

Proposal for Development of Teachers training Module (Preschool and Primary School) for Water Education

**Submitted to
International Hydrological Programme (IHP)**

**Submitted by:
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Water Education

Water plays an important role as it is a basic requirement to sustain life. Water is used for personal needs, irrigation in agriculture, and also in industry to produce various products. Water not only affect organisms directly, but also affect the economy and the environment globally. According to WWAP (2015), safe and clean water is an important element in sustainable development as it contributes to the reduction of poverty, the growth of economy, environmental sustainability and to improve the overall aspect of an individual such as health aspect and food supply.

Unfortunately, Bendfeld, Broker, Menne, Ortjohann, Temme, Vob, and Carvallo (1998) stated that 99% of water on earth is saline or contaminated, only 1% of it is fresh water and can be drink. This little amount of fresh water is inadequate to sustain all the lives on earth. According to Fiorenza, Sharma and Braccio (2003), around one fourth of mankind is suffering from inadequate fresh water supply. Added to this, the growing water demands from population growth, economic development, and increased per capita consumption of goods and service are the driver to water scarcity, stated by WWAP (2009) and Vorosmarty, Green, Salisbury, and Lammers (2000). As rivers and lakes are water sources to most of the organism, the condition become worse when more and more rivers and lakes get polluted by industrial waste and the large amount of sewage discharged. On a global scale, man-made pollution is the largest causes for fresh water shortage as mentioned by Kalogirou (2005).

Groundwater is another source to provide drinking water to humans and animals and it is also used for irrigation in agricultural sector. However, the source for groundwater is reducing due to several factors. Polluted groundwater, global warming which cause intrusion of salt water into coastal areas and over exploitation by human beings for different uses and the slow rate of recharging groundwater causes water shortage (WWAP, 2015). According to Russo, Alfredo and Fisher (2014), the numbers of people who are experiencing shortage of water are increasing every year. 50% of the world population will live in water shortage regions as stated by Quist-Jensen, Macedonio, and Drioli (2015). Water available for use is gradually decreasing if we do not conserve it.

For this reason, water education is needed. Teachers need to be exposed in various ways such as water saving, water reuse, recycle in ensuring water is sufficient for future generation. Our workshops will facilitate, educate and promote awareness, knowledge, appreciation and stewardship about water use. Therefore, teachers will be exposed to hands-on and minds-on activities in providing experiences about the sustainability of water use. Thus module development is necessary.

Modules has logical links between learner needs, learning outcomes, teaching strategies and resources (Donnelly and Fitzmaurice, 2005) and directions to students to perform the tasks (Choo Mei Cheng and Marina, n.d). It allows teachers to get ideas to execute activities accurately. Thus, the misconception problems will be minimized. However,

our modules are very flexible since teachers are allowed to expand the activities that are relevant to the concepts.

Our modules have two stages. The first stage is for preschool teachers where the content and tasks are easy to understand and challenging. In the second stage, the module is for primary school teachers and it is the continuation of the first module and the contents and tasks are more challenging. The activities are more focusing on 4Cs which required for the 21st century learning and SDG 17. Figure 1 is the framework of our modules.

