



2021
SICASH
SLIIT INTERNATIONAL CONFERENCE ON
ADVANCEMENTS IN SCIENCES & HUMANITIES

Stakeholders' Perspective on Water Education Among School Students: A Case Study Of

Srikanthan, S.* & Jeevasuthan, S.
Department of Sociology, University of Jaffna, Sri Lanka

ARTICLE INFO

Article History:

Received: 25 July 2021

Accepted: 25 September 2021

Keywords:

School curriculum, Stakeholders,
Water Education

Citation:

Srikanthan, S. (2021). *Stakeholders' Perspective on Water Education Among School Students: A Case Study of Nallur Divisional Secretariat*, Proceedings of SLIIT International Conference on Advancements in Sciences and Humanities, (3-4) December, Colombo, 248-255

ABSTRACT

Education is an important 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 section of the world suffers from dehydration while the other wastes water. This will lead to huge deficits of water in the future and will be 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 and to incorporate it in extracurricular activities from primary to secondary education. The objective of this study is to discuss the importance of water education and how to develop it in the school curriculum. This research has adapted the qualitative method. The data for this study was collected primarily through case studies and also by using the world café discussion method with stakeholders from selected educational sectors. This study emphasizes that the inclusion of education about water in our school curriculum is crucial to building a sustainable future community. This is because a living being cannot live in a world without water. The sole fact that water education will be included in the 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 necessity to make water education an optional or compulsory subject in the Sri Lankan school curriculum for grades 6 to 9.

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 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 incorporate it in extracurricular 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 the public has recently emerged as one of the foremost targets of nation states and the international community. They have used various strategies to achieve their ultimate target. Despite this, it has been observed that there are failures and insufficiency in the implemented programme and projects. This experience shows that water education must be incorporated within the school curriculum as either a subject or units of an extra-curricular activity.

The inclusion of the subjects on water in Sri Lanka's school textbooks and co-

curricular activities will not pave the way for full access to water education among school children. When considering this fact, this study aims to analyse the importance of water education in the school curriculum of Sri Lanka and the stakeholders' perspectives on incorporating it in the school curriculum.

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 research on water and their effects and the processes related to their management have been presented with different results and recommendations. The following reviews of previous studies on water education in the school curriculum reveal the importance of water education in the school-level teaching programme.

UNESCO's 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 specially describes the multiple perspectives such as scientific, historical, geographic, Human Rights, gender equality, Values, cultural diversity and the 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 school level. Beyond these initiatives, UNESCO designed and conducted various forums on water education in 2015. Through this programme, various issues and solutions were forwarded on water education in school education for sustainable development (2015).

Sammel and Alison (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 was conducted with special reference to Australian 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 et al. (2019) conducted a study on water education in school curricula among students of Morocco. The objective of the study was to explore the status of water education in the 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) 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 the science

curriculum used in Sri Lankan schools. Due to it being a science subject it had been endorsed as a compulsory subject and water related studies were included. They described that there is insufficiency in the 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 resource management.

The above literature 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 programme in the present contexts of water security related crisis from the stakeholder perspectives

METHODS AND MATERIALS

Water related studies are carried out not only using 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. This study adapted the qualitative method to study on the stakeholders' perspective on water education among the school students in Nallur Educational Zone. The data for this study was collected primarily through case studies along with the world café discussions with stakeholders from selected educational sectors and textbooks from grades 6 to 9 were examined using content analysis method.

It was concluded in the world café discussion with stakeholders belonging to the Nallur Divisional Secretariat during the meetings conducted in June and July 2020 that communities will have to face

various challenges related to water security in the future and there is a lack of awareness among the people regarding water security. Furthermore, they proposed that it is necessary to increase water and water security related activities among school students. Some participants recorded that water education has to be incorporated in the school curriculum beyond some subjects of school education in Sri Lanka like science, hygiene covered through delivering core units as well as extracurricular activities.

In this regard the team organized another discussion during the latter part of July and the first week of August 2020 with stakeholders from educational sectors such as the National College of Education, the Teacher Training Colleges, the Technical Colleges, Environmental Activists, Schools, Educational Institutions, Mass Media, Medical Officers and Public Health Officers. Find below the participant details.

The discussion with above mentioned participants was organized based on well-structured questions which were designed to provide the best opportunity for the participants to precise the nature and reality of water education in the contemporary school curriculum of the Sri Lankan educational system. In addition the significant case studies which focused on a single aspect of water education were recorded from the participants through personal interaction.

It has to be mentioned that the books published by the Educational Publications Department of Sri Lanka and provided by Ministry of Education for school students through the free educational programme were also included as data material.

RESULTS AND DISCUSSION

Water Education is gaining global importance today. Starting from UNESCO to state governments and non-governmental organizations which carry out various awareness programmes on water and water security among the public and particularly among schools' students. However, water security is one of the biggest problems on global and state levels.

