





Valuing Water in Tanzania (Re)assessing the Contribution of Water to the National Economy



Objectives of the Study

- To conduct a study that focuses on the monetary value of water in a limited number of economic sectors
- To identify whether improvements could be made to the cost and benefit sharing structures
- To spark a multi-stakeholder conversation around the need to revalue water

UNITED REPUBLIC OF TANZANIA MINISTRY OF WATER

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11 January, 2022

The Executive Director, Tanzania Water Partnership (TWP), P.O Box 32334, DAR ES SALAAM.

RE: SUPPORTING THE MINISTRY OF WATER IN ESTABLISHING THE VALUE OF WATER IN TANZANIA

Kindly refer the heading above.

 The Ministry of Water continues to appreciate Tanzania Water Partnership collaborative efforts in support of the Water Sector. We value your institutional expertise as well as your linkages with regional and global partners in water resources management and climate resilient.

3. In recognition of the theme for 2022 World Water Week being Seeing the unseen: The value of water, and the desire by Ministry of Water to establish the contribution of water resources in the country's economy, we would wish to request your support in drafting a concept note on establishing the value of water in Tanzania.

4. In this regard, we would appreciate your support in developing a concept and at the end preparation of the same Report. We kindly request you, to indicate your availability so that we can arrange for a meeting to discuss our initial thoughts.

5. Thank you for your continued cooperation





About the Study

It was developed through the Support Programme, upon request of the Ministry of Water, Tanzania

It was only intended to focus on the economic valuation of water

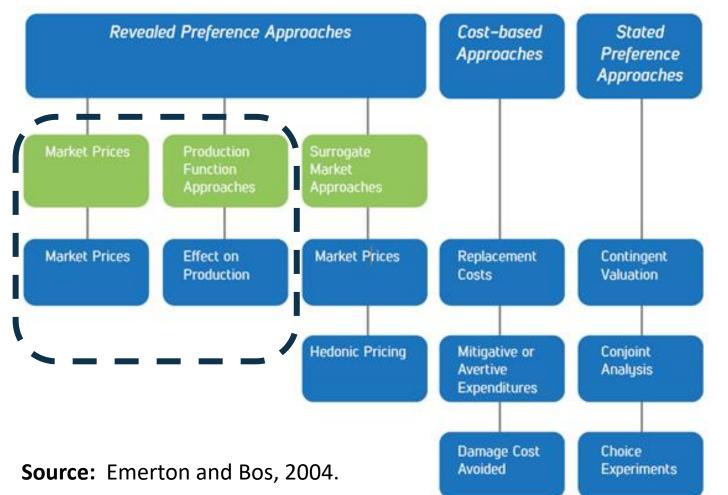
It was developed only using secondary sources, with data limitations The study focuses on 3 sectors: Agriculture, Manufacturing and Mining

It was meant as a conversation starter more than a conclusive endproduct



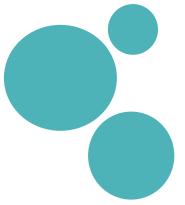
Methodological Approach

Environmental techniques for water valuation





Cost Based Production Functions



Ex. Mozzarella is 3\$ of a total production cost of 5\$ for the pizza. You sell the pizza at 10\$, then the value of the mozzarella is 6\$





What is the value of mozzarella on a margarita?



