

**UNITED REPUBLIC OF TANZANIA**



**MINISTRY OF WATER**

**PROFILE OF THE MINISTRY OF WATER**

**DECEMBER 2020**



# PROFILE OF THE MINISTRY OF WATER

## 1.0 History

- i) The Ministry of Water was established on 5<sup>th</sup> November 1970 as Ministry of Water Development and Power. However, its history is as back as 1930-1946 when it was known as Public Works Department responsible for all water developments.
- ii) The First Minister was Dr. Wilbard K. Chagula.
- iii) The First Principal Secretary was Mr. Fredrick Rwegarulila.
- iv) From 1961 to 1974, the colonial Water Ordinances of 1959 were used for water resources management. On the other hand, Water Works Ordinances of 1949 which was in use even after independence were responsible for water supply service.
- v) In 1981, the National Urban Water Authority Act was established which later in 2001 was revised to Dar es Salaam Water Supply and Sewerage Authority Act serving Dar es Salaam city and parts of Coast region.
- vi) In 1974, Water Resources Utilization (Control and Regulation) Act was established. The act was repealed by the Water Resources Management Act No.11 of 2009 and the Water Supply and Sanitation Act No. 12 of 2009. The later also was repealed by the Water Supply and Sanitation Act No. 5 of 2019.
- vii) The National Water Policy 2002 is place.

## 1.1 Area of Inland Water

Tanzania total area is 947,300 km<sup>2</sup> where 61,500 km<sup>2</sup> in covered by inland water. Major water bodies with their respective areas are as follows:

SN	Major Lakes	Area ("000" km <sup>2</sup> )
1	Victoria	34.9
2	Tanganyika	13.4
3	Nyasa	5.6
4	Rukwa	2.8
5	Eyasi	1.0
6	Other water bodies on land mass (Small lakes, dams, rivers etc)	3.8
	<b>Total</b>	<b>61.5</b>

## 2.0 Water Resources

### 2.1 The Nine Water Basins

SN	Basin	Location	Total Area (km <sup>2</sup> )	Percentage Area in the country (km <sup>2</sup> )	Major Water Body	Year Established
1	Rufiji	Iringa	181,964	19.3	Rufiji, Great Ruaha and Kilombero rivers Mtera, Kidatu and Kihansi dams	1993
2	Lake Tanganyika	Kigoma	160,426	17.0	Lake Tanganyika Malagarasi River	2004
3	Internal Drainage	Singida	142,943	15.1	Lakes Eyasi, Manyara, and Natron. Manonga and Bubu rivers	2004
4	Lake Victoria	Mwanza	119,299	12.6	Lake Victoria Mara and Kagera rivers	2000
5	Ruvuma and Southern Coast	Mtwara	106,246	11.5	Ruvuma, Mbwemkuru river	2004
6	Lake Rukwa	Mbeya	77,772	8.2	Lake Rukwa	
7	Wami-Ruvu	Morogoro	67,333	7.1	Wami and Ruvu Rivers Mindu dam	2002
8	Pangani	Moshi	54,820	5.8	Pangani River Nyumba ya Mungu dam	1991
9	Lake Nyasa	Tukuyu	33,997	3.6	Lake Nyasa	2002
<b>Total</b>			<b>944,800</b>	<b>100</b>		

### 2.2 Major Lakes of Tanzania

SN	Lake	Surface Area (km <sup>2</sup> )		Bordering Nations	Notes
		General	Tanzania		
1	Victoria	68,800	35,720 (51%)	Kenya, Tanzania Uganda	The largest freshwater lake in Africa and the second-largest freshwater lake in the world. Average depth: 40-80metres

SN	Lake	Surface Area (km <sup>2</sup> )		Bordering Nations	Notes
		General	Tanzania		
2	Tanganyika	32,900	13,489	Tanzania DRC Burundi Zambia	The second-deepest lake in the world and the second-biggest lake by volume. Its water volume is equivalent to about 16% of all fresh water on earth.
3	Nyasa	30,900	8,105	Tanzania Malawi Mozambique	The eighth largest freshwater in the world. It has about 560 Km long with a maximum width of 75 km and average depth of 706m.
4	Rukwa	2,725.7	2,725.7	Tanzania	The lake is endorheic (closed) in the Rukwa Valley
5	Chala	4.2	2.0	Tanzania	It is a crater lake at the edge of Mount Kilimanjaro
6	Jipe	30	14	Tanzania Kenya	The lake is in both parts of the borders of Kenya and Tanzania. In the Tanzanian side, it is situated within Mwanga District, in Kilimanjaro Region
7	Natron	832	832	Tanzania Kenya	Saline
8	Babati	16	16	Tanzania	The estimated renewable water is 32 MCM/year
9	Basotu	11	11	Tanzania	The estimated renewable water is 29 MCM/year
10	Eyasi	1190	1190	Tanzania	Saline
11	Manyara	556	556	Tanzania	Saline
12	Kitangiri	190	190	Tanzania	Saline

