



# Project Information Document (PID)

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Concept Stage | Date Prepared/Updated: 06-Aug-2019 | Report No: PIDISDSC25769

**BASIC INFORMATION****A. Basic Project Data**

Country Tanzania	Project ID P168238	Parent Project ID (if any)	Project Name Tanzania Water Security for Growth (P168238)
Region AFRICA	Estimated Appraisal Date Mar 02, 2020	Estimated Board Date Jul 31, 2020	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance and Planning	Implementing Agency Ministry of Water	

**Proposed Development Objective(s)**

The proposed development objective of the project is to strengthen bulk water security of prioritized urban areas and bring critical water-source areas under sustainable watershed management.

**PROJECT FINANCING DATA (US\$, Millions)****SUMMARY**

<b>Total Project Cost</b>	350.00
<b>Total Financing</b>	350.00
<b>of which IBRD/IDA</b>	350.00
<b>Financing Gap</b>	0.00

**DETAILS****World Bank Group Financing**

International Development Association (IDA)	350.00
IDA Credit	350.00

Environmental and Social Risk Classification  
Substantial

Concept Review Decision  
Track II-The review did authorize the preparation to continue



Other Decision (as needed)

## B. Introduction and Context

### Country Context

1. **Tanzania's stable political and macroeconomic environment has supported inclusive growth.** With steady, pro-poor growth averaging 6.5 percent per annum, Tanzania has been one of the stronger performers in Sub-Saharan Africa (SSA) over the last decade. Based on the national poverty line, headcount poverty fell from 34 to 28 percent between 2007 and 2012, and extreme poverty fell by 2 percentage points over the same period but remains high in absolute terms.
2. **Rapid population growth, high urbanization rates, deep poverty in rural areas and inequality remain persistent challenges.** Tanzania's population of nearly 54 million is growing rapidly at about 3 percent per year and is expected to reach 100 million by 2040. About a third of the population lives in urban areas and at current rates it is estimated that half of the population will be living in urban areas by 2050, driven primarily by population growth and rural-to-urban migration. Urbanization is having, and will continue to have, an impact on urban development and heightens the need to ensure sustainable living conditions, including service provision, housing, sanitation and waste disposal. While the last decade saw a reduction in overall inequality and an increase in the growth rate of consumption of the bottom 40 percent, large income and welfare differences exist between urban and rural citizens and men and women. Over 80 percent of poor and extremely poor Tanzanians live in rural areas and depend on natural resources-based livelihoods and subsistence farming.
3. **Tanzania's rich natural resources underpin the economy and rural livelihoods.** Natural resources, both renewable and non-renewable, account for more than 57 percent of all goods exports, and appropriate management of the natural resource base—particularly its water, land, forests and wildlife—is vital to Tanzania's economy. Water and wood fuels together provide an estimated 90 percent of Tanzania's energy needs. Tanzania is now officially water stressed, with likely corollary effects on energy production, agriculture and the livelihoods of the poorest. The country's unique wildlife assets fuel a vital tourism industry that is an important contributor to GDP (13 percent of GDP in 2016). Tourism also provides a stable source of revenue and foreign exchange for the Government. Agriculture continues to support most Tanzanians, providing 67 percent of employment and 98 percent of rural women are engaged in agriculture.
4. **Government's policy and strategy focus on industrialization and human development must be underpinned by a more intense focus on water security.** The Fifth Phase Government has outlined an ambitious vision for the country, which focuses on human development and envisages Tanzania becoming a semi-industrialized nation by 2025. According to this Vision, agro-industry is the basis of industrialization, and agricultural expansion is the foundation for food security. Both goals are also dependent on urban service provision, including water supply and sanitation, which underpin human capital outcomes such as reduced child mortality and stunting, and retaining girls in schools.



