



# **TANZANIA NATIONAL PARKS**

## **Water Use and Management Guidelines**



**JANUARY 2014**

# **TANZANIA NATIONAL PARKS**

## **Water Use and Management Guidelines**

**Tanzania National Parks**

**P. O. Box 3134**

**Arusha**

**Tanzania**

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**Water Use and Management Guidelines for Tanzania National Parks**

# THE ARUSHA MANIFESTO

Over fifty years ago  
the First President of the United Republic of Tanzania,  
the late Mwalimu Julius K. Nyerere recognized the integral part wildlife  
plays in this country. In September 1961, at a Symposium on the Conservation of Nature and  
Natural Resources, he gave a speech that laid a foundation for conservation in post-independence  
Tanzania. The extract of that speech has become known as  
**The Arusha Manifesto.**

*“The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild  
creatures amid places they inhabit are not only important as a source of wonder and inspiration  
but are an integral part of our natural resources and our future livelihood and well being.*

*In accepting the trusteeship of our wildlife we solemnly declare that we  
will do everything in our power to make sure that our children’s grandchildren  
will be able to enjoy this rich and precious inheritance.*

*The conservation of wildlife and wild places calls for specialist  
knowledge, trained manpower, and money, and we look  
to other nations to cooperate with us in this  
important task -the success or failure  
of which not only affects the  
continent of Africa but  
the rest of the world  
as well”*

## **FOREWORD**

Water touches all spheres of life and supports ecosystem processes. However, it is a finite resource and as such, it faces a number of challenges related to its use and management. The challenges include insufficient rainfall, unsustainable water use, degradation of water catchments, siltation, pollution, climate change and poor land use. These challenges have led to ecosystems degradation within the water catchments, resulting into water use conflicts.

To address the above challenges, human intervention is increasingly necessary and hence Tanzania National Parks has prepared these Water Use and Management Guidelines. The process of preparing these guidelines involved various stakeholders. Likewise, the implementation of these guidelines will be carried out in collaboration with key stakeholders.

This document is a stepping stone and will provide guidance for Tanzania National Parks and other stakeholders on sustainable water management within and outside National Parks. Tanzania National Parks hopes that it will be a useful guide for effective water management. Tanzania National Parks appeals to stakeholders to use these guidelines in the management of water resources within and outside National Parks in our endeavor to promote wildlife conservation.

**Allan Kijazi**

**Director General**

**TANZANIA NATIONAL PARKS**

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## APPROVAL PAGE

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The appointed Officers of Tanzania National Parks and its Board of Trustees have approved the implementation of these Guidelines.



**Modestus Lilungulu**

**Chairman, Board of Trustees**

**Tanzania National Parks**



**Allan Kijazi**

**Director General**

**Tanzania National Parks**

**Date: 20<sup>th</sup> January, 2014**

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## **LIST OF ACRONYMS**

BWO	Basin Water Office
DALP	Development Action Lease Procedures
EIA	Environmental Impact Assessment
EMA	National Environmental Management Act
ESIA	Environmental and Social Impact Assessment
GMP	General Management Plan
MP	Member of Parliament
NCAA	Ngorongoro Conservation Area Authority
NEP	National Environmental Policy
NGOs	Non-Governmental Organizations
TANAPA	Tanzania National Parks
TANESCO	Tanzania Electricity Supply Company



## **EXECUTIVE SUMMARY**

Water is an important resource of global concern. It sustains both the environment and social-economic development. However, sustainable management of water resources requires effective management approaches at both local and international levels. Tanzania is blessed with water resources such as springs, reservoirs, rivers, wetlands, lakes, groundwater and the Indian Ocean apart from abundant rainfall. However, these water resources are unevenly distributed. In addition, increasing conflicts over water resource use prevails mainly due to scarcity and competing needs amongst stakeholders.

Tanzania National Parks is mandated to manage and regulate the use of all areas designated as National Parks. These Parks have for years continued to face different water-related challenges, accelerated in recent years by the major climatic shifts especially global warming. Such challenges include increasing water scarcity, water pollution, deterioration of catchment and wetland areas and glacier retreat on Mount Kilimanjaro. Apart from insufficient rainfall, these challenges are mainly human mediated through indiscriminative environmental degradation and poor land use.

To address these water related challenges in National Parks, there is an increasing need to promote sustainable water management practices. This document was developed through stakeholder participation and is a response to such a need. It provides general and specific statements on water use in National Parks. While placing the environment and wildlife at its rightful priority regarding water use within and adjacent National Parks, these guidelines draw from existing laws and policies. Specifically, they address such areas as project development in relation to distance from water resources, water resources monitoring, water abstraction and harvesting, prevention of water pollution and collaboration in trans-boundary water resources management. Implementation of these guidelines will not only promote the sustainable management of this finite resource but will also enhance the conservation of National Parks ecosystems.