Lakes Victoria, Tanganyika and Nyasa store approximately 29,425 km<sup>3</sup> of all the world's freshwater resources. This is about 25% of the world's (fresh) surface water. Approximately 7% of the land surface area of the country is covered by three of the country's major Lakes<sup>1</sup>.

### 2.3 Major Rivers in Tanzania

SN	River	Drainage Basin	Distance in Km	Flows (MCM/yr)
1	Rufiji	Rufiji	600	22,250
2	Kilombero	Rufiji		14,470
3	Ruvuma	Ruvuma	800	9,240
4	Kagera	Lake Victoria	370	7,064
5	Ruhuhu	Lake Nyasa	160	5,600

<sup>1</sup> ILEC, 2005. Managing Lakes and their Basins for Sustainable Use: A Report for Lake Basin Managers and Stakeholders. International Lake Environment Committee Foundation: Kusatsu, Japan

SN	River	Drainage Basin	Distance in Km	Flows (MCM/yr)
6	Malagarasi	Lake Tanganyika	475	5,060
7	Wami	Wami-Ruvu	490	3,280
8	Mara	Lake Victoria	395	1,971
9	Kiwira	Lake Nyasa		1,900
10	Ruvu	Wami-Ruvu	285	1,370
11	Pangani	Pangani	500	627

## 2.4 Transboundary Water Sources

### 2.4.1 Tanzania water sources that are shared by more than one country

SN	Water Body	Sharing Countries
1	Lake Victoria	Kenya, Tanzania and Uganda
2	Lake Tanganyika	Burundi, Democratic Republic of Congo, Tanzania and Zambia
3	Lake Nyasa	Malawi, Mozambique and Tanzania
4	Lake Chala	Kenya and Tanzania
5	Lake Jipe	Kenya and Tanzania
6	Lake Natron	Kenya and Tanzania
7	Songwe River	Malawi and Tanzania
8	Ruvuma River	Mozambique and Tanzania
9	Umba River	Kenya and Tanzania
10	Mara River	Kenya and Tanzania
11	Kagera River	Rwanda, Tanzania and Uganda
12	Malagarasi River	Burundi, Democratic Republic of Congo, Tanzania and Zambia
13	Momba River	Tanzania and Zambia
14	Mwiruzi River	Burundi and Tanzania

### 2.4.2 Management of Transboundary waters are through the following instruments:

#### i) Seven Agreements/Protocols/Convention

SN	Name	Year	Year ratified by Tanzania
1	Revised Protocol on Shared Watercourse Systems	2000	2003

SN	Name	Year	Year ratified by Tanzania
2	The Convention on the sustainable management of Lake Tanganyika	2003	2004
3	Protocol for the Sustainable Development of Lake Victoria Basin	2003	2004
4	Zambezi Watercourse Commission Agreement	2004	2010
5	Republic of Tanzania and The Republic of Mozambique on the Establishment of a Joint Water Commission Agreement (JWC)	2006	2009
6	The Nile Cooperative Framework Agreement	2010	2015
7	Convention on the Establishment of a Joint Songwe River Basin Commission	2017	2017

ii) **Five Memoranda of Understanding (MoUs)**

SN	Name	Year
1	Memorandum of Understanding between Tanzania and Kenya for the Management of Lake Chala- Jipe and River Uмба Ecosystem	2011
2	Memorandum of Understanding between Tanzania and DRC for the Construction of Lukuga Barage	2015
3	Memorandum of Understanding between Tanzania and Kenya for the Management of Transboundary Water Resources of Mara River Basin	2015
4	Memorandum of Understanding on Kagera River Basin Transboundary Integrated Water Resources Management and Development between Tanzania, Burundi, Rwanda Uganda and Nile Equatorial Lakes Subsidiary Action Plan – Coordination Unit – NELSAP- CU	2016
5	Memorandum of Understanding between Tanzania and Malawi for the Implementation of Phase III of SRBDP	2017

iii) **Six International Transboundary Water Organizations**

SN	Organization	Acronym	Year of Establishment
1	Lake Victoria Basin Commission	LVBC	2000
2	Lake Tanganyika Authority	LTA	2004
3	Zambezi Watercourse Commission	ZAMCOM	2011
4	Nile Basin Initiative	NBI	1999
5	Ruvuma River Joint Water Commission	RRJWC	2009
6	Joint Songwe River Basin Commission	JSRBC	2019