## Sectoral and Institutional Context

5. **Tanzania's economic growth, and therefore prospects for rapid poverty reduction, is significantly dependent on water resources.** Water is a critical input for the economy, environment, and society, where every major sector (energy, tourism, agriculture, mining, and industry) and the resource and agriculture based-livelihoods of the poor depend on availability of sufficient water resources. The latest official data, which goes back to 2002, suggests that 89 percent of Tanzania's water withdrawals are for agriculture, 10 percent for domestic consumption, and only about 1 percent for industry. Manufacturing in Tanzania is dominated by agro-processing, which is highly dependent on water, as is mining, tourism, and energy generation. About 40 percent of Tanzania's energy comes from hydropower, which is operating below its potential because of upstream water withdrawals.
6. **Tanzania has become water stressed.** Over the last 25 years Tanzania's renewable freshwater resources per person have dropped from over 3,000 m<sup>3</sup>/capita/year to around 1,600 – beneath the commonly accepted water stress threshold of 1,700 m<sup>3</sup>/capita. Over the same period the size of the economy has tripled, and formal and informal irrigation has expanded, all of which rely on increasing use of already over-stressed water resources. Water demand has exceeded dry season supply by up to 150 percent in some areas, a gap that can only be filled by improving water management.
7. **Urban centers across Tanzania are water stressed.** With rapid urbanization rates and expanding industrialization across the country, Tanzania's Strategic Cities – Dar es Salaam, Dodoma, Mbeya, Tanga, and Arusha – are challenged by water insecurity. Even in cities where water-supply networks reach most households, during droughts, bulk-water is unavailable for the utilities to treat and distribute (bulk-water reliability figures range from 35 – 90 percent). Large withdrawals and diversions for agriculture in upstream catchments, limited storage, and extensive watershed degradation result in limited water availability and degraded quality for the downstream cities of Dar es Salaam, Mbeya, Arusha and Tanga. Dodoma and Mbeya are positioned in upper catchments, where surface water options for expanding bulk water supply require pump and conveyance systems that would require significant capital outlays and incur high operational costs. Unreliability of urban water supply cripples public health, limits investment and economic growth, and repeated shortages create perceptions of government failure, deepen social inequalities and intensify tensions.
8. **Water stress is also impacting social and environmental resilience.** In rural areas, household water is withdrawn from the same rivers and aquifers that farmers rely on for irrigation. Water scarcity diminishes social and environmental resilience when basic user needs are not met, impacting health, employment, and viability. Lack of bulk-water availability exacerbates time burdens (e.g., women walk further to collect water permitting less time for economic productivity) and women's small holder farms are less prioritized for distribution during drought. Decreasing water quality from insufficient waste water treatment, increasing salinity due to improper irrigation, and scarcity and unregulated industrial discharge all have negative impacts on human health and ecosystem function. A massive economic toll is taken on long-term human capital (lost education, lack of nutrition and stunting and work opportunities from sickness) and the increased time burden for the female caretakers of sick family members. Several globally significant ecosystems are being impacted by water stress, including the Ruaha National Park, the largest in East Africa.



9. **Droughts and floods have major social and economic impacts on Tanzania.** The agricultural sector suffers an estimated US\$200 million in annual losses because of weather-related shocks, largely from drought. Early in 2017 aggregate food prices increased by 12 percent due to drought-related food shortages. Hydropower production, around 42 percent of energy generation in Tanzania, also drops during droughts, creating major additional generation costs for the country. Economic modelling in neighboring Zambia shows that a severe drought would likely increase national poverty by percent 7.5 percent – impacts in Tanzania would likely be similar.
  
10. **Tanzania's water stress will be exacerbated by climate change.** Climate change is increasing spatial and temporal variations in rainfall, and temperatures are rising (with a projected increase of 2-4 degrees by 2050). This is likely to increase aridity and water scarcity. Future trends in rainfall are highly uncertain, as model projections do not agree on whether rainfall will increase or decrease in Tanzania. However, even now, climate change is aggravating water scarcity and further degrading water quality as the rise in temperature increases aridity and is likely to increase the prevalence of prolonged drought and flood events. Water borne pollutants are also intensified by the rise in temperature. With climate change, Tanzania will have to deal with increasing challenges of scarcity, variability, and quality.
  
11. **Tanzania can become more resilient to climate change and other stressors.** Despite these challenges, water does not have to become a significant constraint to growth. Tanzania still has comparatively generous water resources compared to many other African economies. The challenge is how to manage water better, to allocate water to uses that maximize the economic, social, and environmental benefits for the country and in doing so, build resilience to recurring drought and long-term effects of climate change for all members of society. To improve water security for growth and secure water sources for urban centers, Tanzania must explore innovative approaches, operationalize its water management framework and strengthen watershed, agricultural water management and better leverage the vast capacity of women and girls to contribute to resilience and growth.
  
12. **Innovative approaches are needed to secure water for urban centers and combat impacts of drought.** Innovation is the key to addressing the long-term challenge of climate adaptation and building more resilient communities. Elements of resilience that are needed for both human and built systems include preparedness, diversity and redundancy, integration and connectedness, and robustness. Innovation can help clients integrate resilience into their water management systems – for example, developing diversified water sources in areas experiencing water stress or providing information platforms to connect communities with each other and the regulatory authorities can provide elements of diversity and connectedness. Coupling green infrastructure with built infrastructure often provides a strong platform for integrating resilience into water systems.
  
13. **The underlying drivers of land and water degradation in Tanzania are well known.** Land and water in upper catchments in most basins are degraded due to anthropogenic issues, driven largely by deep poverty: subsistence agriculture practices and lack of alternatives; lack of water points outside of the buffer-zone; livestock destruction of banks and soil-cover; insecure land tenure which reduces incentives to invest in soil and water conservation measures; limited access to markets and finance to improve farming practices and irrigation technology; and increased population pressure and reduced agricultural productivity, which increases demand for agricultural land



and drive deforestation and encroachment. In addition, households relying on non-agricultural business as a main source of income appear to have experienced a remarkable decline in poverty, suggesting that the development of non-farm employment can offer a pathway out of poverty.

