

**AN ASSESSMENT OF HYDROLOGICAL AND LAND USE
CHARACTERISTICS AFFECTING RIVER-COAST INTERACTIONS
IN THE WEST INDIAN OCEAN REGION**

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Acronyms and Abbreviations

AMCEN	African Ministerial Conference on the Environment
AUF	African Unification Front
CITES	Convention on International Trade in Endangered Species
BOD	Biological Oxygen Demand
CMAs	Catchment Management Agencies
CPW	Challenge Programme on Water and Food
DO	Dissolved Oxygen
DNA	National Directorate of Water (Mozambique)
EEZ	Exclusive Economic Zone
EAC	East Africa Coastal Current
EIA	Environmental Impact Assessment
EMA	Environmental Management Agency
GIWA	Global International Water Assessments
GNP	Gross National Product
GoK	Government of Kenya
GPA	UNEP's Global Programme of Action for the Protection of the Coastal and Marine Environment from Land-based Activities
GWP	Global Water Partnership
HDI	Human Development Index
ICRI	International Coral Reef Initiative
ICARM	Integrated Coastal Area and River Basin Management
IMO	International Maritime Organisation
IWMI	International Water Management Institute
INE	National Institute of Statistics
IOC	Indian Ocean Commission
IOCINCWIO	UNESCO's Intergovernmental Oceanographic Commission's Regional Committee for Cooperative Investigations in the North and Central Western Indian Ocean
IOMAC	Indian Ocean Marine Affairs Commission
IUCN	International Union for Conservation of Nature
ITCZ	Inter-tropical Convergence Zone
JIBS	Joint Incomati Basin Study
LIMCOM	Limpopo River Basin Commission
LMEs	Large Marine Ecosystems
LRB	Limpopo River Basin
MAR	Mean Annual Runoff
MAP	Mean Annual Precipitation

NEMC	National Environmental Management Council
NEMP	National Environmental Programme
NLUC	National Land Use Committee
NWC	National Water Commission
NYM	Nyumba ya Mungu Dam in Pangani River Basin, Tanzania
PADH	Physical Alteration and Destruction of Habitats
PBWO	Pangani Basin Water Office
PIBO	Pacfish/Infish Biological Opinion
RBMIIP	River Basin Management Improved Irrigation Project
RBO	River Basin Organisation
RSA	Republic of South Africa
RSAP-IWRM	Regional Strategic Action Plan on Integrated Water Resources Development and Management
RWAs	Regional Water Authorities
SADC	Southern African Development Community
SARDC	Southern African Documentation and Research Centre
SAP	Strategic Action Programme
SEA	Strategic Environmental Assessment
SMUWC	Sustainable management of the Usanga Wetlands and Catchment
TARDA	Tana and Athi Rivers Development Authority
TANESCO	Tanzania Electric Supply Company
TDA	Transboundary Diagnostic Analysis
TDS	Total Dissolved Solids
TIA	Tripartite Interim Agreement
TPTC	Tripartite Permanent Technical Committee
TSS	Total Suspended Solids
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNOPS	United Nations Office for Project Services
UNCLOS	United Nations Convention on the Law of the Sea
WIO	Western Indian Ocean
WSSP	Water Sector Support Programme
WUAs	Water Users Associations
ZAMCOM	Zambezi River Basin Commission
ZRA	Zambezi River Authority

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Executive Summary

This report presents an assessment of hydrological and land use characteristics affecting river-coast interactions in the West Indian Ocean region. One of the key areas of concern for the WIO region relates to the interaction between river basins and the coastal and marine environment. The report provides an overview of the characteristics of the main rivers flowing into the South-West Indian Ocean, from Kenya, Tanzania, Mozambique, South Africa and Madagascar incorporating hydrology, land use and environmental issues.

Physical description of the WIO region

The WIO region has a combined coastline exceeding 15,000 km (including those of the island states) and a total continental shelf area of about 450,000 km². The region is characterized by a wide diversity of habitats including sandy beaches, sand dunes, coral reefs, estuarine systems, mangroves, sea grass beds. The climate in the region can be characterised as tropical and sub-tropical with temperatures in the northern parts ranging between 24°C-30°C while the hottest summer reaches 34°C, usually recorded in the months of December through February. This climate can be characterised by two distinct prevailing wind regimes: the monsoon regime, which strongly influences the region's rainfall seasons and the subtropical high-pressure system. The rainfall seasons in the WIO are strongly influenced by monsoon winds. The northern part of Mozambique, Tanzania, Kenya and the southern parts of Somalia receive long rains in the period March through May, before the Southeast Monsoon sets in while short rains are experienced in October through December during the Northeast Monsoon. The WIO region is drained by twelve major river basins that flow into the Indian Ocean. Many of the rivers terminate with important estuaries or deltas that serve as habitat and rich breeding grounds for various species of fish, crustaceans and other marine life.

WIO region Governance Framework

There are two main international conventions of United Nations Convention on the Law of

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