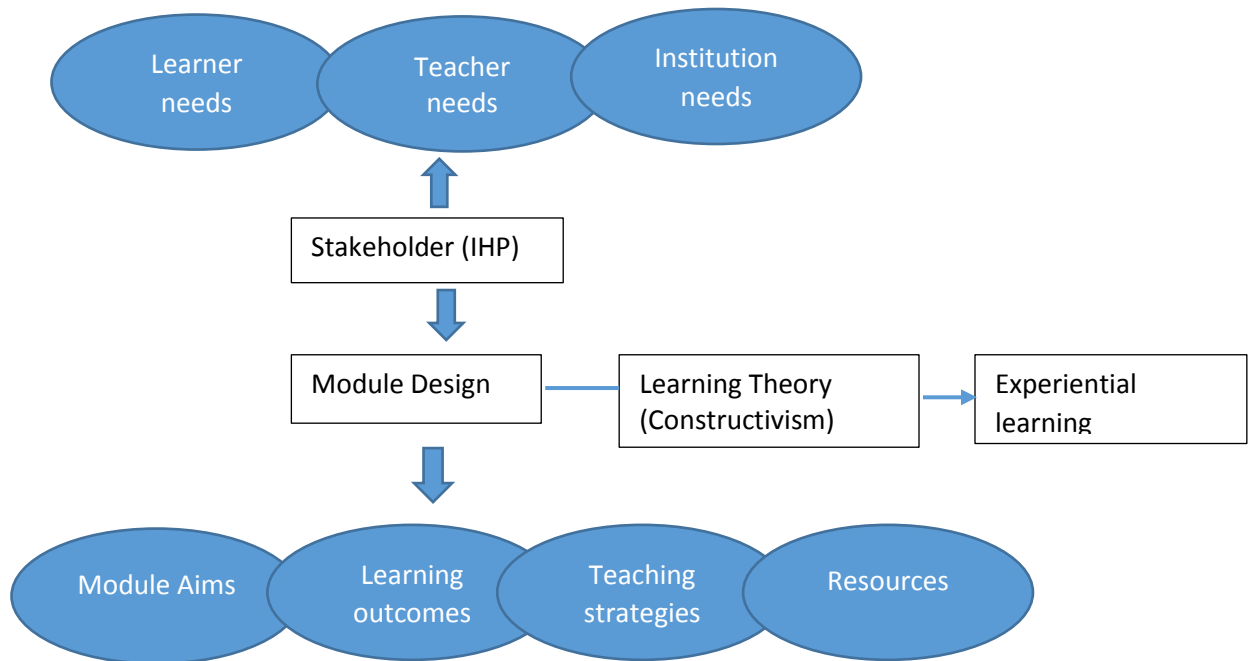


Figure 1: Module Framework (adapted from Donnelly and Fitzmaurice, 2005)

The training will take two days – one day for preschool teachers and one day for primary teachers. Our researchers will be as facilitator to demonstrate the activities in order to make sure that teachers master the contents and activities. Questions will be asked by facilitators to trigger teachers' thinking skill about water concepts. Then, teachers will do all the activities and will be monitored by facilitators.

Besides, water camp also is required. In this camp, students will involve in several activities related to water in order to enhance their awareness about water usage, water recycle, water reuse and etc. In addition, this camp will help students to gain self-confident and develop social skills such as interpersonal skills, communication skills, collaboration skills, etc.

Outline of the proposed Project:

This project will be carried out in 4 phases which are:

1. Phase 1:
 - i. Mapping of preschool and primary school curriculum to identify strategic places to infused water education in the curriculum as well as curriculum.
 - ii. Development of draft module (Workshop 3 days)
2. Phase 2:
 - i. Try out an experiential learning in preschool and primary school (8 weeks)
 - ii. School visit and progress report of the try out
3. Phase 3:
 - i. Evaluation & reflection of experiential learning, refine materials
 - ii. Printing of materials
 - iii. Preparation of virtual presentation of water education by school children with their children
4. Phase 4:
 - i. Showcase (Virtual and presentation by children to stakeholders)

Objectives

- i. To give knowledge about about the sustainability of water use
- ii. To create awareness on clean water shortage
- iii. To protect and enhance no water wastage
- iv. To promote and educate teachers about water care activities
- v. To inculcate values towards water
- vi. To encourage young children to advocate issues about water by engaging with water authorities

Medium of Instruction

Bahasa Malaysia/ English

Target Group (Workshop)

30 preschool teachers

30 primary school teachers

60 students – water camp

1 Primary school – Standard 1

1 Preschool

Output

Videos, Modules

Gantt Chart

No	Activities	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
1.	Learners needs Phase 1: Mapping of preschool and primary school curriculum to identify strategic places to infused water education in the curriculum as well as curriculum. Development of draft module (Workshop 3 days)												
2.	Teacher needs Phase 2: i. Presentation of developed mapping to teachers and stakeholder ii. Consolidating teacher's awareness and knowledge about water resources. iii. Try out an experiential learning in preschool and primary school (8 weeks) School visit and progress report of the try out												
3.	Institutions needs Phase 3: i. Evaluation & reflection of experiential learning, refine materials ii. Presentation of water education experiential learning by school children												
4.	Stakeholders Phase 4: i. Documentation of students' experiential learning in school by teachers ii. Showcase (Virtual and presentation by children to stakeholders)												

Milestones

No.	Milestones	Date
1.	Draft mapping of preschool and primary school curriculum to identify strategic places to infused water education in the curriculum as well as curriculum.	July 2018
2.	Refine draft mapping and develop draft module	August 2018
3.	Presentation of developed mapping to teachers and stakeholder Consolidating teacher's awareness and knowledge about water resources.	August 2018
4.	Try out an experiential learning in preschool and primary school (8 weeks) School visit and progress report of the try out	September 2018 to November 2018
5.	Evaluation & reflection of experiential learning, refine materials	November 2018 to December 2018
6.	Presentation of water education experiential learning by school children	January 2019 to February 2019
7.	Documentation of students' experiential learning in school by teachers	February 2019 to May 2019
8.	Showcase (Virtual and presentation by children to stakeholders) and final presentation	May 2019 to June 2019

Budget

Bil	Activities	RM		Total(RM)
1	Workshop 1	100	100 x 5 persons	500
	Workshop 2	100	100 x 5 persons	500
2	Water Camp	5000	5000	5,000
3	Laptop to document	3100	3100	3100
4	Workshop materials	2000	2000	2,000
5	Food	40	40 x 60 x 2	4,800
6	Field trip to rivers (Transportation)	2000	2000	2,000
7	Mileage	30	30 x 60	1,800
	Water Module development			
8	1 st stage – 2 workshops	1000	1000x2	2,000
	2 nd stage – 2 workshops	1000	1000x2	2,000
9	Instrument development (KAP about water) – 2 workshops	1000	1000x2	2,000
	Printing water module			
10	1 st stage	50	50 x 25	1,250
	2 nd stage		50 x 25	1,250
	Subtotal (exclude GST)			28200
11	GST		0.06 x 30000	1800
Total				30000

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