# **1.0 BACKGROUND INFORMATION**

## **1.1 Introduction**

Water is a national and international resource which cuts across different jurisdictional boundaries and can only be effectively managed on the basis of river basins and catchments approach. Tanzania shares five international water bodies; five lakes (Victoria, Tanganyika, Nyasa, Natron and Jipe) and five rivers (Kagera, Mara, Ruvuma, Songwe and Umba) with the neighboring countries.

Rainfall is the only source of surface and underground water in the country. Water resources in the country include rivers, lakes, wetlands, springs, reservoirs, underground aquifers and the Indian Ocean. Water is a common resource fundamental to life, sustaining the environment and plays a central role in socio-economic development. Water touches all spheres of life including domestic, agriculture, livestock, fisheries, industry, wildlife, recreation, energy, ecosystems and other social and economic activities (National Water Policy, 2002). These water resources exhibit different characteristics hence different management and use challenges.

## **1.2 Importance of water in National Parks**

The availability of water resources in National Parks influences ecosystem processes and functions. Water determines vegetation types which in turn affect the abundance and distribution of wildlife.

Water resources is also important for human uses and tourism activities in National Parks. In addition, water bodies such as rivers, lakes and wetlands serve as natural fire breaks.

## **1.3 Water sources in National Parks**

Surface water sources include wetlands, rivers, streams, ponds, swamps, springs, reservoirs, lakes and the Indian Ocean while the underground water sources include boreholes and wells. Other potential water sources include mist, water vapour, dew, and glaciers.

## **1.4 Water use challenges and conflicts**

Water management within and outside national parks have posed serious threats to ecosystem health. This has led to management challenges and conflicts that require human intervention if sustainable conservation is to be realized.

### ***1.4.1 Water use challenges***

#### **1.4.1.1 Rainfall amount and variability**

Some of the National Parks are located in semi-arid areas with an average annual rainfall of less than 600 mm. Other parks receive abundant rainfall of up to 1,600 mm annually. However, the erratic rainfall distribution and amount in the parks has resulted into inadequate water for ecosystems processes. On the other hand, rainstorms are destructive to the environment.

#### **1.4.1.2 Unsustainable water use**

Mismanagement of water resources, poor irrigation infrastructure and improper water utilization cause pressure on water resources. Over-utilization of water downstream may lead to water scarcity upstream and vice versa.

#### **1.4.1.3 Degradation of water catchments**

Livestock over-grazing, abstraction of water, riverbed destruction such as through mining and expansion of agriculture coupled with indiscriminate forest clearing resulting into degradation of catchments. Similarly, uncontrolled fires destroy wetlands and catchments leading to reduced water retention and infiltration.

#### **1.4.1.4 Siltation of water sources**

Improper land use practices such as artisanal mining, overgrazing, poor cultivation practices and deforestation accelerates siltation of water bodies. These deteriorate catchment areas, lake basins, wetlands and other ecosystems.

#### **1.4.1.5 Water pollution**

The use of agro-chemicals for improving agricultural production, and chemicals in mining and manufacturing industries, discharge of domestic wastes and oil spills have negative impacts on water quality and biodiversity. Moreover, improper water use upstream can influence intrusion of saltwater into fresh water which disturbs estuarine communities and ecosystems.

## ***1.4.2 Water use conflicts***

### **1.4.2.1 Farming *versus* pastoralism**

Pastoralists and farmers compete for water resources to cater for their livestock and irrigated agriculture respectively. This is more evident in wetlands and flood plains. Livestock destroys irrigation infrastructure.

### **1.4.2.2 Domestic *versus* farming and pastoralism**

During water scarcity, over-abstraction of water, blockage of river channels upstream and improper irrigation systems compromises availability of water for domestic use downstream. Improper pastoralism practices destroy and pollute water sources required for domestic uses.

### **1.4.2.3 Environmental (conservation) *versus* other uses**

The environment is the backbone of all livelihoods. However, human uses often ignore environmental water needs. The emphasized uses include agriculture, investments and pastoralism. These uses often contribute to water pollution.

### **1.4.2.4 Legal *versus* illegal abstraction of water**

Users with water use permits are allocated water according to their permits. However, users without permits in essence abstract water not allocated to them. This tendency leads to conflicts especially when permitted users receive less water than the amount allocated to them. This also compromises environmental flows.

### **1.4.2.5 Upstream *versus* downstream Users**

Over use of water upstream compromises water availability to downstream users. Destruction of water sources upstream leads to water shortage and the most stricken are the downstream users.

### **1.4.2.6 Large scale *versus* small scale Users**

Large scale users influence hydrological dynamics of water bodies, which in turn affect water quality and quantity for small scale users.

