

PROJECTS FOR HAPPINESS 2019

Application Form (Proposal)							
Course: Civil Engineering (HK01) Year of study: 2019 Project Name: Let's Share Clean Water	Universiti Malaysia Sabah						
1. Basic information about your project proposal: <ul style="list-style-type: none"> I. Name of Project: Let's Share Clean Water II. Project implementation date: September 2019 III. Location of project held: Universiti Malaysia Sabah 							
2. Project Area (can tick more than one): <table style="width: 100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> / Helping Underprivileged community</td> <td><input type="checkbox"/> Animal Protection</td> </tr> <tr> <td><input type="checkbox"/> Arts & Culture</td> <td><input checked="" type="checkbox"/> / Environmental Protection</td> </tr> <tr> <td><input checked="" type="checkbox"/> / Education</td> <td><input checked="" type="checkbox"/> / Racial Harmony</td> </tr> </table>		<input checked="" type="checkbox"/> / Helping Underprivileged community	<input type="checkbox"/> Animal Protection	<input type="checkbox"/> Arts & Culture	<input checked="" type="checkbox"/> / Environmental Protection	<input checked="" type="checkbox"/> / Education	<input checked="" type="checkbox"/> / Racial Harmony
<input checked="" type="checkbox"/> / Helping Underprivileged community	<input type="checkbox"/> Animal Protection						
<input type="checkbox"/> Arts & Culture	<input checked="" type="checkbox"/> / Environmental Protection						
<input checked="" type="checkbox"/> / Education	<input checked="" type="checkbox"/> / Racial Harmony						
3. OVERVIEW OF ISSUE / BACKGROUND							
<p>Kampung Lubok Kiulu Tamparuli is located at West of Sabah, Malaysia and approximately 3 hours from Kota Kinabalu centre (Figure 1). This remote area currently accommodates 18 to 20 families which consists of 16 houses and 2 paddy houses (Figure 2). However, the area is encountering muddy water supply after the occurrence of rainfall. Hence, villagers in this area are facing clean water supply problem as the existing water tank is not enough to supply daily use clean water for all villagers especially during drought. As the students of Civil Engineering from Faculty of Engineering, Universiti Malaysia Sabah, we keen to improve and develop the area by carrying out water upgrading and filtration project to enhance water supply to the communities involved.</p>							

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah



Figure 1: Location of Kampung Lubok Kiulu Tamparuli based on google map.



Figure 2: Main water tank.

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah



Figure 3: Water resources.



Figure 4: Piping system

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah



Figure 5: Piping system



Figure 6: Piping system

Figure 2 to 6 shows the existing water tank supply system at Kampung Lubok Kiulu Tamparuli. This system is old and have many leakages on the polypipe of water tank supply where it should be replacing with new polypipe.

Application Form (Proposal)

Course: Civil Engineering (HK01)
 Year of study: 2019
 Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

