

Contamination of Nuwarawewa and how it affects to the surrounding communities

Extended Abstract

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Background

Water is precious and unique resource in the earth. Present day water pollution is a major global problem which requires ongoing evaluation and revision of water resource policy. It has been suggested that water pollution is the leading worldwide cause of deaths and diseases (Pink, 2006). When it comes to the Sri Lankan context, the reservoir pollution has become a huge problem in Sri Lanka and Nuwarawewa is one of the highly polluted reservoirs. It is a man-made tank, situated in Anuradhapura city area. Since hundreds of centuries it serves to the people that providing the water for agriculture and human activities of the Anuradhapura area. Recently, mainly because of anthropogenic activities water quality data indicates that the pollution in Nuwarawewa is reasonably high (Perera, et al, 2014).

Objectives

This research mainly assesses how the human activities affect to the Nuwarawewa and its catchment area. Furthermore, it focuses on negative impacts on aquatic life, scenic beauty and the human health of the related area. This study also proposes proper measures to reduce these impacts.

Methodology

Nuwarawewa is one of the highly polluted major reservoirs located in the Anuradhapura district. Therefore, Nuwarawewa and communities living around the reservoir have been chosen as the study area of this research. In order to achieve the objectives of this study, the required data were collected from both primary and secondary sources. Random sampling method was employed in order to determine the sample size and 30 households were selected from the adjacent villagers around the reservoir and primary data was collected based on the structured questionnaire. Each respondent was questioned over their usage of the reservoir for the different purposes, their perception on the existing water quality and the water pollution.

Furthermore, field observations were carried out and a formal discussion was conducted with the Senior Engineering Assistant of the National Water Supply and Drainage Board (NWSDB), Anuradhapura. The other required secondary data collected using previous studies, related books, internet, etc. To analyze the data of this research mainly used Excel and represented them using graph, charts, and tables.

Results

According to the analysis of the survey primary data it revealed that 26% of the village people use the tank directly for day today activities. It is comparatively lower than pipe usage and higher than tube well and other sources. It further reveals that, tank water usage for cleaning and bathing activities is significantly higher as 54% where as 76% of surrounding people use the Nuwarawewa for their agricultural activities. Moreover, over 70% of respondents expressed that the water quality of the Nuwarawewa is very low and NWSDB data also revealed that the water quality is very low during the dry seasons and sediment of the water is very high. Water quality data indicates that the turbidity level in Nuwarawewa is also high with a greater standard and the pollution of Nuwarawewa also reasonably high (perera, et al, 2014). Polythene, plastics and paper waste were the mostly founded pollutants in the catchment area of the tank especially Poson and Wesak poya seasons and the accumulation of the pollutants significantly high. Cow dung of the grazing cattle near the tank reservoir gets mixed up with tank water and many human unintentionally add nitrogen and phosphorus and other pollutants add to the water. Garbage and waste water discharge of tourist hotels and holiday homes around the Nuwarawewa. Overflowing toilet drainage systems in Ranasevapura pollute the tank water. People built houses and other buildings in the catchment area or near to the reservoir because the boundary of the reservoir is not clearly demarcated yet by the relevant authorities. As observation contamination of Nuwarawewa affects the entire biosphere plants and organisms living in the body of water. In almost all cases the effect is damaging not only to individual species and population but also agricultural and human health also.

Conclusions and Recommendations

The result of this study revealed that impacts of the Nuwarawewa pollution spread all over the surround

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environment and if these trends continue, it can be damaged to the historical value, eco-system services and economic value of the Nuwarawewa. As a responsible community has a great responsibility to take actions to protect and enhance Nuwarawewa environment and cultural resources as a legacy for present and future generation. Creating awareness program for changing the attitudes of people and educate the general public about ancient irrigation system and environment. Practicing and encouraging the conservation and efficient use of tank based resources. Developing proper waste disposal methods, taking strict legal actions and improve the attitude of the people about the rules and regulations related to the water pollution and environmental pollution in wewa and surround area.

Key words: contamination, reservoir, aquatic life, water pollution, environmental

References

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