



Stakeholders' Perspective on Water Education
Among School Students: a Case Study of Nallur
Divisional Secretariat

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Abstract

Education is the key for social changes. It is a great way to socialize the individual through change in his thoughts and attitudes. Water and related issues have emerged as major social problems in recent times. One part of the world suffers from dehydration while the other part is wasting water. This will lead to huge deficits in the future and will be as a root factor for countless social problems such as disease, poverty, abuse and plunder. In this context, education on water and water security must be provided to all. The best way to do this is to introduce water education in the school curriculum as a compulsory subject as well as incorporating in extra curriculum activities from primary to secondary education. This study attempts to analyse the stakeholders' perspective on water education among the school students. The objective of this study is to discuss what are importance of water education, how to develop the water education in school curriculum. This study adapted the qualitative method. The data for this study was collected primarily through case studies along with the world café discussions with stakeholders from selected educational sectors. This study emphasizes that the inclusion of education about water in our school curriculum is a determination to build a sustainable future community. Because a living being can live in a world without water. When water education is existing in school curriculum of Sri Lanka it is not enough to improve the regional water security of the country because the awareness among the public about the importance of water and the changes that take place in relation to it is very low. Therefore, this study recommends the need to make water education an optional or compulsory subject in the Sri Lankan school curriculum for grades 6 to 9.

Key Words: Water Education, Stakeholders, School curriculum

1. Introduction

Education is the key for social changes. It is a great way to socialize the individual through change in his thoughts and attitudes. Water and related issues have emerged as major social problems in recent times. In other words, it has become a global problem today. Some so-called political prophets have predicted that in the future the war between the nations of the world will be for water. In this case, we have to think about water and how to protect it. One part of the world suffers from dehydration while the other part is wasting water. This will lead to huge deficits in the future and will be as a root factor for countless social problems such as disease, poverty, abuse and plunder. In this context, education on water and water security must be provided to all. The best way to do this is to introduce water education in the school curriculum as a compulsory

subject as well as incorporating in extra curriculum activities from primary to secondary education. This study attempts to analyse the stakeholders' perspective on water education among the school students.

To make awareness on water and water security among public has recently emerged as one of the foremost targets of nation state and international community. They used various strategies to achieve their ultimate target. But it have gained that there are some insufficiency as well as failures incidents in the implemented programme and projects. This experiences show that the water education must be incorporated with school curriculum as either a subject nor units and extra-curriculum activities. In this regard, this study aims to analyse the importance of water education in school curriculum of Sri Lanka and how to implement it in school curriculum through stakeholders' perspectives.

Education about water is very antique. From ancient religious literature to modern literature, research has put forward a variety of ideas about water and its socio-economic, cultural and political significance. Apart from this, with the help of modern scientific knowledge, various researches on water and their effects and the processes related to their management have been presented with different results and recommendations. In this context, the following reviews of previous studies on water education in the school curriculum reveal the importance of water education in school-level teaching programme.

UNESCO Study on Learning about Water – Multiple-Perspective Approaches (2012) explores on applying multiple perspectives for Education for Sustainable Development (ESD) to freshwater issues. This study has specially describes multiple perspectives such Scientific, Historical, Geographic, Human Rights, Gender Equality, Values, Cultural Diversity, Sustainability Perspective on water in educational aspects. The study of UNESCO's learning and training tool is a great guide to designing a water educational syllabus at the school level. Beyond this initiatives, UNESCO designed and conducted various forum on water education in 2015. Through this programme, various issues and solutions were forwarded on water education in related to education for sustainable development (2015).

Sammel, Alison J. (2014) attempted to map out the current state of formal water education in Australia based on questions about what it may actually mean to be water literate in his study. This study is conducted with special reference to Australia science education among undergraduate, pre-service teaching cohort in their third year of a Bachelor of Education (Primary). The analysis suggests that the question arising for water education in Australia is not whether the ACS or [future] teachers should be

addressing issues associated with water, but rather how and to what end goal.

Amahmid (*etal.*) (2019) conducted a study on water education in school curricula among students of Morocco. The objective of the study is to explore the status of water education in Moroccan curricula designed for Primary and Lower Secondary School levels and assess the students' knowledge, attitudes and behaviour regarding water-related issues. The study results showed that water-related topics are incorporated in the curricula with multi and interdisciplinary approaches and the most involved are Sciences and Geography; however there is a lack of field and extracurricular activities.

Meghan McCarroll and Hillary Hamann (2020) published a research article entitled on What We Know about Water: A Water Literacy Review. In that article, they discussed and defined the concept of water literacy through examining existing surveys and studies of water knowledge, attitudes and behaviors in both student and adult populations. In addition to this, they summarized water literacy levels and knowledge gaps that exist around the world through this study.

Thusyanthini and Siyamalan (2021) conducted a survey on value based water education especially in science curriculum practiced in Sri Lanka school due to science subject had been endorsed as a compulsory subject and water related studies were included. They described that there are insufficiency in area of value based water education in the grade 6 to 11 science subject curriculum and suggested that value based water education at all levels will definitely improve sustainable water resources management.

