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Report Number: ICRR0022244

1. Project Data

Project ID P126361	**Project Name** TZ-Kihansi Catchment Conservation
Country Tanzania	**Practice Area(Lead)** Environment, Natural Resources & the Blue Economy

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
TF-15774	31-Dec-2018	5,964,639.94
Bank Approval Date	**Closing Date (Actual)**	
26-Sep-2013	31-Dec-2019	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	5,980,000.00	5,980,000.00
Revised Commitment	5,964,639.94	5,964,639.94
Actual	5,964,639.94	5,964,639.94

Prepared by	Reviewed by	ICR Review Coordinator	Group
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2. Project Objectives and Components

a. Objectives

The Project Development Objective (PDO) in the PAD (para 16) was *to enhance biodiversity conservation in the Kihansi catchment*. In this context, “enhance” was defined as “to provide for long term sustainability of species and institutions” (Ibid).

In the Global Environment Facility Grant Agreement dated December 2, 2013, the PDO was *to enhance biodiversity conservation in the Recipient's Kihansi catchment* (Schedule 1, page 4). The Recipient was United Republic of Tanzania.

The PDO in the PAD provided a definition of "enhance" in the objective, which was not indicated in the Grant Agreement. The PDO in the PAD was used for this ICR Review, as it was more specific and in line with the ICR (para 7).

b. Were the project objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

The project had three components:

1: Institutional capacity building for the management of the Kihansi catchment (Planned: US$1.07 million, Actual: US$1.07 million). This component had two sub-components: (i) Developing operational guidelines for conducting the Environmental Flow Assessment to incorporate into the Integrated Water Resource Development and Management Planning Framework; and (ii) Developing a sustainable financing plan for the Kihansi catchment to ensure conservation and management in the long-term.

2: Conserve endangered species in the Kihansi catchment (Planned: US$4.61 million, Actual: US$4.60 million). This component had two sub-components: (i) Supporting conservation of key species and habitats through monitoring and reintroducing the Kihansi Spray Toad (KST), mapping and monitoring other endangered species such as wild coffee and butterfly species, and developing a Kihansi Catchment Management Plan (KCMP) to gazette and protect priority biodiversity hotspots and important water resources areas. (ii) Supporting community conservation and livelihood activities aimed at improving use of resources and introduction to alternative livelihood activities. This included training of key sector staff in ecological monitoring and sharing of best practices in endangered species conservation with local and international civil society organizations (CSOs). Training in Integrated Pest Management (IPM) and land use practices to enhance water quality and quantity in the Kihansi catchment would be provided to three village communities in upstream and downstream.

3: Project Management (Planned: US$0.30 million, Actual: US$0.30 million). This covered project management including financial management, procurement, monitoring and evaluation and safeguards monitoring.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost: At appraisal, the total project cost was estimated to be US$24.28 million, which consisted of World Bank financing of US$5.98 million and non-World Bank financing of 18.3 million (ICR, page 3). At project closing, the total actual cost was about US$5.96 million for World Bank financing (Ibid).

Financing: At appraisal, the project was expected to be financed with the grant of US$5.98 million from the Global Environment Facility (GEF), which complemented US$14.67 million from a national water sector program funded by development partners titled the Water Sector Development Program (WSDP), in combination with the Borrower's in-kind contribution of US$3.62 million (PAD, Annex 6, para 22). Actual project financing came from the grant of about US$5.96 million from the GEF, in-kind contributions of US$3.62 million from the Borrower, the original US$14.67 million and an additional financing of US$9 million from the WSDP (ICR, Annex 4, para 18).

Dates: The project was approved on September 26, 2013, and became effective on December 2, 2013. The Mid-Term Review (MTR) was completed on June 6, 2016. The project was closed on December 31, 2019, one year after the original closing date of December 31, 2018.

Restructuring: There was one restructuring of the project which was approved in June 2017. This restructuring resulted in changes in the results framework, specifically revisions of the PDO indicators and the Intermediate Results (IR) indicators, as described below in Section 9.