#### **1.4.2.7 Trans boundary water use conflicts**

Trans-boundary waters are managed by more than one country often with different plans and priorities in terms of water utilization. International laws and treaties governing these water resources do not always provide for fair sharing amongst the states parties.

#### **1.5 Water use and management stakeholders**

- i. Ministry of Water: General overseers of water resources as well as policy formulation and regulation
- ii. Tanzania National Parks (TANAPA): Manager, regulator and user of water resources within parks
- iii. Basin Water Offices: Managers, regulators and supervisors of water resources in basins
- iv. Farmers and Pastoralists: Users of water resources for agriculture and livestock keeping respectively
- v. Irrigation farmers: Users of water resources for irrigated agriculture and livestock husbandry
- vi. Investors: Users of water resources for business
- vii. TANESCO: User of water resources for hydropower production
- viii. Ngorongoro Conservation Area Authority (NCAA): Manager, regulator and user of water resources within NCA
- ix. Forest and Bee-keeping Division: Manager, regulator and user of water resources
- x. Tanzania Forest Services: Manager, user and regulator of water sources
- xi. Fisheries Division: User and conservator of water resources
- xii. Wildlife Division: Manager, regulator and user of water resources
- xiii. Local Communities: conservators and utilizers of water resources
- xiv. Local and International NGOs: Collaborators in management of water resources through technical and financial support, including research and consultancy services.
- xv. District and Regional authorities: Implementers of relevant policies, laws and regulations
- xvi. Neighboring Countries: Collaborators in trans-boundary and international agreements, treaties and conventions
- xvii. Media: Educators of the public
- xviii. Political Champions (MPs and Councilors): Law and decision makers
- xix. Development partners (local and international): Funders for projects which may impact water resources
- xx. Researchers: Generator of information on water resources

## **2.0 POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK**

In Tanzania there are various national environmental related laws, policies and regulations. This is due to the importance of water, its scarcity and involved conflicts. In this context, several laws, policies and regulations relevant for water management have been put in place to govern water resources. International agreements and treaties on international water resources have also been formulated. All these recognize explicitly the need for an effective water use framework

### **2.1 National Policies**

#### ***2.1.1 National Environmental Policy 1997***

The objectives of the National Environmental Policy (1997 section 48; page 20) is to support the overall national objective of satisfying water needs, to protect water sources and prevent environmental pollution, including pollution of water sources.

#### ***2.1.2 Tanzania National Parks Policies 1994 (under review)***

Section 2.7(1) states "TANAPA will seek to perpetuate surface and ground waters as integral components of park aquatic and terrestrial ecosystems. Water found in the Park either on the surface or in the ground will be withdrawn for consumptive use (for tourism and park administrative purposes) only if absolutely necessary, and then only when approved by the Park's GMP".

#### ***2.1.3 The National Water Policy 2002***

Section 3(1) (i) states that "a minimum water requirement is guaranteed to all humans to maintain human health, and sufficient water is guaranteed to restore and maintain the health, services and functions of ecosystems"

#### ***2.1.4 National Tourism Policy of 1999***

Section 5.1 state in part "ensures that tourism development activities are subjected to EIA".

#### ***2.1.5 Environmental Management Act No. 20 of 2004***

Section 60 (1) also emphasizes on the need for statements on the likely impact in the environment due to the use of water requested. Section 60 (3) states, "Basin Water Boards in prioritizing different uses of water shall ensure that adequate water is made available for environmental purposes".

Section 232 states that “where the provisions of this Act is in conflict or is otherwise inconsistent with a provision of any other written law relating to environmental management, the provisions of this Act shall prevail to the extent of such inconsistency”.

#### ***2.1.6 The Wildlife Conservation Act No 5 of 2009***

Section 14 (3) provides for the establishment of Wetlands Reserves and Wetlands Areas. In addition, section 18 (2) provides for restriction on livestock grazing in Wetland Reserves.

#### ***2.1.7 The Water Resources Management Act No. 11 of 2009***

Section 87 (i) restricts any construction activities that blocks the flow of water unless authorized. Section 39 of the Act calls for any developer or occupier of the land to take reasonable measures to prevent pollution of water resources. Section 43 (2) provides that water use permit shall be issued taking into account water needed for maintaining environmental flow requirements.

#### ***2.1.8 Water Supply and Sanitation Act No. 12 of 2009***

Section 52 states that " any person who deposits or allows or cause to be deposited on earth, material or liquid in such manner or place that it may be washed, fall or be carried into the waterworks commits an offence"

#### ***2.1.9 The Forest Act No 7. of 2002***

Section 3 (c) emphasizes ecosystem stability through conservation of forest biodiversity and water catchments. Section 18 states that, EIA should be conducted for certain proposed development projects in a Forest Reserve, private forest or sensitive forest area including watersheds.