## 2.5 Dams

SN	Number of dams	Estimated storage m <sup>3</sup>
1	More than 600	more than 5,300,000,000

### 2.5.1 Categories of the dams basing on their storage capacity

SN	Capacity (m <sup>3</sup> )	Quantity	Total Storage (m <sup>3</sup> )
1	>10,000,000	10	5,089,045,550
2	1,000,000 - 10,000,000	43	117,588,984
3	501,000 - 1,000,000	45	33,335,395
4	301,000 - 500,000	55	21,384,398
5	201,000 - 300,000	58	14,285,138
6	101,000 - 200,000	131	18,669,200
7	51,000 - 100,000	123	8,580,227
8	Up to 50,000	151	3,098,021
<b>Total</b>		<b>616</b>	<b>5,305,986,913</b>

### 2.5.2 Ten major dams and their respective storage capacities

SN	Dam	Basin	District	Storage (m <sup>3</sup> )
1	Mtera	Rufiji	Iringa	3,800,000,000
2	Nyumba ya Mungu	Pangani	Mwanga	1,140,000,000
3	Kidatu	Rufiji	Kilombero	125,000,000
4	Igombe	Lake Tanganyika	Tabora Municipal	40,722,000
5	Mwamapuli	Internal Drainage	Igunga	28,170,000
6	Ngwazi	Rufiji	Mufindi	22,000,000
7	Nhumbu	Internal Drainage	Kishapu	20,341,850
8	Nzivi	Rufiji	Mufindi	20,000,000
9	Nzivi/lutheran	Rufiji	Mufindi	18,000,000
10	Manchira/Mugumu	Lake Victoria	Serengeti	14,000,000

### 2.5.3 Ten major dams for water supply

SN	Dam	Basin	District	Storage (m <sup>3</sup> )
1	Igombe	Lake Tanganyika	Tabora	40,722,000
2	Nhumbu	Internal Drainage	Kishapu	20,341,850



SN	Dam	Basin	District	Storage (m <sup>3</sup> )
3	Nzivi/lutheran	Rufiji	Mufindi	18,000,000
4	Manchira/Mugumu	Lake Victoria	Serengeti	14,000,000
5	Mindu	Wami Ruvu	Morogoro	13,000,000
6	Ning'wa	Internal Drainage	Shinyanga	10,600,000
7	Mabayani	Pangani	Tanga	7,700,000
8	Kazima	Lake Tanganyika	Tabora	4,400,000
9	New Sola	Lake Victoria	Maswa	4,200,000

## 2.6 Groundwater

SN	Description	Year/Quantity	Area
1	First borehole	Drilled in 1931	Makutupora - Dodoma
2	Deepest borehole	400 metres	Mpera Mpigi
3	Boreholes with greatest yield	500 to 600 m <sup>3</sup> /hour	TPC Moshi
		454m <sup>3</sup> /hour	Makutupora Dodoma

## 2.7 The Available Water Resources

SN	Category	Quantity (MCM)
1	Total national annual renewable water resources	126,000
2	Annual renewable surface water	105,000
3	Annual renewable groundwater	21,000
4	Water per capita by 2018	2,300m <sup>3</sup> /year

## 2.8 Localised Water Quality Issues

SN	Parameter	Some Affected Regions
1	Low pH	Western zone, some regions in Southern Highlands, Coastal, Lake and Northern zones
2	Fluoride	Northern zone, Lake zone, Central zone and some regions in Southern Highlands zone
3	Chloride	Coastal zone, some regions in Central, Northern, Southern Highlands and Lake zones
4	Nitrate	Central zone, Lake zone, Coastal zone, Northern zone and Southern Highlands zone

SN	Parameter	Some Affected Regions
5	Hardness	Coastal zone, Southern Highlands zone, Northern zone, Central zone, and Lake zone
6	Iron and Manganese	Coastal zone, Lake zone, some regions in Northern, West, Central and Southern High Lands zones