The above mentioned literary reviews have revealed the natures and trends of global and Sri Lanka in the field of water education. However this study examines the place of

education on water in school educational program in present contexts of water security related crisis from the stakeholder perspectives

2. Methods and Materials

Water related research is being carried out not only scientific methods but also through social science approaches. At the same time, studies on water and water related problems are being done through qualitative research approaches in addition to quantitative approaches. In this regard, this study adapted the qualitative method to study on stakeholders' perspective on water education among the school students. The data for this study was collected primarily through case studies along with the world café discussions with stakeholders from selected educational sectors.

It was concluded in the world café discussion with stakeholders belong to the Nallur Divisional Secretariat conducted in June and July 2020 through various meetings that communities have to face various problems related to water security in future and there is a lack of awareness among the people regarding water security. In further, they proposed that it is necessary to increase water and water security related activities among school students. Some participants recorded that the water education have to be incorporated in the school curriculum beyond presently some subjects of school education in Sri Lanka like science, hygiene covered through delivering core units as well as extra curriculum activities.

In this regard the team has organized another discussion on later part of July and first week of August 2020 with stakeholders from educational sectors such as National College of Education, Teacher Training Colleges, Technical colleges, Environmental Activists, Schools, Educational institutions, Mass Media, MOH/PHI. The participant details below

The discussion with above mentioned participants was organized based on well-structured questions which was designed to provide best opportunity the participants to precise the nature and reality of water education in the contemporary school

Institutions	No.
National College of Education, Koppay	4
Teacher Training College, Koppay	5
Technical college, Jaffna	4
Environmental Activists	3
Schools, Jaffna	4
Educational institutions, Jaffna	5
Mass Media Jaffna	5
MOH/PHI, Nallur	5
Total	35

Source: Meeting Records 2020

curriculum of Sri Lankan educational system. And also, the significant case studies focused on single aspect of water education were recorded from the participants through personal interaction. It has to be mentioned that the books published by Educational Publications Department of Sri Lanka and provided by Ministry of Education for school student through the free educational programme of Sri Lanka were also included as a data material.

3. Result and Discussion

Water Education is gaining global importance today. From UNESCO to state governments and non-governmental organizations carries out various awareness programs on water and water security among the public in particularly schools students. However, water security has been one of the biggest problems on the global and state levels. In this context, the discussion looks at the nature of water education and its importance in school educational system of Sri Lanka from the perspective of

stakeholders who most involved with the education sector in the Nallur Divisional Secretariat under the following sub titles:

Water related subjects in School curriculum of Sri Lanka

Education system plays a very crucial role in any country towards achieving a sustainable development and strengthening social, cultural, historical and integral development, and is often called as the back born of the society (Alawattegama 2020). The government of Sri Lanka make a facility to create learning environment for children in free of charge through free educational policy which began in 1944. Intention of free text book program as a part of this policy is to enhance the education quality and improve learning outcomes among the children. Government has provide free text book according to Sri Lankan school curriculum to all students from grades 1 to 11. This free education program plays a significant role in developing knowledge, skills, attitudes and behavioral changes among students. In this way, it is possible to observe that the textbooks provided by the government provide some education on water with multiple perspectives such history, geography, science and hygiene.

Education on water is found in the contents of certain textbooks such as geography, history, civic and science while analyzing the textbooks published by Published by Educational Publications Department of Sri Lanka. If the content of geography text book from grad 6 to 9 as sample, there are fundamental concepts and knowledge on water and it related few issues are mentioned. In particular, some opportunities to discuss on the contemporary issues of water and how to secure it are provided in assignment sections which aims that student has to be done in their home by observing the nature and others with guidance of teacher.

In this context, if we are looking as typical sample, very few chapters and contents are describing and discussing on nature of water and its issues in the textbooks on geography (grade 6 to 9) which are compulsory subjects for school students. In analyzing the nature of contents of geography school books from grade 6 to 9 the priority to explicit the importance of water security is very poor. For example, even though the course unit on water is found in the grade 6 geography textbook, the book briefly describe only water using patterns, color full picture on water and its usage, the effects of water scarcity, water conservation measures, and definition of water pollution. The grade 7 geography textbook provides information on monsoon winds and rainfall in Sri Lanka, as well as issues on water-related droughts and floods under the heading of natural hazards. The grade 8 textbook on geography is very brief about the different forms of water and its importance. In the meantime the grade 9 textbook provides information on waterfalls and rivers in Sri Lanka as well as information on monsoon winds and rainfall. As like the contents of geography textbook, there are some explanation on water and its usage in science textbooks of grade 6 to 11. These explanations are mostly based on the scientific perspectives in terms of biological, chemistry and physic aspects

In considering the above discussion of content analysis of Sri Lankan free text book with special reference to geography grade 6 to 9 it has to be analysed on stakeholders' perspective on water education in Sri Lankan school education. In this regard. the case studies recorded from stakeholders who are engaging with education in particularly teaching and data collected through group discussion with various stakeholders especially belongs to educational sectors were involved into qualitative data analysis. The following themes are emerged from this analysis.