#### ***2.1.10 The National Parks Act, R.E., of 2002***

Section 25 provides powers to the Board of Trustees to make regulations regarding management of resources within National Parks including water.

## **2.2 Tanzania National Parks Plans**

### ***2.2.1 TANAPA Corporate Plan***

The Corporate Plan for 2013/2014 to 2017/2018, specifically Strategic Objective 1; Target 1.3 ensures sustainable conservation of water resources in the parks.

### ***2.2.2 Development/Action/Lease/Procedures (DALP)***

The document provides a step-by-step procedure for seeking approval to develop roads, facilities or major activities within any National Park in Tanzania. To ensure long-term survival of the National Parks and wildlife for the benefit of local, regional and international populations, TANAPA, other government agencies and private developers are required to comply with the DALP procedures.

### ***2.2.3 General Management Plans***

General Management Plans for National Parks provides for supply of safe and reliable water for human and wildlife use. They also provide a framework on the management of park resources including water

### ***2.2.4 International Legislations***

Tanzania is a signatory to several international laws governing water resource use and management. These treaties and protocol include; The Ramsar Convention on Wetlands of 1971, African-Eurasian Agreement on Migratory Water Birds of 1968, East African Community Protocol on Environment and Natural Resources Management of 1999 and The Convention on Biological Biodiversity of 1992. These laws provide support to trans-boundary water resources management which Tanzania shares with other nations

## **3.0 GENERAL WATER USE STATEMENTS**

### **3.1 Site location and project development in relation to water sources**

3.1.1 Projects should comply with the requirements of respective park GMP and DALP

3.1.2 Projects should ensure safe and reliable water for the whole project life cycle

3.1.3 Projects should not be located within 60 m from surface water sources



3.1.4 Where surface water is approved for project development, adequate water should be left for environmental processes and functions

3.1.5 Surface water may be used for development projects only if approved by the park GMP

3.1.6 Projects location approval should comply with ESIA study requirements

3.1.7 Projects development should comply with ESIA requirements during the entire project cycle

### **3.2 Water use management within National Parks**

3.2.1 Decision on the use of water should be based on scientific information including water quality and quantity

3.2.2 Users should be made aware of wise use of water and appropriate water management practices

### **3.3 Water use management outside National Parks**

3.3.1 A participatory approach should be used to promote sustainable water resources management outside National Parks

3.3.2 Communities and decision-makers should be made aware of sustainable water management practices

3.3.3 Collaboration among stakeholders in Water Basins should be enhanced for effective water use and management within and outside National Parks

## **4.0 SPECIFIC WATER USE STATEMENTS**

### **4.1 Water use permits**

4.1.1 Every water user within National Parks should acquire water use permit in accordance with relevant legal requirements

### **4.1.2 Water abstraction and diversion**

Water may be abstracted or diverted for:

- 4.2.1 Domestic consumption by park residents and visitors
- 4.2.2 Maintenance of animal and plant species diversity
- 4.2.3 Preservation of sensitive and threatened species
- 4.2.4 Restoration of degraded ecosystems and habitats
- 4.2.5 Emergency situations

## **4.3 Prevention of water pollution**

### ***4.3.1 Siltation***

- 4.3.1.1 Development projects should be located at least 60 m from water sources
- 4.3.1.2 Communities should be made aware of appropriate land use practices
- 4.3.1.3 Degradation of riverine and wetlands vegetation should be prevented and controlled
- 4.3.1.4 Degraded wetland and catchment areas should be restored

### ***4.3.2 Waste disposal***

- 4.3.2.1 Effluents should be treated to acceptable levels before being discharged into the environment
- 4.3.2.2 Oil spillage into the environment is strictly prohibited
- 4.3.2.3 Solid waste should be handled in an environmentally friendly manner

### ***4.3.3 Mining***

- 4.3.3.1 Mining is strictly prohibited in the National Parks
- 4.3.3.2 Mining outside National Parks should comply with the relevant laws

## **4.4 Rain water harvesting**

### ***4.4.1 Rain water harvesting mechanisms***

- 4.4.1.1 Buildings in national parks should have self-sustaining rain water harvesting systems
- 4.4.1.2 Materials for rain water harvest such as reservoirs, fittings, pumps should be environmentally friendly.
- 4.4.1.3 Innovative methods for rain water harvesting such as dripping off from rocks should be explored and applied

#### ***4.4.2 Man – made reservoirs and boreholes***

4.4.2.1 Reservoirs should be of adequate capacity and well designed to maximize rainfall opportunities and meet water needs

4.4.2.2 Harvested water should be regularly tested and treated where necessary

4.4.2.3 Construction of dams and boreholes in national parks should be subjected to appropriate technology and legal requirements