

**HAZARDS IDENTIFICATION, RISK  
ASSESSMENT AND ANALYSIS IN CATCHMENT  
AND TREATMENT FOR IMPLEMENT WATER  
SAFETY PLAN: CASE STUDY DONE IN KANDY-  
SOUTH WATER TREATMENT PLANT**

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## Abstract

Safe drinking water is a fundamental requirement and internationally accepted human right in human development. According to this paper, research develops an approach for facilitating initial risk identification, assessment and prioritization from catchment to treatment as a principal module in water safety plan which is introduced by World Health Organization. And this process is done for the Kandy South water treatment plant. Currently, drinking water quality is mainly assessed on detection of pathogenic bacteria and toxic concentration of chemicals with national and international drinking water guidelines. However, this approach represents several disadvantages and inefficient in some situations such as *Giardia* or *Cryptosporidium* outbreaks. Therefore, several limitations are identified with end-point monitoring in ensuring safe drinking water. Risk identification with assessment and preventive methods are introduced which is leading factor of development water safety plan. Hazards and hazardous events are identified and evaluated throughout the proposed water supply system. Possible hazards are identified from catchment to treatment with using hazardous point maps and evaluated of hazards as low, medium and high risks. Conclusion is mainly influenced by available data. Hazardous point maps are more valuable with high availability of data in development of water safety plan. The assessment is addressed the importance of severity points where data is limited, prioritization of hazards and impact for the future development of water safety plan.

Keywords: risk identification, risk assessment, prioritization, water safety plan, hazardous point map