### Key:

- i) Regions under zones; Central zone: Dodoma, Singida and Tabora regions
- ii) Coastal zone: Dar es Salaam, Lindi, Morogoro, Mtwara and Coast Regions
- iii) Lake zone: Geita, Kagera, Mara, Mwanza, Shinyanga and Simiyu regions
- iv) Northern zone: Arusha, Kilimanjaro, Manyara and Tanga
- v) Southern highlands zone: Iringa, Mbeya, Njombe, Rukwa, Ruvuma and Songwe
- vi) West zone: Kigoma and Katavi

## 3.0 Water Demand in Tanzania

SN	Area	Quantity (MCM)
1	Total water demand by 2015	47 BCM
2	Total demand by 2080	80 BCM
3	<b>Demand by Sector in 2015 (MCM)</b>	
3.1	Ecosystem and Wildlife	50,627
3.2	Hydropower	13,062
3.3	Irrigation	10,500
3.4	Domestic	1,686
3.5	Livestock and Aquaculture Industries and Mining	445

Irrigation counts for more than 70% of the used water.

## 4.0 Water Supply and Sanitation

### 4.1 Water Supply Coverage by June 2020

SN	Area	During 2015 (%)	June 2020 (%)
1	Rural	47	70.1
2	Urban	74	84

## 4.2 Water Supply Projects

SN	Area	Projects		
		Total	Urban	Rural
1	WSDP 2006 - June 2020	2,452	238	2,214
2	Completed	1,830	185	1,645
3	Ongoing	622	62	560

## 4.3 Sanitation Status

SN	Item	June 2015 (%)	Dec. 2019 (%)
1	Sewerage Services Coverage	10%	13.4%
2	Households (H/H) with improved toilets	36%	57%
3	Households with hand washing facilities/Soap	13%	21%
4	Villages/Mitaa without any toilet	7.5%	2.5%

## 4.4 The trend of average NRW combined for regional water utilities

2014	2015	2016	2017	2018	2019
20.1%	19.4%	32.9%	32.2%	33.9%	30.2%

## 5.0 National Water Policies and Legislations

SN	Year	Key message
Two formal Water Policies	1991	Set a goal of providing clean and safe water to the population within 400 meters from their households.
	2002	Laid a foundation for sustainable development and management of water resources under the changing roles of the Government from service provider to that of coordination, policy and guidelines formulation and regulation.
Current Legislations	2001	The Energy and Water Utilities Regulatory Authority Act
	2009	Water Resources Management Act No.11
	2019	Water Supply and Sanitation Act No. 5

## 6.0 Planning & Financing

### 6.1 National Water Fund (NWF)

National Water Fund budget between 2017/2018 - 2019/2020.

SN	Financial Year	Budget (Billion TZS)	Received (Billion TZS)	%
1	2017/2018	158.5	150.3	94.85
2	2018/2019	158.5	140.4	88.60
3	2019/2020	169.9	153.1	90.13

## 7.0 Human Resources

Available staff of the Ministry of Water by December 2019 is 8257. The Demand is 10,276.

## 8.0 Institutions and other Organizations

### 8.1 Institutions

SN	Institution	Quantity in 2019
1	Regional Water Supply and Sanitation Authorities	25
2	National Projects Water Supply and Sanitation Authorities	8
3	District Headquarters Water Supply and Sanitation Authorities	50
4	Townships Water Supply and Sanitation Authorities	13
5	Agencies (Water Institute and RUWASA)	2
6	Basin Water Boards	9
7	National Water Fund	1

### 8.2 Regulatory Authority

SN	Institution
1	Energy and Water Utilities Regulatory Authority (EWURA)
2	Rural Water Supply and Sanitation Authority (RUWASA)

### 8.3 Other Organizations

SN	Organization	Quantity in 2020
1	Water Users Associations	123
2	Water Laboratories	16

SN	Organization	Quantity in 2020
3	Research Centres	2
4	National Water Fund	1
5	Community Owned Water Supply Organizations (COWSOs) by July 2019	3, 236
	COWSOs transformed into Community Based Water Supply Organizations by September 2020	1,375

## 9.0 Water Programmes

SN	Name	Acronym	Period	Amount
1	Water Sector Development Programme	WSDP	2006-2025	USD 5 bn
2	Second Water Sector Support Project	WSSP II	2019-2022	USD 230m
3	Sustainable Rural Water Supply and Sanitation Programme	SRWSP	2019-2024	USD 350m
3.1	Program for Results	PforR		USD 330m
3.2	Investment Project Facility	IPF		USD 20m
4	DFID funded Payment by Result Scheme	PbR	2012-2022	Euro 75m

