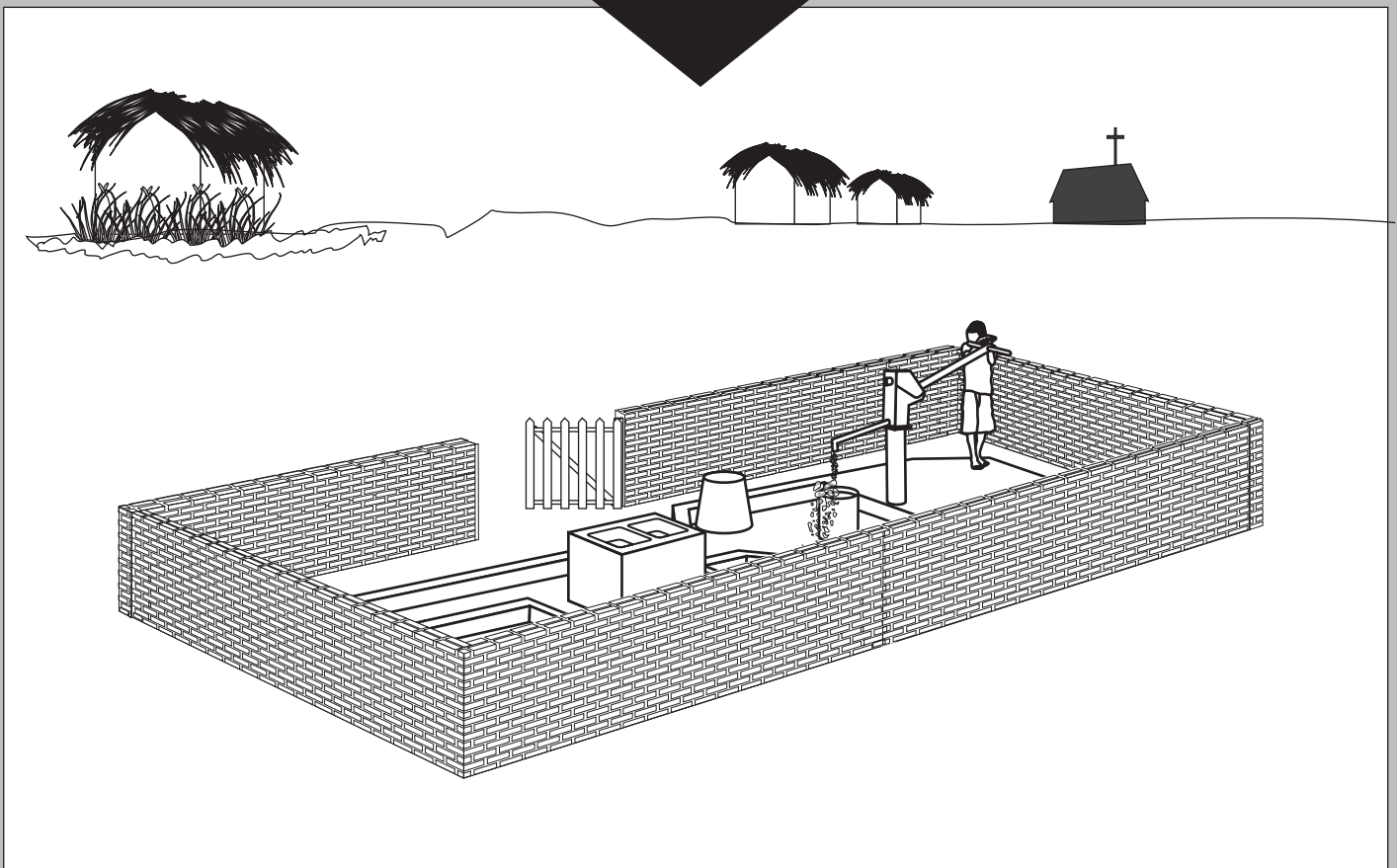
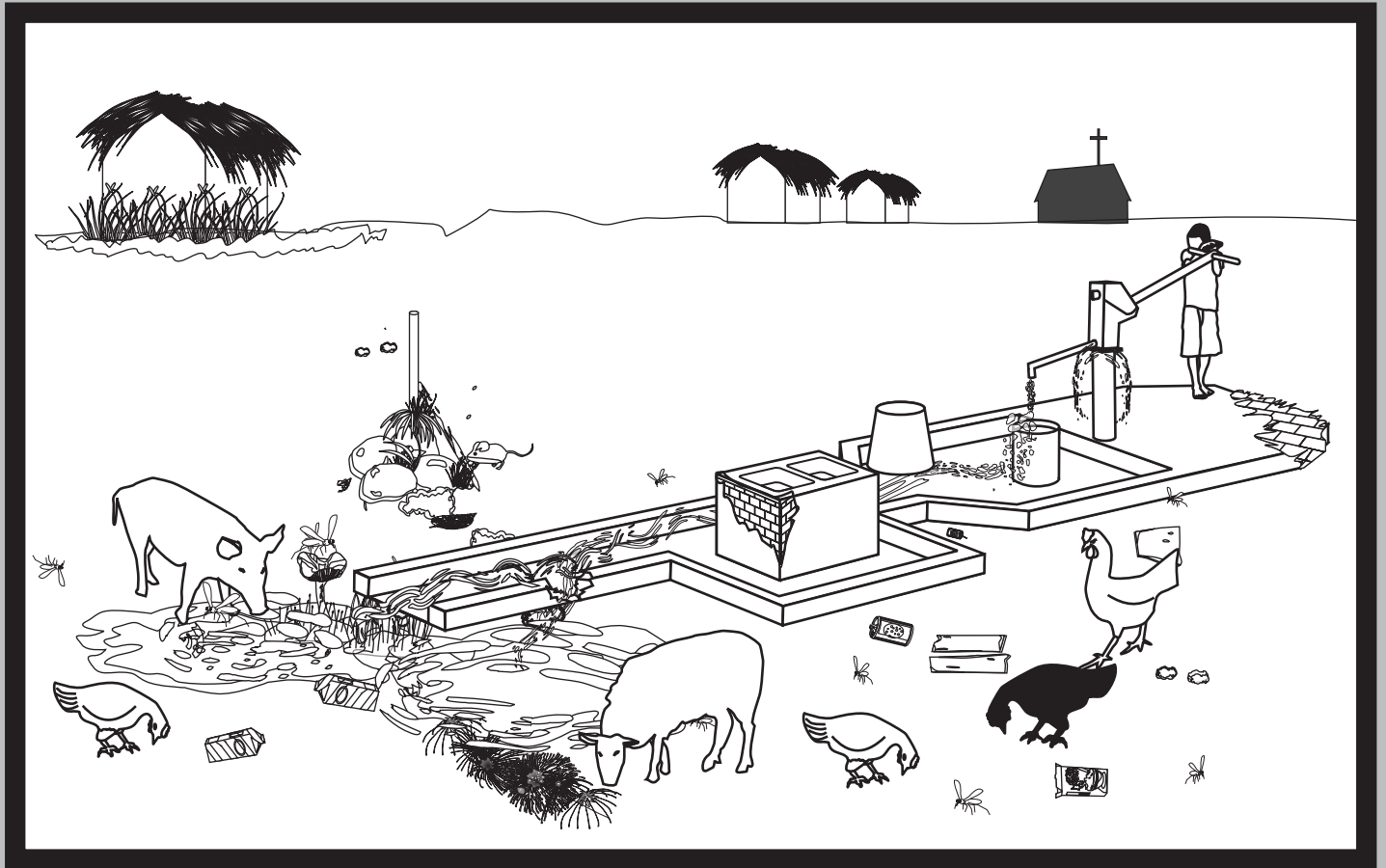
Kusweka kwa apoloni ndi ngalande yoyendamo madzi ndi mayenje modikha madzi