14. **Strengthening agricultural water management is a central challenge.** Agriculture currently represents around one-third of GDP, three-quarters of exports, and two-thirds of jobs in Tanzania. Expanding agricultural productivity is central to the Government's Vision 2025 – *“The economy will have been transformed from a low productivity agricultural economy to a semi-industrialized one led by modernized and highly productive agricultural activities”* – and a key strategy for improving agricultural productivity is expanding irrigation. Given that the large majority (officially 85 percent<sup>1</sup>) of water withdrawals are currently for irrigation (even allowing for dated data), the challenge is not only to increase agricultural productivity but to reduce the amount of water consumed by irrigation at the same time in order to provide water for energy, industrialization, and growing cities. Enabling government support for farmer-led irrigation and water-smart crop choices will be important tools to improve both crop production and conserve precious water resources for competing uses. Additional benefits of improved irrigation will be agricultural area expansion, crop diversity and potential for improved nutrition outcomes, reduced soil erosion, reduced risk of rainfall uncertainties, and increase revenue and employment.
15. **Tanzania plans to operationalize its water management policy and institutional framework to advance water security and enable growth.** With the support of the World Bank and other development partners, Tanzania has developed a policy, legislative, institutional framework aligned with the principles of IWRM. Foundational elements of the framework include vesting custodianship of water with the state and establishing a priority of water uses – first domestic, second environmental, and third economically beneficially uses. Under the framework, the Ministry of Water is the locust of responsibility for managing water, ensuring water quality and delivering water services. These responsibilities are largely devolved to the Basin Water Boards (BWBs). The country's nine BWBs are legally mandated to allocate water and permit water uses; ensure permit compliance; and prioritize, plan, support and coordinate watershed management activities. Most basins have developed medium-term water resource development and management plans, supported under the first Water Sector Support Project (WSSP I - P087154). Water user associations (WUAs) are the key community level governance structure linked with BWBs. They are responsible for local watershed management implementation (including coordinating with irrigation systems), water-use oversight, and information transfer. Their formation began under WSSP I and continues under WSSP II (P150361). BWBs and WUAs coordinate with local, district and region government on watershed management, buffer-zone protection/encroachment, and permit enforcement.
16. **There are also several agencies with water-related mandates.** The National Water Board is mandated with advising the Minister of Water on strategic issues and the National Irrigation Commission is charged with planning and promoting irrigation. Irrigation Officers at the District and Region levels are mapped to Ministry of Agriculture and are responsible for overseeing and providing support to irrigation implementation, in coordination with BWBs and WUAs. The Tanzania Meteorological Agency conducts hydrometeorological services and data collection, though several other agencies collect water-related data. Hydropower dam operations and maintenance falls under the ambit of Ministry of Energy. Although the laws and implementing regulations outline some of the de jure relationships between these agencies, there are still areas where further clarity of mandates is required. For



example, water data is collected by multiple agencies and only two MOW and TMA have clear protocols for sharing.

17. **Despite the well-structured, devolved water management institutions, several challenges remain.** Allocation and permitting remain critical challenges for basins where informal uses, often irrigation withdrawals, are the de facto priority water use and result in shortages for other economically or environmentally beneficial uses. Limited planning coordination remains a major challenge as does the lack of water data and a robust data management system. These two challenges combined create an environment where water-knowledge is not the basis for decision-making. Thus, activities that should be primarily technical - e.g. allocating water based on seasonal availability – are overly discretionary and politicized. Insufficient, and occasionally perverse, incentives to enforce regulations at sub-national level are often coupled with lack of transparency about actual water uses, low awareness of water stress and its implications for development, and insufficient resources to implement a coordinated enforcement approach. Other challenges include the vast geographic coverage of BWBs, unreliable fund flows from central government, paucity of sustainable alternative livelihoods for small-farmers, and insufficient high-level political prioritization of water management.