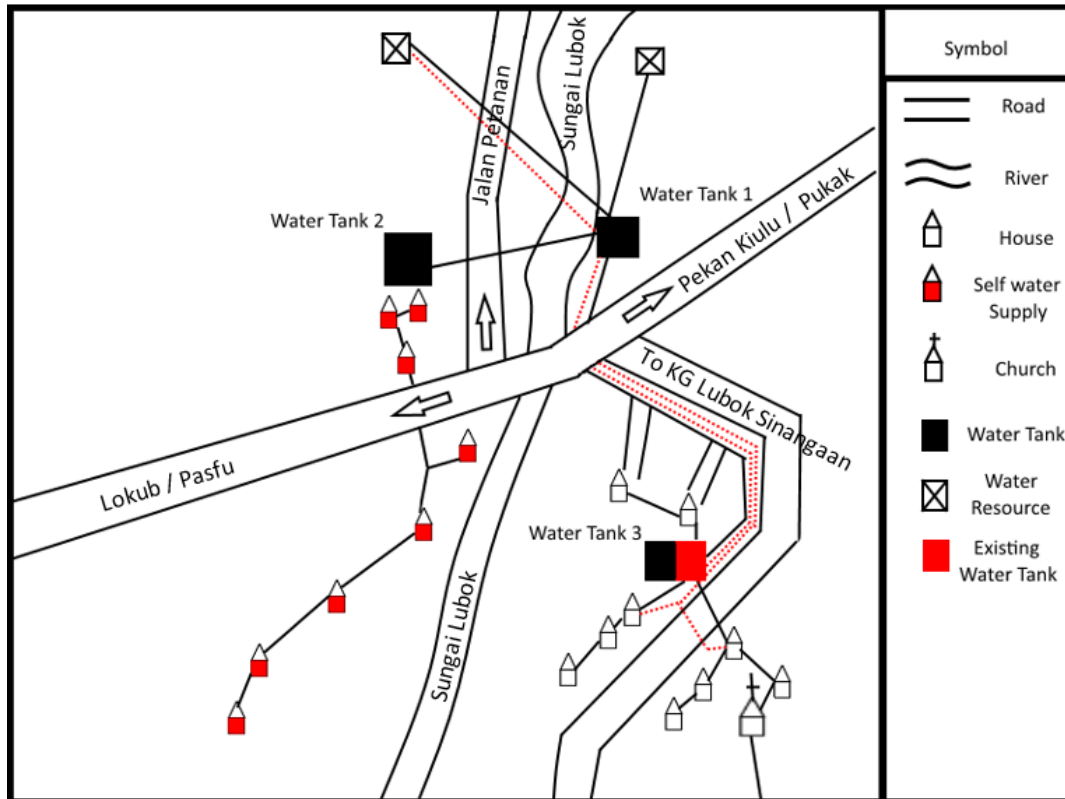


Figure 7: Draft of site location.

Figure 7 shows the plan of site location where the project water upgrading will be implemented. Three water filtration tanks will be construct at three different existing water intake location to supply enough clean water for the villagers. Black colour line indicates the flow of water from water resources through the water filtration tank to each house at Kampung Lubok Kiulu Tamparuli. Due to geographical challenges and agriculture preserves, the project will be highly involved with the communities and families in order to have successful water upgrading installation and development.

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

4. PROJECT OBJECTIVES (VISION & MISSION)

1. To provide clean water to the residents of Kampung Lubok, Kiulu

Water is the most important component of life. To provide a clean water to the residents of Kg. Lubok, Kiulu a water filtration tank will be installed to filter the water supply before being channelled to the villagers. The filtration tank will help to filter the incoming water which contained harmful substances from the high turbidity of water.

2. To fully utilize the sustainable water treatment technology

Utilization of innovative technologies, systems, components, processes, and management approaches in order to reduce risks and environmental damage. This is done by designing the water intake using local conditions and custom made the sedimentation/filtration tank/ storage. Working discussions (operation and maintenance) and task involvement with the villagers will be conducted and inputs or feedback by the communities also incorporated.

5. ACTIVITIES AND TASKS (PROJECT DETAILS)

1. Site investigation and community participation

Site visit should be carried out in order to find out the location of water supply and the condition of the water. The estimated time is three days. It is aimed to collect the information for our water filter system design and discuss with the communities and get feedback or participations.

2. Water filter system making

Committee member will make the water filter system with different layers consist of gravel, sand and activated charcoal which aimed to remove the particles, sediment and bacteria.