3. Relevance of Objectives

Rationale

Sector Context. Tanzania is home to large forests and woodlands, freshwater lakes, a variety of flora and fauna, and ecosystems, as well as various endangered species of plants and animals. Among the biologically rich ecosystems in Tanzania, freshwater ecosystems are of particular importance. Tanzania contains the highest diversity of endangered aquatic dependent organisms of any East African nation, and twice that of any of its neighbors (PAD, para 5). Within Tanzania, the Kihansi catchment located in south central Tanzania within the Rufiji River basin is of particular global importance because of the high numbers of critically endangered and highly endemic plant and animal species which occur here. The construction of the Lower Kihansi Hydropower Plant, in which the Bank provided financing as one of the development partners (PAD, para 6), diverted water away from the waterfall and destroyed spray wetlands habitat. In order to incorporate biodiversity protection into water resource management and to allocate water for the environment, the government developed a legal and policy framework under the Bank-financed Lower Kihansi Environmental Management Project (LKEMP). While the legal and policy framework was established, its operationalization encountered challenges on sustainability due to the lack of financial and operational capacities in the ministries and national agencies that were responsible for biodiversity conservation. In addition, the agricultural practices by the local communities caused pollution and degradation to the watershed, further threatening the endemic species. The project objective was relevant to address the issue as it aimed for achieving long-term sustainability of institutions.

Relevance to Government Strategies. The project was aligned with the National Strategy for Growth and Poverty Reduction II (NSGRP II, MKUKUTA II) (2010/11-2014/15), the National Five Year Development Plan (2011/12-2015/16), and Tanzania Development Vision 2025. The project aimed to contribute to the NSGRP II's fourth goal under the Growth for Reduction of Income Poverty Cluster, which envisioned "ensuring food and nutrition security and environmental sustainability and climate change adaptation and mitigation" (PAD, para 12).

Relevance to Bank Assistance Strategies. At appraisal, the project was consistent with the Country Assistance Strategy (FY12-15), especially the first strategy on *Promote Inclusive and Sustainable Private Sector-Led Growth* and the outcome on enhanced sustainability and improved management of natural resources. (PAD, para 13). At project closing, the PDO supported the objectives of the current Country Partnership Framework (CPF) (FY18-22) through objective 1.3. “Manage Natural Resources for Resilient Economic Growth” under Focus Area 1: “Enhance Productivity and Accelerate Equitable and Sustainable Growth” by strengthening the knowledge and use of natural resource management at the institutional level to incorporate environmental considerations in planning and development. The project was also aligned with CPF objective 3.1 “Strengthen Public Sector Accountability and Financial Efficiency in Delivering Services” through the development of a financing plan for the Kihansi Catchment.

Rating
Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective
To enhance biodiversity conservation in the Kihansi catchment

Rationale
Theory of Change: Conducting an economic analysis of water use of the Lower Kihansi Hydropower Plant and an economic valuation of ecosystem services from the Kihansi Catchment would inform development of a sustainable financing plan of the catchment, which served to inform the government of financial resources needed to maintain the ecological integrity of the protected area and fund the environmental management activities of the various institutions. The economic analysis and valuation, combined with a communication strategy for the Rufiji River Basin, would support developing and mainstreaming operational guidelines for environmental flow assessments, leading to a short-term outcome of **incorporated environmental management in planning for water resources and infrastructure**. Establishment of a protected area in the catchment would protect critically endangered and endemic species. Assessing endemic species in the Kihansi Gorge would support research on amphibian diseases. Supporting maintenance and operation of the captive and breeding facilities of the Kihansi Spray Toads (KSTs), conducting surveillance and monitoring of chytrid fungus, and reintroducing the KSTs to the Kihansi Gorge spray wetlands would increase self-sustaining population of the KSTs. A critical assumption here was that the re-introduced KSTs would be able to survive and self-sustain in the wild. Conducting research on the new indigenous species of wild coffee and butterfly would identify and map diversity and propagation of the species. The legally established protected area in the catchment, the Kihansi Catchment Management Plan, the increased self-sustaining population of the KSTs, and the research findings on the new endemic species would restore or preserve the targeted species (i.e. the KSTs, the wild coffee, and the new butterfly together with host plants species), leading to a short-term outcome of **protected endemic flora and fauna**. Identifying and mapping water sources in the surrounding districts would support developing the Kihansi Catchment Management Plan. Providing training in integrated pest management and agricultural land use practices would improve use of agrochemicals by

