

**AN EVALUATION OF THE STATUS OF  
INTEGRATED WATER RESOURCES MANAGEMENT  
(IWRM)  
IN THE KELANI RIVER BASIN OF SRI LANKA**

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A dissertation submitted to the  
Department of Civil Engineering, University of Moratuwa  
as partial fulfilment of the requirements for the  
Degree of Master of Engineering  
in Environmental Water Resources Engineering and Management



By

**Samantha Prasada Wijesundera**

Supervised By

Professor NTS Wijesekera

**Department of Civil Engineering**

**University of Moratuwa**

**Sri Lanka**

University of Moratuwa



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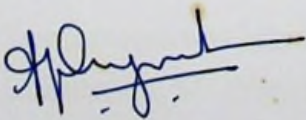
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**Statement**

This dissertation was submitted to the Department of Civil Engineering of the University of Moratuwa, Sri Lanka, in partial fulfilment of the requirement for the Degree of Master of Engineering

**Declaration**

This thesis has not been previously submitted in whole or in part to any university or institution for the purpose of obtaining a Higher Degree.



**Samantha Prasada Wijesundera**

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## Abstract

Increasingly countries world over are experiencing difficulties in accessing safe sources of water for all their consumptive purposes in wake of rapid population growth and environmental degradation. Consequently, there is increased competition for this scarce resource. In this backdrop, Integrated Water Resources Management (IWRM) is fast emerging as a legitimate alternate management model to previously sectorally fragmented management practices to better utilize the available resource more prudently and to ensure its long-term sustenance. IWRM is defined as “*a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems*”. This in essence requires a fundamental paradigm shift in the management and governance of water.

The Kelani River Basin of Sri Lanka which hosts its capital city and has the largest basin population is one of the most important basins in the country. The basin experiences many problems related to its water resources of which most are attributed to weaknesses in management that is divided along sectoral lines. Additionally, the country's policies and laws are outdated and fragmented, making their implementation difficult. Given this situation, a rethink on water management and its governance has become an issue of primary importance.

The research objective is to evaluate the application of the principles of IWRM in Kelani River Basin to identify where the current management practices depart from the stated principles and its affect on water resources of the basin; and propose improvements for water management.

The research was conducted by means of a desk study and a basin wide field survey. The desk study consist the review of current literature on IWRM, study reports conducted on the development of the Kelani River Basin and other academic publications on IWRM. The field survey consisted, a survey of General Stakeholders in sixty locations, consultations with ten Institutional Stakeholders, of which seven were state institutors and three independent.

It was evident that if not managed properly water resources in Kelani will be under severe stress in the near future, particularly during the dry seasons. Considerable pollution of water is seen with rapidly increasing population and the removal of forest cover degrading the watersheds.

In the context of IWRM practice in the Kelani River Basin, the study rates the current implementation status as a “Low” at 1.41 of 5.0; or 28.2%. The key water sector institutions believe that this rate needs to be at 3.71 of 5.0; or 74.2%; for water management in an IWRM context be considered as effective and thus be rated as “Substantial”.

The study reveals that there is informal, fragmented and unplanned implementation of IWRM in the Kelani basin and that this level of intervention is inadequate to ensure the sustainable use of water, both within or outside an IWRM context. Therefore, it can be argued that an overarching water policy framework together with the necessary institutions geared towards integration in management and empowerment of the community, underpinned by sound economics and equity criteria; are necessary mainstays for the long run sustainable utilization of water resources in the Kelani River Basin..

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### *List of Frequently Used Acronyms*

ADB	- Asian Development Bank
CEA	- The Central Environmental Authority
CEB	- Ceylon Electricity Board
FAO	- Food & Agriculture Organization
GS	- General Stakeholder
GSS	- General Stakeholder Survey
ID	- Irrigation Department
IWRM	- Integrated Water Resources Management
IS	- Institutional Stakeholder
ISS	- Institutional Stakeholder Survey
ISSi	- Institutional Stakeholder Survey-independent
KRB	- Kelani River Basin
LS	- Literature Survey
MASL	- Mahaweli Authority of Sri Lanka
NWSDB	- National Water Supply and Drainage Board
UN	- United Nations
WHO	- World Health Organization
WRB	- Water Resourced Board
WRC	- Water Resources Council
WRS	- Water Resources Secretariat

### *List of Frequently Used Abbreviations*

Agri	- Agriculture
Dome	- Domestic
Indu	- Industrial
Ener	- Energy
Fish	- Fishing
Sand	- Sand Mining
Tour	- Tourism
Trans	- Transport

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