#### Relationship to CPF

16. **This project primarily supports Tanzania CPF 2018-2022 Focus Area 1—*enhance productivity and accelerate equitable and sustainable growth*.** Focus Area 1, Objective 1.3 Manage natural resources for resilient economic growth, naturally encompasses water resources management. In addition, improved management of water resources to enhance water security in urban, industrial, and natural areas is required to achieve Focus Area 1, Objective 1.1. Strengthen the Business Environment for Job Creation, notably in Manufacturing, Agribusiness, and Tourism.
19. **This project will also contribute to CPF Focus Area 2—*boost human capital and social inclusion*—** by implementing activities intended to close gender gaps in water use decision making in WUAs and BWBs and gender gaps in livelihood resilience and agricultural productivity, **and to CPF Focus Area 3—*modernize and improve efficiency of public institutions***—as it will support public sector accountability and capacity to deliver services in water-related sectors such as domestic water supply, energy (via hydropower), and agriculture by helping to secure water quantity and quality required to deliver those services.
20. **This project also aligns well with the Bank’s Systematic Country Diagnostic (SCD, 2017) for Tanzania.** The SCD identifies enhancing sustainability of natural resources through effective policy and institutional frameworks as Priority Area 4, Contributing to Structural Reform. The SCD includes water resources as a key natural resource that requires improved management through policy and institutional measures.
21. **The government recognizes that water management is part of the development framework required to meet Vision 2025 economic goals.** The link between water resources and the sectors that drive the economy are clear in terms of “transformation of the economy towards competitiveness,” where agricultural expansion is slated to underpin food security and sustain the population, industrialization is dependent on agricultural expansion and energy production, and hydropower production is required to meet energy requirements – all of these are



required for competitiveness. Implementation support and guidance on application of good practice are required to ensure water-dependent sectors work together to meet Vision 2025 economic goals.

22. **The project is also expected to contribute to the human capital agenda in Tanzania.** There are clear linkages between provision of sanitation and many human capital indicators, including school retention, child mortality and nutrition-linked stunting. In addition, a recent study<sup>1</sup> found that upstream watershed conditions were a strong predictor children's health across 35 developing countries, with results that are particularly relevant for Tanzania. Specifically, the study found that in areas with no access to improved water sources, higher upstream tree cover is associated with lower probability of diarrheal diseases downstream, even after controlling for socio-economic and climate factors<sup>2</sup>. This suggests that improving watershed management is not only an investment in environmental resilience, it is also an investment in public health.
23. **The project also contributes to the WBG's twin goals of ending extreme poverty and promoting shared prosperity.** The project area targets regions with high-share of the poor and will specifically provide support to rural communities and small-holder farmers which largely constitute the poorest in Tanzania. A recent study<sup>3</sup> shows a strong correlation between areas with highly degraded land and those with a high incidence of poverty, implying that increasing levels of land degradation may be contributing to the poverty of millions of Tanzanians. Women, who are far less able to migrate for urban work, have less land rights, and less access to productive means, are both more deeply entrenched in cycles of poverty and less likely to be able to access means to resilience during stress. The project will contribute to reversing these trends.

### C. Proposed Development Objective(s)

24. The proposed development objective of the project is to strengthen bulk water security of prioritized urban areas and bring critical water-source areas under sustainable watershed management.
25. **Prioritized urban areas** have been identified by the government of Tanzania as those with high growth potential and concomitant water security vulnerability (Arusha, Dodoma and Dar es Salaam). This PDO operationalizes bulk water security at the level of the utility company as the fraction of calendar days that the utility's bulk water withdrawal water permits are fulfilled. This metric a good proxy measure of urban bulk water reliability because of the availability of baseline data by which to define a quantitative difference that constitutes "strengthening" (i.e., an increased percentage of days that water permits are completely met above baseline). Drought is also a major risk to water security in Tanzania, therefore a complementary measure of drought risk mitigation (the number of residents, by census, reached with policy implementation, data use and institutional strengthening that pertains to drought risk mitigation under the project) will improve the reliability of the outcomes' interpretations.
26. **Critical water-source areas** are the relevant catchment areas in the prioritized basis (Pangani, Wami-Ruvu, Rufiji and Lake Victoria Basins) that are relevant to fulfilling water security needs in those basins. Sub- and micro-catchments will be prioritized during preparation according to relevance for water quantity and quality at critical

<sup>1</sup> Herrera, D. et al (2016). Upstream watershed condition predicts rural children's health across 35 developing countries. *Nature communications*, Vol 8, 811 (2017).

<sup>2</sup> This finding is consistent with other literature on the role of forests in regulating water quality.

<sup>3</sup> World Bank (2018). Malawi Country Environmental Analysis. October 2018 (under preparation)





points in the basin.

#### Key Results (From PCN)

**27. Key results indicators for the proposed project could include:**

- Bulk water supply reliability to cities: percentage of days that bulk water permits are met;
- People under increased measures for drought risk mitigation (number);
- Land area under sustainable landscape management practices; (CRI)
- Farmers reached with agricultural assets or services; (CRI)
- Farmers reached with alternative livelihood activities (% women)

**28. Direct beneficiaries.** Improved urban water security and enhanced service provision from this project will directly benefit many Tanzanians (figures to be developed during preparation), including poor households and women, which bear the brunt of impacts of drought and climate change effects. The project will increase reliability of household water supply, improve nutrition, lessen their water related time-burden, and afford them more time for education and economic activities. Rural households, especially the small holder female farmers, will benefit from improved micro-watershed management and climate resilient livelihood adaptation within the basins.