This discussion looks at the nature of water education and its importance in the school educational system of Sri Lanka from the perspective of stakeholders who are 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

The education system plays a very crucial role in any country towards achieving

Table I
Participant details in the world café discussion on water security of Northern province

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.

sustainable development and strengthening social, cultural, historical and integral development, and is often called as the back-bone of the society (Alawattegama, 2020). The government of

Sri Lanka provides facilities to create a learning environment for children free of charge through the free educational policy which began in 1944. The free textbook programme as a part of this policy is to enhance the education quality and improve learning outcomes among the children. The government provides free textbooks according to the Sri Lankan school curriculum to all students from grades 1 to 11. This free education programme plays a significant role in developing knowledge, skills, attitudes and behavioral changes among students. It is possible to observe that the textbooks provided by the government provide some education on water with multiple perspectives such as 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 Educational Publications Department of Sri Lanka. If the contents of the geography textbook from grades 6 to 9 is taken as an example, there are fundamental concepts and knowledge on water and related issues. In particular, some opportunities to discuss the contemporary issues of water and how to secure it are provided in the assignment sections which aims at students doing it at home by observing nature and other things with the guidance of the teacher.

If we look carefully, we can observe that very few chapters and their content describe and discuss on the nature of water and its issues in the textbooks given for geography (grade 6 to 9) which are compulsory subjects for school students. In analyzing the contents of geography school-books from grade 6 to 9 the priority to explain 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 describes only water using patterns, colourful pictures on water and its usage, the effects of water scarcity, water conservation measures, and the 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. Just like the contents of the geography textbooks, there are some explanations on water and its usage in the science textbooks used from grades 6 to 11. These explanations are mostly based on the scientific perspectives in terms of biological, chemistry and physical aspects.

In considering the above discussion of content analysis of Sri Lankan free textbooks with special reference to geography grades 6 to 9 it has to be analysed through a stakeholders' perspective on water education in the Sri Lankan school system. The case studies recorded from stakeholders who engage with education, particularly in teaching, and the data collected through group discussions with various stakeholders especially belonging to the educational sectors were used in the qualitative data analysis. The following themes emerged from the 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. It was accepted unanimously by the participants of stakeholder discussions that were conducted by the research team of Water Security for the Northern Province of the University of Jaffna. However, it has been recorded in the case study of a science teacher that education on water and its related matters should be improved because there is a lack of awareness on water and water security among the students and the public. Furthermore, 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 on the earth. From this case study it was apparent that education on water is not only enough in the 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. The other opinion of the participants in the discussion on water security was that extra-curricular 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 as 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 school 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 to 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 stories on water and its related issues we are facing today and motivating students to write or draw about these as essays, posters and short stories when studying the Tamil language 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 the 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 agents for children. Schools provide students the space and time to develop the knowledge and skills at the same time the teacher functions as a moderator for expanding the students' positive attitudes. Beyond this, the textbooks seem to be a fundamental source for preparing students for the world by generating new visions, attitudes and skills. In this context, if we incorporate water education in the school curriculum as either a compulsory or an optional subject, the attitude and behavioral changes regarding the water security could be become a reality. This is because, through this water education students have an opportunity to know all matters related to water as well as it may be helpful to make water secure worldwide. 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 determinant to build a sustainable future community. Because a living being cannot live in a world without water. Thiruvalluvar, a world-renowned divine poet and philosopher said that the world will not be without water.

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.

CONCLUSIONS

Water-related issues have 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 that when water education exists in the 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.

REFERENCES

- Alawattegama, Kingsley Karunaratne. (2020). Free Education Policy and its Emerging Challenges in Sri Lanka. *European Journal of Educational Sciences*, 7, 1: 1- 14.
- Amahmid, Omar., Youssef El Guamri, Mohamed Yazidi, Bouchra Razoki, Khadija Kaid Rassou, Youness Rakibi, Ghizlane Knini and Touria El Ouardi. (2019) (online 2018). Water education in school curricula: impact on children knowledge, attitudes and behaviours towards water use. *International Research in Geographical and Environmental Education*. 28, 3: 178-193.
- Meghan McCarroll and Hillary Hamann (2020). What We Know about Water: A Water Literacy Review. *Water*. 12: 2-28
- Sammel, Alison J. (2014). A Case Study of Water Education in Australia. *Creative Education*. 5: 1140-1147
- Thusyanthini, R & S. Siyamalan (2021). Foremost Need of Value Driven Water Education in Sri Lankan School Curriculum: Science. *International Journal of Scientific and Research Publications*, 11, 3: 388-395
- UNESCO. (2012). Learning about Water – Multiple-Perspective Approaches, 2012. UNESCO
- UNESCO. (2015). Proceedings on Water Education and Capacity Building Key for Water Security and Sustainable Development 7th World Water Forum 2015.
- UNESCO. (2015). Advancing Water Education and Capacity Building: Key for Water Security and Sustainable Development: Recommendations for the future of water-related Education for Sustainable Development 2015.