surrounding communities, leading to a short-term outcome of **strengthened awareness and capacity of the communities on conservation**. The short-term outcomes listed above would lead to the medium-term outcome of ***enhanced biodiversity conservation in the Kihansi catchment*** associated with the project development objective (PDO). The focus of the PDO was twofold: ***a long-term sustainability of species and institutions***. The first and third short-term outcomes aimed to mainly contribute to the long-term sustainability of institutions, while the second one aimed to mainly contribute to that of species. A critical assumption was that the Tanzania National Electric Supply Company would maintain infrastructure and water flows required to sustain the ecosystem. The achievement of the medium-term outcome would ultimately contribute to long-term outcomes of sustainable management of water resources and watersheds as well as conservation of endemic and endangered species. A critical assumption here was that the government would develop a long-term plan to achieve environmental sustainability with clear descriptions on fiduciary and technical responsibilities of the ministries and agencies, and would mainstream the long-term plan into sector plans and budgets.

Outputs:

The key outputs were organized below based on three intended intermediate outcomes.

Environmental management incorporated in planning for water resources and infrastructure

- The national protected area was not legally established, not meeting the target (ICR, page 33). The gazettement process of the protected area was delayed due to a prolonged decision-making on the protection status of the Njelela Forest Reserve, which occupied a large area in the proposed protected area. After appraisal, the Njelela Forest Reserve was found to already possess a protection status as national forest reserve. Whether to retain the national forest reserve status had implications on livelihoods for the surrounding communities, who would be able to access fuel wood, herbs, and bush meats in a conservation area but not in a reserve (ICR, page 28). In the Project Steering Committee on October 17, 2019, it was decided to retain the national forest reserve status of the Njelela Forest Reserve and to gazette Kihansi Environmental Protected Area (KEPA). The decision-making on the gazettement was also delayed because the Permanent Secretary of the Vice President's Office changed three times between 2016 and 2019 (ICR, para 61). A Conservation Management Plan, which aimed for a co-management of the KEPA, was developed (ICR, page 33). The plan was not approved, though it was at an advanced stage at project closing.
- No sustainable financing mechanism was established based on payment for ecosystem services, not meeting the target (ICR, page 33). A draft financing plan was completed, informed by two studies: Economic Valuation of Ecosystem Services from Kihansi Catchment and Economic Analysis of water use of Lower Kihansi Hydropower Plant. The draft of the financing plan was reviewed by authorities but not approved at project closure, pending a final decision to be made based on the legal status of the Kihansi catchment. The government decided the Kihansi catchment to be a part of the existing Njerera Forest Reserve and under the oversight of the Tanzania Forestry Service, which led to operational changes of the financing mechanism (Regional Director's response to IEG). The studies conducted under the project contributed to develop a collaborative management plan, which was expected to be formalized by an endorsement of a memoranda of understanding in November 2020 and incorporated into annual budgets and plans of the relevant institutions (Ibid). To what extent the new financing approach would lead to the long-term financial sustainability after the end of support from the project was uncertain. Operational guidelines for conducting environmental flow assessment were developed and approved by the National Environment Management Council, but were still waiting for an approval from the Ministry of Water and Irrigation (ICR, page 35). Though the guidelines

were not formally approved by the Minister, the application of the guidelines was tested by the ministry, contributing to an establishment of an environmental water requirement of the Kihansi gorge and an identification of the need to develop an environmental water assessment guidelines specific to gorge environments (ICR, para 23). Guidelines on rivers and riverbank management were developed and submitted to NEMC in April 2020, though the approval and implementation by the Steering Committee were scheduled for November 2020, being delayed due to the Covid-19 pandemic (ICR, page 54; Regional Director's response to IEG).

- New areas outside protected areas managed in a biodiversity-friendly manner increased from the baseline of 9 hectares to the actual achievement of 3,187 hectares, not meeting the target of 5,500 hectares (58 percent of the target) (ICR, page 36). This indicator measured hectares outside protected areas where, as a result of the operation, the site became managed at least in part to obtain biodiversity gains (PAD, page 21). The increased area of 3,187 hectares was demarcated for the Kihansi Environmental Protected Area (KEPA). The target was raised from 4,000 hectares to 5,500 hectares at restructuring. The target was under-achieved because it was found during the implementation that more land than initially planned had some forms of protected status, and hence was not covered by the indicator (Response from the TTL/ICR team).