**29. Indirect beneficiaries.** Through its broad support for IWRM, the project will have an indirect benefit on many beneficiaries nationwide, including urban and rural households, companies, public agencies, and the irrigation, tourism, mining, and fisheries sectors. In addition, strengthened institutional and regulatory frameworks, including implementation of comprehensive plans for IWRM and development will lay an important foundation for efficient and harmonized utilization of water resources. Achieving improved climate resilience informed policies and strategies in these priority urban areas and proximal basins will be a model for many other Tanzanian cities. Climate resilience in these key locations will smooth the fluxes of migration and reduce propagation of public health issues to all neighboring communities.

#### D. Concept Description

**30. Support for water security in Tanzania is envisioned as part of a larger country-water platform** where water resource considerations are integrated into projects focused on energy, environment, agriculture, urban and rural resilience. Water-specific support is framed with the vision of a long-term series projects providing support, where a focus on initial hotspots will be scaled up in future while maintaining the over-arching objective: Water security for cities, people, and the environment through sustainably managed water and land that harness climate resilient water management structures.

**31. This objective can be met by channeling cross-sectoral support through two main channels:**

- **Secure bulk-water supply** for growth-poles by investing in climate-resilient storage such as reservoirs and/or groundwater



- **Resilient landscapes and watershed management** upstream of growth-poles to increase water availability and improve water quality and **improve climate-resilient livelihoods for the poorest** to reduce their need for unsustainable resource use

32. These two main areas of support are deliberately approaching water management challenges using a systems approach, tackling urban infrastructure, rural watershed and agricultural water management and institutional systems to ensure sustainable implementation of both of those connected systems. Sustained support for the following enabling factors will be key to program and project success: innovate and bring in advanced technologies; focus on skills building; strengthen basin and local institutions for sustainability; work within political economy and local context; engage regionally where challenges are transboundary.

33. **The proposed project components are:**

34. **Component 1: Infrastructure for climate-resilient bulk water supply for competitive, industrializing cities (\$185 million).** This component will support infrastructure development and drought management measures to secure climate-resilient bulk water supply for prioritized cities. Focusing on solutions specific to the local situation, this support will involve coordinated planning and use of surface and groundwater contributing to resilience of the population and industry in the face of drought shocks and long-term climate change. Specific infrastructure and management measures anticipated include:

35. **Sub-component 1a. Dodoma climate-resilient bulk water security:** This sub-component will support innovative infrastructure to secure bulk-water supply for Dodoma to provide the city with a resilient means of meeting domestic, industrial, and other water supply needs. Tools such as managed aquifer recharge and harnessing treated storm and wastewater for non-potable uses can be more cost-effective and resilient than surface-water infrastructure under the semi-arid conditions experienced in the Dodoma region. A pre-feasibility assessment conducted during preparation will elaborate these in detail sufficient for analyzing trade-offs and preferences for design. Investment support will likely include: wastewater treatment, drainage, conveyance structures, and management measures. If preferred options would be best implemented through a performance management contract, support may also include transaction advisory services, technical-oversight training, and a probity auditor.

36. **Sub-component 1b. Drought management for prioritized cities** (anticipating Dodoma, Dar es Salaam and Arusha): This sub-component will support drought resilience measures to help key sectors persist through and adapt to drought conditions. Based on planning and multi-stakeholder forums, investments will involve demand management, water source development for use during drought, and other measures to augment supply during extended drought.

37. **Sub-component 1c. Incentivizing investment prioritization and water resources management planning.** The Ministry of Water will need to strengthen internal processes and work with water-dependent sectors to improve technical, planning and organizational approaches to plan, develop and prioritize investments to ensure that water quality and quantity is available where it is most needed for climate resilience and economic growth. Types of activities this component will support could include: (i) instituting protocols and performance benchmarking to regularize interagency and intersectoral coordination; (ii) improving the strategic and technical performance of



water agencies' leadership and staff in carrying out their mandates, through the Centre of Excellence as appropriate; (iii) further developing and enhancing the MOW's performance management skills through use of key performance indicators designed to clarify mandates and regularize inter and intra-agency coordination; (iv) improving data availability by increasing use of innovative technology and earth observation data in order to use of decision support systems in water resources management planning.