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

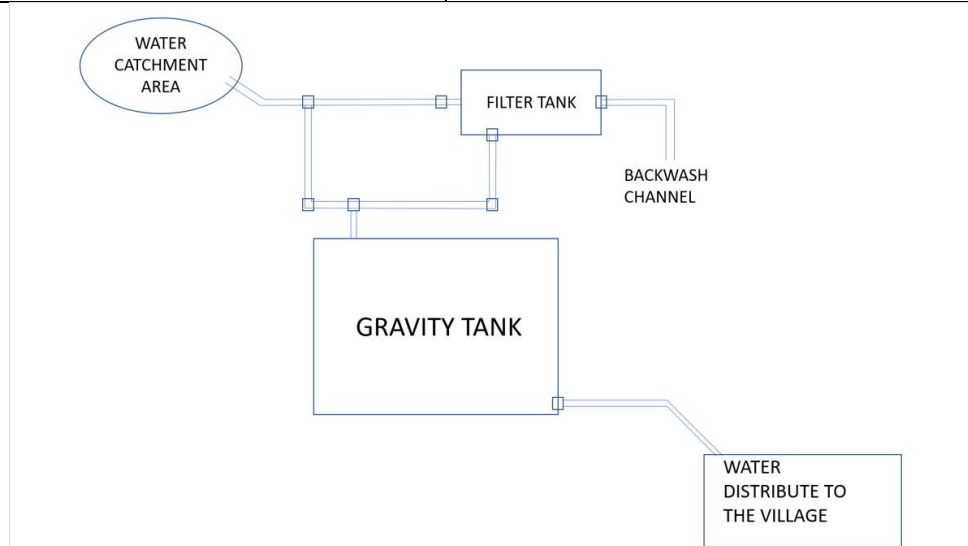


Figure 3

3. Water filter system installation

Before the installation, committee member and Jawatankuasa Kampung(villagers) will together carries out site clearance, excavation, and concreting foundation. This process will be assists by the villagers and briefing on water filtration system will be given.

4. Observation of result

Exiting water intake before installation and after installation or upgrading, the condition of water quality will be observed and recommends maintenance of the water filter.

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

6. SUSTAINABILITY

By working together with the users or villagers from early design, installation and testing, it is anticipated that the project would be able to be operated and maintained by them. There will be at least two (2) elements of sustainability of water filtration which include:

1. Maintenance:

Like any other products or services, the filtration tank that will be implemented to the gravity tank in Kg. Lubok also needs maintenance once in a while in order for it to continue to function as designed. We as students do not have the chances to do the checking on the filter tank on a regular basis. Hence, the community of Kg. Lubok themselves need to have the knowledge or idea on how the filtration tank system work.

To do so, a meeting or demonstration will be conducted with the community of Kg. Lubok on how the filter system actually functioned and also how to utilize the filter tank implemented. Besides that, they can also understand about the importance of ensuring clean water supplied to houses for a healthier life-style.

The process required for the maintenance of the filtration tank is backwashing. Backwashing consists of reversing the flow of water so that it enters from the bottom of the filter bed, lifts and rinses the bed, and then exits through the outlet which located at the top of the filter tank to flushes away any contaminates caught during the filtration process. In short, backwashing is the process of reversing the flow of water to flush out contaminants.

Since the materials used are permanent and manually backwashing procedure, therefore the materials are considered as long-term and zero-cost. The recommended maintenance routine of the filtration tank is once in a month. However, more regular maintenance is required during rainy seasons as there will be more impurities or contaminated substance flow through the filtration layers. As debris builds up, it becomes more difficult for water to flow through.

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

Proper and regular maintenance of the filtration tank helps to extend the equipment lifetime, reduce system downtime and increase the overall safety of the community through cleaner water supplied on a long time basis. This is how the core ideology of maintenance and sustainability are directly linked.

2. Efficiency of the materials:

The function of sand is to strains out the floc and the particles trapped within it, reducing numbers of bacteria and removing most of the solid without the use of chemical aids. The function of gravel is to prevent clogging of the PVC pipe with sand. The function of activated charcoal is trapping other carbon-based impurities as well as things like chlorine.

Theoretically, the system is efficient. The filtration system removes leaves, dirt, rust, and high pH value of liquid. The filtered water contains no leaves, has no noticeable acidic smell, and majority of the soil, and the rust colour is gone However, appropriate cleanup with air backwash will be suggested.