#### **KUKONZA KUTHETSA VUTO**

Kupeza zipangizo zokonzera Apoloni ndi Ngalande yoyendamo madzi monga izi:-  
Simenti - Njerwa - Mchenga – Miyala – Wilibala – Makasu – Madzi ndi anthu ogwira ntchito ndi kukonza ngalande ya madzi wotayikirawo.



# 7. UNHYGIENIC ENVIRONMENT AT A BOREHOLE SURROUNDING



## **Material 7: Unhygienic environment at a borehole surrounding**

### ENGLISH:

1. TITLE: Unhygienic environment at a borehole surrounding
2. PROBLEMATIC SITUATION: General surrounding of a borehole is unhygienic (borehole untidy / dirty grown up grasses, shrubs/ vegetation).
3. SOLUTION OR/AND DESIRABLE SITUATION
  - SOLUTION 1: A tidy / clean borehole surrounding.

### CHICHEWA

#### **UMVE PA MALO OZUNGULIRA MJIGO ZOTSATIRA ZAKUSASAMALA PA MJIGO (MAVUTO)**

Malo ozungulira pa mjigo amakhala osasesedwa, osalambulidwa komanso osatchatchedwa

#### **ZOYENERA KUCHITA /ZOYEMBEKEZERA**

Malo a mjigo akhale osesedwa okolopedwa, olambulidwa, okhala ndi mpanda komanso dzenje logwelamo MadziMadzi.

#### **CHITHUNZI CHOYAMBA**

Palibe dzenje logweramo madzi

Palibe mpanda

Posasesedwa / kulambulidwa

Pali ziweto

Mjigo womasuka ( ma bouti)

Mjigo wosasamalidwa