38. **Component 2: Transform livelihoods and protect water sources for cities and industries (\$135 million).** Natural resources-based livelihoods and traditional-farming in upstream reaches of all major rivers in Tanzania entrenches people in a cycle of poverty because of low, un-sustainable productivity and low-income levels. These natural resources-based livelihoods diminishing both quantity and quality of water available for downstream users such as cities, industry, and hydropower facilities. This component will support investments to protect the quantity and quality of land and water resources in key river basins (Wami-Ruvu, Rufiji, Pangani, and Lake Victoria) by enhancing climate resilient livelihoods in upper catchments, through support for: i) infrastructure and resilient livelihood systems for watershed management and source protection; ii) agricultural water management and climate-smart agriculture to improve crop yields and improve resilient water use by small and medium-scale farmers; and (iii) valuing water and incentivizing efficiency. Extent of support for the four basins will be determined during preparation and will be determined largely by alignment and readiness. This concept envisions focusing watershed management in water sources areas for the city of Dodoma (Wami-Ruvu basin), the cities of Arusha and Moshi (upper Pangani basin) and critical hot-spots in the Lake Victoria basin and agricultural water management on key areas in the Rufiji and Pangani basins.
39. **Sub-component 2a. Infrastructure and climate resilient livelihood systems to restore degraded watersheds and landscapes which serve as water sources for priority cities and infrastructure.** This component will support actions that protect and restore watersheds to enable sustainable ecosystem services availability, reduce erosion, and increase overall water availability in prioritized areas. This will be achieved through landscape interventions that incorporate both geographic and socioeconomic approaches to ensure sustainable land and livelihood resiliency. Pending the results of specific watershed degradation assessments, interventions are anticipated to include: degraded land restoration, wetland restoration, provision of water-points outside the buffer zone, restoration of forest and pasture lands in targeted micro-catchments, enhancing productivity on the most fertile land, and integrating livelihoods such as livestock, crop, and tree production into the same landscape.
40. Infrastructure required to restore degraded watersheds will focus on small-scale investments for harvesting, storing, and delivering water for people, livestock and agriculture. The menu of water infrastructure investments will include: (i) river training, soil retention and erosion control infrastructure; (ii) area infiltration interventions such as semi-circular bunds or soil bunds; (iii) rock catchments; and (iv) rehabilitation and/or construction of boreholes for groundwater extraction. Diversification of water sources in each target watershed will increase the supply of water for multiple use and therefore mitigate against the risk of droughts. For maximum results, lessons learned from WSSP II will be incorporated both during planning and implementation.
41. Inclusive, stakeholder-driven investments in resilient livelihoods for the poorest to reduce unsustainable resource use will compliment watershed management infrastructure. To enhance the sustainability of landscape restoration and watershed management investments, this component will also include provision of alternative livelihoods for people intensively using the buffer zone for livelihood activities. Just as the consequences of



anthropogenic landscape degradation is gendered, so are the causes. This subcomponent will both understand how women and men can contribute to sustainable watershed management based on their different niches and provide equitable access to training and capital for alternative means. Lessons learned from the successes in WSSP II and other watershed management projects suggest that this could include development of fish ponds, bee keeping, small-scale agro-processing, and other alternative livelihoods to be elaborated during preparation. For the success and sustainability of interventions, both men and women will participate in the process, starting from the design throughout implementation.

42. **Sub-component 2b. Agricultural water management and climate-smart agriculture to improve crop yields and improve resilient water use by small and medium-scale farmers.** Tanzania's water-use challenges vary across the priority basins proposed by the project and can be broadly characterized for Rufiji and Pangani basins as over-subscribed surface water, high consumption of water that is misaligned with availability, and low productivity, where small and medium-holders rely on traditional farming practices. Given the drive for expanded agricultural productivity and the need to prioritize water for other uses, the challenge for the government of Tanzania is not only to increase water-use efficiency and productivity, but to ensure that agricultural expansion is based on existing agricultural abstractions (i.e., no additional abstractions for agriculture). For the growth path that Government of Tanzania envisions, a more efficient agricultural sector offers a pathway for ensuring reliability of food supplies, enhanced water security, and job creation through agro-industries, some of which will be urban based and benefit the urban population.
43. Activities for prioritized basins will include: (1) promoting infrastructure for modernizing irrigation and enabling farmer-led irrigation such as run-off harvesting ponds to increase water availability, groundwater technologies (including solar based) and technologies for water application; (2) production interventions such as sustainable rice intensification (SRI); and (3) alternative crops that can be accepted locally which will increase outputs and farmer incomes and reduce water consumption. A core part of this farmer-led irrigation and crop diversification will be the empowerment of women farmers to choose alternative crops and benefit from improved incomes from equitable access to training, technology, capital and networks. Additional activities would include extension services; enhancing access to information; and markets development and access; and financing mechanisms that enable men and women farmers to invest in sustainable irrigation practices. The project will also implement a mechanism to track progress made in reduction of water use in agriculture. Tools that will be considered include evapotranspiration mapping. During preparation, selection of relevant activities for prioritized basins will be guided by implementation of the REGROW and WSSP2 projects, impacts of the Tanzania Water Sector Support Project (WSSPI P087154) and on-going analytics to identify successful and innovative actions relevant or applied in the Tanzanian context.
44. **Sub-component 2c. Valuing water and incentivizing efficiency.** For Tanzania's water use to be better aligned with growth strategies and more resilient to recurring drought and long-term effects of climate change, water users, and decision makers need to value water and use water more efficiently. While recognizing that effectively rolling out bulk water pricing schemes that reflect the value of water is an iterative and long-term process that is data intensive and requires in-depth stakeholder engagement, the Ministry of Water can mobilize at the national, basin, and local levels to take important steps toward achieving these goals in priority basins. This will include support for increasing transparency regarding water allocation and uses, piloting adaptive allocation permits where allowable water use reflects water availability, adjusting current bulk water pricing to align with consumer