1.Find the proportion of the production costs related to mozzarella

2. Extrapolate this proportion to the selling price of the pizza.



Datasets

- *Water Resources Factsheets (n.a.)*, published by MoW, include information for the country and its nine basins as of 2015.
- <u>National Environment Statistics Report (2017)</u>, published by the Government of Tanzania (GoT), present a comprehensive repository of environmental statistics related to water resources in mainland Tanzania.
- <u>The Project on the Revision of National Irrigation Master Plan in the United Republic of Tanzania Final Report (2018)</u>, developed by JICA on behalf of the MoW, presents the National Irrigation Master Plan 2018 (NIMP 2018) and provides a detailed account of water resources and water resources demand for 2015, 2025, and 2035.
- <u>Tanzania Water Resources Atlas (2019)</u>, developed on behalf of MoW by YEKOM Consulting Engineers, is a repository of maps and statistics on Tanzania's water resources.
- <u>State of the Environment Report 3 (2019)</u>, published by the Vice-president's Office, intended to inform policymakers about the environmental challenges and provide policy recommendations to support the country's sustainable growth.
- *Water Sector Status Report 2015-2020 (2020)*, published by MoW, consolidates the progress and issues on the water sector's components.
- <u>Tanzania Water Sector Assessment for Strategy Development (2020)</u>, published by USAID, presents an overview of the most critical water resources challenges and stress factors, including climate change.
- Tanzania Water Resources Profile Overview, available at: <u>https://www.globalwaters.org/resources/assets/tanzania-water-resources-profile</u>



Production Functions – Agriculture Sector

National Value of Water for Livestock Subsector

 $NA_{Lwv} = L_{GDP} * P_{Lwv}$

Where:

- NA_{Lwv} : National Value of Water for Livestock Subsector in Tanzania 2020
- L_{GDP} : Value of Tanzania's GDP for the Livestock Subsector in 2020
- P_{Lwv} : Proportion of value of water for Livestock subsector in 2020



Production Functions – Agriculture Sector

National value of water for the crop subsector

 $NA_{Cwv} = C_{GDP} * P_{Cwv}$

Where:

- *NA_{Cwv}*: National Value of Water for Crops in Tanzania in 2020
- C_{GDP} : Value of Tanzania's GDP for the crops subsector in 2020
- P_{Cwv} : Proportion value of water for the crops subsector in 2020



Production Functions – Manufacturing Sector

National value of water for the manufacturing sector

 $NA_{Mwv} = M_{GDP} * P_{Mwv}$

Where:

- NA_{Mwv} : National value of water for the manufacturing sector of Tanzania of 2020
- M_{GDP} : GDP value of the manufacturing sector of Tanzania in 2020.
- P_{Mwv} : Proportion value of water for the manufacturing sector in 2016



Production Functions – Mining Sector

National value of water in the Mining sector.

 $NA_{Gwv} = G_{GDP} * P_{Gwv}$

Where:

1. NA_{GWV} : National value of water for the mining sector of Tanzania in 2020

- 2. G_{GDP} : GDP value of the mining sector of Tanzania in 2020.
- 3. P_{Gwv} : Proportion value of water for the mining sector in 2016



Results

Results reveal that the low bound estimation of the value of water in Tanzania is estimated to be approximately 4.8 trillion TZS in 2021, which is the equivalent of **3.31% of the national GDP**

Sector	Subsector	Value Added Proportion Derived from Water	National Value of water (TZS/year)	National Value of water (USD/year)
Agriculture	Crops	17.66%	3,871,103,258,200	1,687,865,767
	Livestock	6.99%	742,933,793,947	323,931,560
Manufacturing		0.24%	27,173,364,839	11,848,042
Mining and Quarrying		1.78%	175,749,179,260	76,629,582
Total		-	4,816,959,596,245	2,100,274,951
GDP		3.31%	145,429,645,000,000	63,409,757,618



• The anticipated return ratio for bean irrigation stands at approximately 4037%.

- In 2020 USD values, for every 1 USD allocated to bean irrigation during the short rainy season, an estimated output rise of 11.47 kg is projected.
- Considering the 2020 price of beans at 3.52 USD per kilogram, the expected return ratio for bean irrigation is about 4037%.
- The volumetric value of water used for different livestock was estimated:
 - Cattle: 5,356 TZS/m3 (2.34 USD/m3)
 - Goat: 2,169 TZS/m3 (0.95 USD/m3)
 - Sheep: 1,114 TZS/m3 (0.49 USD/m3).