Practice of water education in school level: reality and challenges

The role of education in creating, preserving and sustaining the right knowledge, skills and attitudes in the context of the social value system are crucial for the wellbeing of any civilized society. In this regard, it has accepted unanimously by the participants of stakeholder discussion conducted by research team of Water Security for Northern Province, University of Jaffna that there are incorporated the nature and practice of water in school curriculum of Sri Lanka exist. However it has recorded in the case study of a science teacher that education on water and its related matter should be improved because there are lack of awareness on water and water security among the students and public. In further he has mentioned that people consider that water is a quantitatively available resource in their region and they never thought that drinking water is a limited resource in the earth. This case study is what is apparent that education on water is not enough in school curriculum.

Important of upgrading existing curriculum through incorporating areas of water security

This is the obvious truth that existing water education in Sri Lankan school curriculum is not sufficient to create awareness on water security among students and the general public in the country. What is the opinion of the participants in the discussion on water security is that extra-curriculum activities for students should include topics such as water security, water management, water austerity practice, water pollution, water pollution prevention etc. For example, involving students in such activities monitoring the water levels of local ponds, cleaning up pollutants in rivers, and using home wastewater for home gardens.

The geography teacher of a national schools pointed out in his case study that the purpose of education is to develop a positive attitude among students. Therefore, it is necessary to provide practical training among the students apart from the individual learning subjects. The present world and the country in which we live are facing various water related problems. To counter this, we need to provide water education among students through a knowledge-based teaching process and practical experience. These will bring about changes in students' knowledge, attitudes and behaviors about water and the water security process. In order to bring about the above changes among the students it is necessary to incorporate the multifaceted view of water within the existing school curriculum. For example including essay and story on water and its related issues we are facing today and motivating students to write or draw about these as easy, poster, short stories etc., in Tamil subject. Similarly other subjects like religion, history, etc. should include water knowledge based chapters and water management activities according to their nature.

Is it necessary to develop new curriculum for water education in school education of Sri Lanka

The necessity of water education among students and public is emphasized in the workshop organized by UNESCO on "Water education and capacity building: key for water security and sustainable development" which aimed at discussing Education for Sustainable Development as a critical lever for advancing policies and practices in different areas such as water education for water security and sustainable development, marine knowledge, etc. (2015 b). This workshop summarized that water education should be structured into three main themes in order to accelerate action for sustainable development: (a) tertiary education of water

professionals; (b) water education in schools; and, (c) water education for decision-makers, water technicians, communities, stakeholders and mass-media professionals. According to this summarization of the workshop, water education occupies a central place in school education system. Because Schools are excellent places to foster water education since they are well structured and are linked to the parent community.

Students will learn better what they can apply to their daily lives. Schools, Teachers and textbooks are seen as the primary socializing agent for children. Schools provide students the space and time to develop the knowledge and skills at the same time teacher functions as a moderator for expanding the students' positive attitudes. Beyond this, the text books seem to be a fundamental source for preparing students for world by generating new visions, attitudes and skills. In this context, if we incorporate water education in school curriculum as either compulsory or optional subject, the attitude and behavioral changes regarding the water security could be in reality. Because, through this water education students have an opportunity to know the all matters related to water as well as it may be helpful to make water secure world e.g. learning about the water they consume is a first step to bringing knowledge closer to their own reality and obtaining this knowledge will be useful throughout their lives since it can be applied at home and improve their lives significantly.

In analyzing the data collected from the discussions with stakeholders who are attached to educational sectors and case studies recorded from selected school teachers, the inclusion of education about water in our school curriculum is a determination to build a sustainable future community. Because a living being can live in a world without water. Thiruvalluvar, celebrated Tamil poet and philosopher as

well as world-renowned divine poet said that the world will not be without water.

நீரின்றி அமையாது உலகெனின் யார் யார்க்கும்
வான் இன்று அமையாது ஒழுக்கு. (குறள் 20)

When water fails, functions of nature cease, you say; Thus when rain fails, no men can walk in 'duty's ordered way'. (Kural 20)

If it be said that the duties of life cannot be discharged by any person without water, so without rain there cannot be the flowing of water.

4. Conclusion/s

Water-related issues are having the most serious social consequences in contemporary society. Awareness among the public about the importance of water and the changes that take place in relation to it is very low. The interaction that each human being makes with water in their lifetime is inevitable. But concerns about water security or conservation are rare among them. Incorporating water education into the school curriculum is a necessity of the times. Because the future society is in the hands of today's students. They can create a water secure world in the future by inculcating a multifaceted knowledge, attitude and skills about water. This study also emphasizes the same. When water education is existing in school curriculum of Sri Lanka it is not enough to improve the regional water security of the country. Therefore, this study also stresses the need to make water education an optional or compulsory subject in the Sri Lankan school curriculum for grades 6 to 9.

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