preference data, and enhancing MOW's technical skills for local and basin level monitoring and oversight. These technical skills would complement the existing investments in the Centre of Excellence and Water Resource Management institution to further address challenges related to monitoring and data collection, operating and utilizing an information system, and functioning of systems. Improving inclusion of women in training, participation and leadership of the institutions will allow the project to benefit from their experience and perspective and improve women's agency in decisions critical to their welfare.

45. **Component 3. Project management support (\$30 million).** This component will finance a package of project management support activities to ensure cost-efficient, timely and quality delivery of project activities and results, and will include: (i) establishment of a project management support unit with specialized project management professionals to provide support to the lead implementing ministry/department and the multi-sectoral technical team; (ii) incremental operating costs for day-to-day management of project activities at the national and basin levels; and (iii) support to multi-sectoral coordination and implementation at the national, basin and local levels.
46. **Component 4. Contingency Emergency Response (\$0 million).** A Contingency Emergency Response Component (CERC) with zero allocation will be created and made implementation-ready to allow the GoT to respond quickly in case of an eligible emergency. The mechanism will be defined in a specific CERC Operational Manual that will clearly outline the triggers, eligible expenditures, procurement thresholds, and procedures for using part of IDA resources of the project to respond quickly in the event of an eligible emergency.
47. **Geographic Focus.** An assessment of challenge by river basins was conducted to determine water security hot-spots which identified Pangani, Wami-Ruvu, Rufiji and Lake Victoria Basins as the key water security hot-spots. Prioritization criteria includes urban water constraints, environmental water stress, rural poverty and vulnerability, water energy needs, water conflict hot-spots, alignment with GOT priorities and readiness and capacity to implement. Captured in the alignment with GOT priorities criterion, the identification dialogue with the Government of Tanzania indicated that water security for Dodoma, Dar es Salaam, Mwanza and Arusha are top priorities. Other cities such as Mbeya, Tanga, Sirunda, Morogoro, and Iringa also face water security challenges and the water stress experienced by the energy and tourism sectors in the Rufiji basin remain a priority.
48. **Lessons learned and incorporated in the project design.** Four key activities informed the lessons learned and incorporated into the project: (1) the first phase of the Water Sector Development Plan (WSDP-I) focused on institutional strengthening and initiating basin wide multisectoral planning; (2) the second phase of the Water Sector Support Project (WSSP II); (3) the Water Resilience Analytics and Modeling of three priority basins (Pangani, Rufiji, Wami-Ruvu); and (4) the Institutional Assessment of the same three priority basins. Review of these activities indicated that several constraints were there during the early stages of implementation including insufficient attention to outcomes, lack of adequate coordination, a focus on instruments rather than systems, and delays in the preparation of the IWRMD plans – each of which lead to negative effects on the prioritization of investments. The review further showed that improved quality, quantity, exchange and transparency of WRM data is a lynchpin for future progress. Water agencies need to move quickly towards data-driven decision-making and investment prioritization, strategic planning, and stakeholder coordination and communication. Doing so will require enhancing the technical and soft skills of the civil servants in these agencies, developing performance incentives and benchmarks, and regularizing close collaboration and consultation with stakeholders.