Results

- Water-related expenditures are negligible for the manufacturing sector:
 - Both supply and water treatment costs account for an average of 0.05% of total expenses in the manufacturing sector.
 - Even in the most water-intensive manufacturing processes, water costs remain proportionally low; for instance, water costs for manufacturing food products and beverages represent only 0.104% and 0.914% of their total production costs, respectively.
- Water treatment costs dominate water-related expenditures:
 - Analysis of total water-related costs in the manufacturing and mining sectors indicates that 99.7% of these costs are attributed to water treatment. This suggests that water supply services, abstraction fees, and licensing fees are relatively minimal, particularly when compared to other production costs.



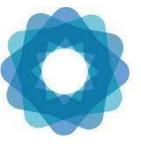


- Input towards the implementation and resource mobilisation of the Tanzania Water Investment Programme (raising the national budget for water in Tanzania)
- Potential for going deeper in the study in Tanzania, in collaboration with FAO, and **mainstreaming the approach** in the System of Environmental-Economic Accounting (SEEA)
- Input in methodological terms to the Continental Africa Water Investment Programme (AIP)
- Potential **replication of the methodology** across other geographies, in particular with the Valuing Water Initiative

Session at the World Water Week in Stockholm to present and further discuss the results, co-convened by the Valuing Water Initiative, GWP and the Ministry of Water, Tanzania







System of Environmental Economic Accounting

Total value	US\$ Billion per Year	incremental increase allocated to water	
Bilateral ODA and philanthropy for Africa US\$1.5 billion in 2020 to water from OECD Common Report US\$0.5 billion from BRICS, gulf states, and philanthropy	ting Standard	Bilaterol ODA and philanthropy Increase by 25% will result in an additional US\$0.5 billion/yea	
Multilateral and Development Financial Institutions US\$20 trillion water portfolio in Africa Partfolio turns over every 4 years		Multilateral and Development Financial Institution Increase by 20%, gives \$8 billion until 2030 which equates to US\$1 billion/yea	
Multilateral Climate Funds US\$2.8 trillion NDCs in Africa, 24% for adoptation Projection US\$100 billion a year, 30% for Africa	1917	Multilaterol Climate Fund 15% Africa funds for wate \$ 3.2 billion / yes	
National Banks, MFIs, Local Governments Information known on National Banks only In 2020, US\$6 billion in assets in African National Banks	7	National Banks, MFIs, Local Governments 20% in water from National Banks and other MFIs US\$1.5 billion/ year	
Africon Gevernments budgets US\$6 beken per year woter expenditure infrostructure \$ unknown staffing and maintenance	Domestic resource	African Governments budgets 20% higher allocation to infrastructure Increase disbursements for staffing and maintenance USS 2 billionyea	
Pollution and Mineral Resources Taxes African extractive sector tax revenue approx. 2% of GDP (US\$80 billion). Africo 5.5% of global output = U\$\$406 billion	mobilization \$17.5	Pollution and Mineral Resources Taxe 1% water tax on mineral resource US\$4 billion / yea	
Institutional Investors US\$14 Inflion available globally US\$700 billion assets under management (AUM) in Africa		Institutional Investor Dauble AUM in Atrica by 203 10% of which for water and sanitation US\$ 10 billion / yea	
Voluing water related risks and observing environmental standards US\$61.US\$67 billion potential impact of water risks reported by 99 companies in Africa	Significant savings generate by industries	d Valuing water related risks and observing environmental standards Several billion \$ water related cast averted each year from improved water strearistic	
Sector government: Efficiency US\$100 billion efficiency utilisation billion efficiency at non revenue, billing, adequate technologias, ranny efficiency) US\$20 billion new investments per year		Sector givernance: Efficiency Concerning and Sector (Sector Sector) (Sector) (Sector) (Sector) (Sector) (Sector) (Sector) (SES 15 billiony/sector) (SES 15 billiony/sector)	







Thank you!



For more questions please contact: <u>colin.herron@gwp.org</u> <u>laurentcharles.tremblaylevesque@gwp.org</u>