Endemic flora and fauna protected

- The coverage area of functioning spray irrigation system in the gorge increased from the baseline of 1.5 hectares to the actual achievement of 2 hectares, meeting the target of 2 hectares (ICR, page 34), supporting the re-establishment of the habitat of the KST and the reduction of invasive species of flora. The project provided equipment to extend and maintain the sprinkler lines, and a suspension bridge to support this.
- Chytrid disease, a main contributor to the KST extinction in the wild, was controlled, meeting the target (ICR, page 36). Foot sterilization baths were installed at all entry points of the gorge with the instruction signs.

Awareness and capacity of the communities on conservation strengthened

- The Kihansi Catchment Management Plan was developed and approved by the Rufiji Basin Water Board (RBWB) in 2017, meeting the target (ICR, para 32). The management plan was developed in a participatory manner involving the Local Government Authorities and the Water Users Associations, with an aim to guide sustainable use of the Kihansi catchment resources by providing mapping of biodiversity rich sites, vital water sources, harmful land use practices, and illegal use of water. Following its approval, awareness campaigns were conducted in 22 villages, which introduced the residents with the management plan and the existing legislation and policies (ICR, para 32).
- A hundred percent of the important water sources were managed based on the Kihansi Catchment Management Plan in the three districts that formed Kihansi sub-catchment, meeting the target (ICR, page 37). The indicator could have been clearer if it included accompanying definitions. The integrated approach for catchment conservation enhanced the working relationship between Village Councils and Water User Associations through identification of 901 water sources and demarcation of important ones (ICR, para 32). The mapping exercise highlighted the need for gazettement of the catchment, showing that 77 percent of the perennial water sources and 62 percent of the seasonal water sources were not protected (ICR, para 32). The integrated approach for catchment conservation also enhanced the communities' understanding of the need and importance of water sources conservation for livelihood improvements (Response from the TTL/ICR team). However, more time

would be needed to tell whether the observed improvements in water sources management would lead to substantial behavior changes in the future. To achieve that, further interventions might be required.

- Villages using integrated pest management strategies for cropping and pesticides use increased from the baseline of zero to the actual achievement of 22 villages, surpassing the target of 14 villages (157 percent of the target) (ICR, page 37). The activity originally targeted the 14 upstream villages in the Kilolo and Mufindi districts, and later expanded to the 8 villages in the Kilombero District. The Integrated Pest Management (IPM) plan packages and guidelines for agricultural products were developed in Swahili and English languages in collaboration with the Ministry of Agriculture and distributed to the Districts of Kilolo, Mufindi, and Kilombero for further dissemination to the farmers. Economic benefits expected from new agricultural techniques and crops were the main motivations of the communities to participate in the training on IPM and land use practices (ICR, para 80).
- The project directly benefited 3,216 people, exceeding the target of 3,000 people (107 percent of the target), of which 52 percent was female, exceeding the target of 50 percent (ICR, page 38). No beneficiary survey was conducted; thus, to what extent the communities' awareness was raised was not measured. On a positive side, the ICR mission found that villagers interviewed in the Mufindi and Kilombero districts were satisfied with the results of the project and would not revert to previous agricultural practices (ICR, para 34). In addition, all districts reported that introducing beekeeping as an alternative livelihood activity contributed to reduce a local agricultural practice of valley bottom cultivation which could cause destruction of wetland vegetation and contamination of water sources (ICR, para 34).

Outcomes:

Referring to the theory of change above, of the three short-term outcomes that contributed to the achievement of the project objective, **environmental management incorporated in planning for water resources and infrastructure** was partially achieved. No financing mechanism for the catchment was established as envisioned, while the post-project activities to protect the catchment were planned to be conducted under annual budgets and plans of the relevant institutions. The operational guidelines for conducting environmental flow assessment informed plans on environmental water management of the Kihansi gorge, though the guidelines had not been fully approved. The short-term outcome on **endemic fauna and flora protected** was achieved to a certain extent. One of three targeted species was re-introduced less than half of its target population, though it was noted that the reintroduction of the toad was the pioneering activity in the world without prior benchmarks. Two of them maintained the status, though the achievement's attributability to the project could be questioned, as no protection status of the Kihansi catchment was established by project closing. The short-term outcome on **community awareness and capacity on conservation strengthened** was mostly achieved, especially in terms of water sources protection and integrated pest management; however, no beneficiary survey was conducted to measure behavior changes at the community level.