7. KEY PARTNERS: (OPTIONAL)

En. Amandus Juanis (HP: 011 207 93318) Jawatankuasa kampung Lubok Kiulu
Prof. Madya Dr Nurmin Bolong, lecturer Faculty of Engineering UMS
Prof. Madya Dr Ismail Saad, Lecturer Faculty of Engineering UMS
Dr. Lillian Gungat, Lecturer Faculty of Engineering UMS

Application Form (Proposal)

Course: Civil Engineering (HK01)
Year of study: 2019
Project Name: Let's Share Clean Water

Universiti Malaysia Sabah

Group Members:

Azwa Safiqah Binti Darawati BK16110165

Epiphanie Thomas BK16160283

Grace Agnes Justin BK16110162

Kervin Wong Hieng Zheng BK16110171

Law Hie Hong BK16160281

Lee Chi Ho BK16110163

Lee Fui Jun BK16110166

Ling Chun Yi BK16110159

Ling Ka Hou BK16110101

Nur Alizawati Binti Ali BK16110176

Sandra Ting Eng Sieng BK16110074

Yong Pooi Chee BK16110195

8. PROJECTS BENEFICIARIES (People who benefit from your project)

The main beneficiaries of this project would be the villagers of Kampung Lubok Kiulu. It could benefit them in ways such as:

1. Solve the piping blockage problem faced by the villagers during rainfall
2. The villagers will have enough of water supply during dry season (with better storage system).
3. Improving the water supply system where the water intake from source can be distributed equally to the villagers.

9. EXPECTED PROJECT RESULTS & OUTCOMES

From this project, the expected project outcomes are:

1. The villagers are provided with filtered and clean water with upgraded pipeline distribution.
2. The water quality at the selected area of project implementation, Kampung Lubok Kiulu, is improved.
3. Students are able to gain and obtain experience and knowledge which is valuable for future use especially in finding jobs.
4. Students contribute in community works.
5. The villagers obtained knowledges regarding the water filtrations shared by the students.

10. PROJECT TIMELINE (ON-SITE TENTATIVE SCHEDULE)

Stage	Activities
<p>1</p> <p>April – May 2019</p>	<p>Site investigation</p> <ul style="list-style-type: none"> • Site Visit and data sampling (existing water quality) • Community engagement and discussion – problems and solutions
<p>2</p> <p>September – October 2019</p>	<p>Preparation</p> <ul style="list-style-type: none"> • Preparation and procurement relevant materials and consumables • Install and Setup/ custom built the sedimentation/filtration tank, and upgrading the water intake source. • Testing
<p>3</p> <p>November 2019</p>	<p>Implementation Phase</p> <p>1</p> <ul style="list-style-type: none"> • Site clearance and preparation (site 1; water intake, site 2: filter/sedimen tank) • Excavation and levelling (improvement subgrade) • Concreting foundation and install of apparatus <p>Phase 2</p> <ul style="list-style-type: none"> • Apparatus Setup onsite and piping installation • Water quality sampling and observation
<p>4</p> <p>December 2019</p>	<p>Observation</p> <ul style="list-style-type: none"> • Feedback from villagers on operation and maintenance (O&M) • Water quality checking and maintenance apparatus

11. BUDGET

Project Expenses		
Items	Budget (unit x unit price)	Remark
Direct Equipment and Supplies:	RM7200	Materials (pipe, bricks, concrete, cement, steel, bars, filtration media) :RM6200 Equipment (water pump, air pump) :RM1000
Marketing and Event Support:	RM900	Printing documents, flyers, labels, etc
Miscellaneous		
Total (A)	RM8100	

*Student expenses shall not exceed 30% of total expenses

Student Expenses		
Items	Budget (unit x unit price)	Remark
Travel	RM800	UMS-KIULU
Food & Accommodation	RM800	
Miscellaneous	RM300	Emergencies
Total (B)	RM1900	

Total (A) + (B)	RM10000	
------------------------	----------------	--