## 10.0 Water Infrastructures

### 10.1 Biggest storage tanks by Volume

SN	Tank	Litres	Location
1	University of Dar es Salaam	45,000,000	Dar es Salaam
2	Kilimani 2	36,000,000	Dodoma
3	Kilimani 3	36,000,000	Dodoma
4	Ihelele-KASHWASHA	35,000,000	Misungwi
5	Old Shinyanga	18,000,000	Kahama
6	Nyashana	13,000,000	Mwanza
7	Kibamba	10,000,000	Dar es Salaam
8	Itumba	9,000,000	Tabora
9	Kavambughu	9,000,000	Same

SN	Tank	Litres	Location
10	Kiverenge	7,500,000	Same
11	Changanyikeni	6,000,000	Dar es Salaam
12	Salasala	6,000,000	Dar es Salaam
13	Kisarawe	6,000,000	Coast
14	New Forest	6,000,000	Mbeya
15	Mwanga	6,000,000	

## 10.2 Biggest Water Project Financially

SN	Name	Location	Billion TZS
1	Igunga-Nzega-Tabora	Tabora	617.20
2	Arusha Water Supply Project	Arusha	520.46
3	Kahama- Shinyanga	Shinyanga	354.00
4	Same-Mwanga-Korogwe	Kilimanjaro and Tanga	262.00
5	Lower Ruvu	Coast	131.36
6	Upper Ruvu	Coast	94.90
7	Makutopora/ Mzakwe	Dodoma	71.40
8	Chalinze Water Treatment Plant	Coast	66.17
9	Chalinze Water Supply Project (Lot I-VI)	Coast	63.49
10	Tegeta-Bagamoyo and Mbezi-Mlandizi	Dar es Salaam	52.00

## 10.3 Biggest Water Projects by Production

SN	Name	Location	Litres/day
1	Lower Ruvu Water Project	Coast	270,000,000
2	Upper Ruvu Water Project	Coast	166,000,000

SN	Name	Location	Litres/day
3	Mwanza City Water Project	Mwanza	108,000,000
4	Arusha Water Project	Arusha	103,000,000
5	Kahama- Shinyanga Water Project	Shinyanga	80,000,000
6	Makutopora/ Mzakwe Water Project	Dodoma	57,000,000
7	Kigoma Water Project	Kigoma	42,000,000
8	Musoma Water Project	Mara	36,000,000
9	Sengerema Water Project	Mwanza	15,840,000
10	Misungwi, Magu and Lamadi Water Project	Mwanza	14,750,000

#### 10.4 Biggest Water Projects by length of Transmission Main

SN	Name	Region	Kms
1	Chalinze Water Project (Lot I-VI)	Coast	474
2	Kahama- Shinyanga Water Project	Shinyanga	374
3	Igunga-Nzega-Tabora Water Project	Tabora	276
4	Arusha Water Project	Arusha	189
5	Musoma Water Project	Mara	90
6	Same-Mwanga-Korogwe Water Project	Kilimanjaro	77
7	Upper Ruvu Water Project	Coast	70
8	Lower Ruvu Water Project	Coast	55
9	Misungwi, Magu and Lamadi	Mwanza	27
10	Mwanza City Water Project (LV WATSAN)	Mwanza	22

## 10.5 Biggest Water Projects by length of Distribution Network

SN	Name	Region	Kms
1	Igunga-Nzega-Tabora Water Project	Tabora	957
2	Arusha Water Project	Arusha	450
3	Kahama Water Project	Shinyanga	416
4	Upper Ruvu Water Project	Coast	400
5	Shinyanga Water Project	Shinyanga	378
6	Sengerema Water Project	Mwanza	283
7	Musoma Water Project	Mara	215
8	Chalinze Water Project (Lot I-VI)	Coast	206
9	Same-Mwanga-Korogwe Water Project	Kilimanjaro and Tanga	203
10	Kigoma Water Project	Kigoma	133

## 11.0 Strategic Investments

- i) Farkwa dam for Dodoma Water Supply;
- ii) Kidunda dam for Dar es Salaam Water Supply;
- iii) Ndembera dam for flow regulation in Ruaha National Park;
- iv) Simiyu Climate Resilient Project funded by Green Climate Fund (GCF) through KfW for Nyashimo, Bariadi, Lagangabilili, Maswa and Mwanhuzi;
- v) National Water Grid (under conceptualization);
- vi) Lake Victoria to Dodoma Water Project.





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