49. Drawing from the lessons learned of the implementation of the WSSP2 project, the focus of institutional strengthening will shift to functional performance and incentives, development of technical skills, and strategic planning aided by technology for improved data availability rather than establishment of institutions. This will improve capabilities for delivering results in accordance with the Integrated Water Resources Management and Development (IWRMD) plans, increasing coverage and performance of Water User Organizations, improving stakeholder and public access to data and information and knowledge products, and facilitating informed decision making for water-related investments across sectors. Water agencies also need to improve the enabling environment for watershed management and permitting by engaging key actors in other areas of government (parliament, local government), industry (agriculture, tourism and manufacturing) and community level users (WUAs and Irrigation Associations).
50. **Social inclusion and gender.** The project will include strategies to empower women, the poor, and the most vulnerable project stakeholders to participate in and/or benefit from the watershed management and irrigation investments. Gender gaps identified in the Tanzania CPF leads us to anticipate that the project will include activities designed to attenuate two key gender gaps: participation and influence in Water User Associations and Basin Water Boards and access to advanced agricultural technology and training. A detailed analysis of gender gaps specific to the project's activities will be performed to contextualize the nature of gender gaps and operationalize indicators that can detect a change when it occurs. Furthermore, community engagement in water user associations and basin water offices will promote gender equality mainstreaming strategies that directly address differences in gendered resource use during water stress. Sex-disaggregated data on project beneficiaries, grievances, and client satisfaction will be collected to track benefits flows to these beneficiary groups.
51. **Citizen engagement.** The project will put in place a basic Grievance Redress Mechanism (GRM) for Component 1 on bulk water supply infrastructure as well as for Component 2 on watershed management and improved irrigation. The project will ensure that all project stakeholders and persons potentially affected by the project are aware of the GRM and how to use it as well as monitor its effectiveness.
52. **Greenhouse gases.** GHG accounting will be conducted during preparation. Major potential sources of GHG in the project may include indirect emission linked to energy requirements for wastewater treatment, and direct emission includes methane release during wastewater treatments. The indirect emissions will be potentially avoided if hydropower is utilized, whereas the direct emissions will be potentially minimized by designing to capture and use methane emission for energy productions. Moreover, the project will execute activities that reduce net GHG emission such as tree planting, climate smart agriculture and watershed management that increase ground cover. Introduction of small-scale irrigation in the project will also help reduce the pressure on the watershed buffer zone and will contribute to reduce GHG emission from over utilizing the land.
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Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

### Summary of Screening of Environmental and Social Risks and Impacts

The project will be implemented in mainly three river basins which are important for urban and rural development of Tanzania: Pangani Basin, Wami-Ruvu Basin, and Rufiji Basin. The exact nature and number of investments and locations are not known at this stage. The Ministry of Water and Irrigation (MOWI) will be the leading agency with other agencies such as DUWASA and possibly DAWASA with individual components, sub-components and activities implemented by the targeted Basin Water Boards.

Watershed management, demand control, agricultural water management and other institutional strengthening measures will be implemented in cooperation with other ministries, regional, district and local governments. The project will generate many positive effects by improving bulk water to urban inhabitants of the largest cities of the country (Arusha, Dar es Salaam, Dodoma and Morogoro), improve water management; promote river basin and groundwater management, wetlands restoration, increased flow to National parks (Ruaha) and hydropower plants etc.

Some of the proposed interventions by the project could cause direct and indirect impacts in superficial water systems (river and streams and their aquatic ecosystems because of reduced water flow; drying out of springs or water holes important for biodiversity or in the groundwater systems serving other communities or river systems due to abatement of the aquifer; high rates of groundwater pumping can also lead to increase saline intrusion in the aquifer. Managed Aquifer Recharge (MAR) could lead to potential indirect impacts (depending of the water source if surface water, treated effluent, reclaimed or recycled water, the geology and sensitivity of the aquifer) and it must be done carefully to avoid affecting the water quality of the aquifer.

During development: noise, dust, air emissions will be generated which are common issues during construction; change of river/streams flows and ecosystem dynamics; waste generated at construction sites which can pollute land and water; ground excavations can lead to accidents of people and fauna; domestic residues from construction camp sites can attract wildlife; clearing of vegetation; increase transit in construction sites; labor influx and GBV/SEA risks; increase in HIV/AIDS; Land acquisition and displacement amongst others.

During operation – reduced water flow for aquatic ecosystems and downstream communities; increase risk due to presence of earth dams upstream; increase open water/lentic habitat could lead to potential water vector (malaria, dengue) breeding sites that can affect public health; introduction of exotic fish species in the ponds; increase salinity in the long term (due to irrigation systems); land degradation due to increase overgrazing by livestock, among others.

In order to prevent impacts, reduce risks and comply with the national legislation and the ESF, the project will prepare: ESS1- Environmental and Social Management Framework (ESMF) which will need to cover all risks and impacts associated the project and with ESS1,2,3, 4, 6, 8 during construction and operation. The project ESMF will include: (i) screening criteria (ii) supervision and reporting procedures, (iii) preventive and mitigation measures, etc. Depending of the screening, some project might be required to develop a site-specific EIA/ESMP taking into consideration the national environmental regulations.

ESS5- Resettlement Policy Framework (RPF) to guide the development of site specific RAPs for yet to be identified



projects and Process Framework (PF) to guide mitigation management resulting from restrictions in access to natural resources. ESS7- Vulnerable Groups Planning Framework (VGPF) to be followed to promote sustainable development benefits and opportunities in a manner that is accessible and culturally appropriate; ESS10- Stakeholder Engagement Plan and the Environmental and Social Commitment Plan (ESCP) agreed upon with the government.

**Note** To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document.

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