- Total area in the Kihansi catchment protected for biodiversity conservation increased from the baseline of 9,080 hectares to the actual achievement of 12,267 hectares, not fully meeting the target of 13,080 hectares (93 percent of the target) (ICR, page 31). The baseline of 9,080 hectares was an area already under protection status including the areas protected by the Njelela Forest Reserve and the Tanzania National Electric Supply Company. The increased area of 3,187 hectares was newly demarcated for the Kihansi Environmental Protected Area (KEPA). The PDO outcome indicator on the area under protection was not fully adequate to measure the enhancement of long-term sustainability

of species or institutions, as it did not show what changes in the biodiversity were brought by what protection measures.

- Of the three targeted endemic species of *Nectrophrynoides asperiginis, Coffea kihansiensis, Charaxes mtuiae*, two likely maintained their status while a third was re-introduced but achieved less than half of its target population (ICR, page 31). The estimation involved in the target setting for the third was difficult to make as such reintroduction activity had never been done in the world.
    - The Kihansi Spray Toad (KST), *Nectophrynoides asperiginis*, was restored with the increased population from the baseline of zero to the actual achievement of 445, partially meeting the target of 1,000 (44 percent of the target) (ICR, page 31). The under-achievement in the PDO outcome indicator could be attributed to: (1) the less than expected number of releases, (2) the age class of the released KSTs, (3) the accuracy of the estimates of the KST population in the wild, and (4) the lack of prior benchmarks. First, there were 14,713 KSTs reintroduced under the project, which was significantly lower than the planned annual releases of from 4,000 to 5,000 KSTs due to the chytrid fungus outbreaks in the captive breeding facilities (ICR, para 27 and 60). Second, it was found during implementation that the babies and juveniles had a higher probability of survival than the adults, though baby toads comprised of only about 25 percent of the KSTs released between 2012 to 2020 (ICR, Annex 7, page 57). Third, estimating the wild KST population faced accuracy challenges, especially after discontinuation of some monitoring methodologies introduced under the project, such as marking the released KSTs with elastomer tags and conducting intensive surveys of the KST population outside of enclosures (ICR, para 27). Fourth, the reintroduction of amphibians was a globally pioneering attempt which did not have prior benchmarks (Regional Director's response to IEG), implying the difficulty to set an appropriate target thus an issue in achievability. The third and fourth points above indicated the indicator was not adequate in terms of measurability to justify the achievement of the outcome. Despite the under-achievement of the indicator, what was achieved and learned through the reintroduction activity was substantial progress. The government showed commitment to continue the reintroduction of KSTs after project closing, by extending the KST Breeding Agreement with the Wildlife Conservation Society until June 2021 and identifying the location of a new, larger captive breeding facility (Ibid).
    - The wild coffee, *Coffea kihansiensis*, was preserved, as the population stayed the same from the baseline of 21,000 to the actual achievement of 21,000, meeting the target of 21,000 (ICR, page 32). The wild coffee was restricted to the Kihansi gorge, which made it more extinction-prone than species having broad geographic ranges (PAD, page 60). Based on the studies supported by the project, the wild coffee showed a potential for generic improvement of locally produced coffee plants through hybridization and an expected benefit to the industry (ICR, para 51).
    - The host plants of the new species of butterfly, *Charaxes mtuiae*, were restored in the area from the baseline of zero to the actual achievement of 200 hectares, meeting the target of 200 hectares (ICR, page 32). At appraisal, the taxonomic status and conservation of the endemic butterfly was not fully known. The project supported a research on the butterfly and its host plant that recorded an abundant number of 890 stems of the host plant in the gorge (ICR, para 30). No immediate threats to the host plants were indicated in the research, except for wildfires triggered by valley bottom cultivation could be an issue.

In sum, on the two focuses of the project objective, the long-term sustainability of species was achieved to a certain extent, while that of institutions was partially achieved, as described above. Overall, the achievement of the project objective is rated substantial.

Rating
Substantial

OVERALL EFFICACY
Rationale
As described under Outcome of Objective 1, the overall efficacy is rated substantial.

Overall Efficacy Rating
Substantial

5. Efficiency
Economic Analysis: At appraisal, no economic analysis was conducted due to difficulties to estimate the monetary value of expected benefits at local, country, and global level (PAD, para 40). At project closing, the ICR (Annex 4, page 45) provided an economic analysis of the project based on an assessment of the watershed value and the actual area covered by the project direct interventions. No Economic Rate of Return (ERR) was provided.

The methodology of the ICR economic analysis is not fully clear, and may apply a questionable methodology. The analysis conducts a cost benefit analysis intending to compare total anticipated costs (including those costs outside the project from implementing the environmental management plan) to total expected benefits. The assessment of costs appears reasonable. The assessment of benefits draws on the project-supported assessment of the Kihansi river catchment ecosystem services (e.g. water and forest resources for household consumption and economic activities, crop production, biodiversity conservation, and carbon sequestration), which concludes the total value of the catchment was US$629,087 per hectare (ICR, Annex 4, para 4). However, it was not clear what incremental change or averted loss of ecosystem services was assumed to be caused by the project, and the analysis may even implicitly assume that the entire ecosystem service value is attributable to the project – i.e. that without the project the ecosystem services value of the project area would be zero. This would be unrealistic. Second, the analysis appears to include as a benefit an environmental fee of 1 percent of the annual revenues of the Tanzania National Electric Supply Company, forest plantations, household timber production, and crop production could be collected, which would be equivalent to US$55.9 per hectare (ICR, Annex 4, para 5). However, the fee levied on users should not be considered as an economic benefit, but rather as transfer payment. The 1 percent level is arbitrary and is not a proxy of environmental benefits. Such a fee could be considered as part of a financial analysis but not an economic analysis.

Aspects of Design and Implementation that Influenced Efficiency: There were delays in the project initiation, the KST reintroduction, and the gazettement of the Kihansi Environmental Protected Area (KEPA). First, there were initial delays in implementation due to a freeze on disbursements for the Bank's portfolio in Tanzania until 2015. It constrained the project to conduct only preparatory work in the first year.

Second, for the first two years of the project, Tanzania Wildlife Research Institute lacked institutional and financial capacities to carry out its responsibility on the reintroduction of the KSTs under Subcomponent 2.1: Species and habitat conservation, which limited full utilization of the experience gained under the preceding intervention. Third, establishing the Kihansi gorge as an Environmental Protected Area was delayed, due to the fragmented protection status of the demarcated area. In addition, Permanent Secretaries in the Vice President's Office changed three times between 2016 and 2019, causing the decision on gazettement of the KEPA to be pending until project closing (ICR, para 61). Those adverse factors caused the project to be extended for one year without additional financing.

In sum, the economic analysis did not provide clear evidence of substantial economic value of the project, and the implementation efficiency was negatively affected by institutional and financial issues. Overall, the efficiency is rated modest.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 ☐ Not Applicable
ICR Estimate		0	0 ☐ Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

The relevance of objective was substantial, as the project objective aimed to improve sustainability of institutions that was identified as an obstacle to implement the policy and legal framework on biodiversity conservation established in the preceding project. The achievement of objective was substantial. Of the three short-term outcomes that contributed to the efficacy, the one for the incorporated environmental management in planning for water resources and infrastructure was partially achieved due to the shift in the envisioned protection status of the Kihansi catchment from a protected area to a forest reserve, which required changes in the financing approach. The operational guidelines on environmental flow assessment informed plans on environmental water management of the Kihansi gorge, though official approval and implementation were yet to be done in the future. The one for the protected endemic species was mostly achieved considering the pioneering nature of the activity to reintroduce the KSTs the wild. The one for the strengthened community awareness and capacity was mostly achieved, especially in terms of water sources protection and integrated pest management. The efficiency was modest, as there is a lack of clear evidence on the economic value of the project. The adverse factors in design and implementation also caused the implementation delays, affecting the efficiency. Overall, the outcome is rated moderately satisfactory.

a. Outcome Rating
Moderately Satisfactory

7. Risk to Development Outcome

There were following risks to the sustainability of the achieved results presented in the ICR:

1. Frequent reintroductions of the Kihansi Spray Toad (KST) were needed over the near future to sustain species recovery. The agreement between the government and the Bronx and Toledo Zoos to breed the KST was expired in June 2020. While the government was looking to have a significant portion of the KST transferred to the facilities in Tanzania, it was expected to take some time until the facilities would be adequately prepared to receive the toads. The last transfer of KST planned for April 2020 was cancelled due to travel restrictions following the novel coronavirus outbreak. To overcome the risk, NEMC confirmed that the government was committed to continuing the program in its current state for at least two years and going to maintain the same coordination arrangements with other agencies as under the project to allow a smooth transition.

2. The project handover process was incomplete at project closing. Some agencies like the Tanzania Wildlife Research Institute (TAWIRI) were unclear of their roles after project closing. To overcome the risk, NEMC planned to continue the oversight of the steering committee and establish the MOUs with the respective agencies before the end of the project to sustain accountability and project efforts. The MOUs were drafted and expected to be signed at the steering committee meeting planned for April but that was postponed due the novel coronavirus outbreak. Moreover, the ministries and agencies were expected to adopt the recommendations of the financing plan to ensure that the post-project budget for conservation would be adequate.

8. Assessment of Bank Performance

a. Quality-at-Entry
The project ensured strategic relevance and approach adequately before appraisal. Technical and environmental aspects were considered based on the prior sector intervention. Based on the 10 years of experience and lessons learned from the Lower Kihansi Environmental Management Project (LKEMP), the Bank identified, prepared, and appraised a well-grounded project. The project could have been prepared faster to fully utilize the momentum of the LKEMP, which was gradually lost after it was closed in 2011, even though there was a support from the Additional Financing for the Tanzania Energy Development and Access Expansion Project (2010-14) on a transition from the LKEMP to this project (ICR, para 56). Risk assessment and mitigation were not fully adequate to avoid the implementation delays. It was due to the insufficient data managed by the government and provided to the Bank team at preparation, as well as the ambiguity in the boundaries of the forest reserve which was demarcated in 2019 (Regional Director's response to IEG). Considering that the issue with the forest reserve and status

became a major cause of delays and failure to finalize by project closing, identifying the existing protection status of target areas with a verification of the accuracy of the data was essential during preparation. Revealing the issue at design would have allowed the project to address it early in implementation (ICR, para 73). Overall, the quality at entry is rated moderately satisfactory.

Quality-at-Entry Rating
Moderately Satisfactory

b. Quality of supervision
The project was supervised by the TTL who was involved in the preceding project and stationed in the country. It materialized close supervision and coordination with the government, to deal with sensitive issues such as the reintroduction of the KST. The Bank team's missions were held biannually to supervise financial management, procurement, and safeguards. The detailed Aide memoires and the Implementation Status Reports (ISRs) provided clear guidance and action plans. During the ICR mission, various agencies expressed satisfactions with the Bank's supervision, including research, guidance, and problem solving in a timely manner. Overall, the quality of supervision is rated satisfactory.

Quality of Supervision Rating
Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design
The National Environment Management Council (NEMC), which was responsible for monitoring and evaluation (M&E), had adequate capacities to centrally collect and report M&E data on project results. However, the NEMC could show more commitment on data reporting, as the Bank team often received data directly from the other agencies. Institutions responsible for collecting and sharing raw data were appropriately identified.

The indicators were set in line with planned activities per component in general, with baselines set at appraisal. On the other hand, the results framework was not fully aligned with the theory of change. The results framework did not capture behavior changes required for biodiversity conservation. Survey data on changes in specific land and water use practices might have helped assess the project's likely impact on conservation and environmental management. The IR indicator on "water sources managed" meant to refer that an integrated approach for catchment conservation was taken by different stakeholders as agreed in the Kihansi Catchment Management Plan (Response from the TTL/ICR team). The wording of the indicator would be more appropriate if it reflected that. The IR indicator on the number of villages using integrated pest management strategies was not a very good proxy in terms of measuring villagers' changes

in practices. The original PDO indicator 1 on conserved area lacked a clarity in definition and a focus on the Kihansi catchment that caused challenges in monitoring the progress of achievement towards the target.

b. M&E Implementation

The results framework was revised at the restructuring in June 2017, as summarized in the Table 1 on page 10-11 in the ICR. At appraisal, there were two PDO indicators and six intermediate results (IR) indicators (PAD, Annex 1, page 19-20). At the restructuring, the PDO indicator 1 on conserved area was revised for clarification and specification of the target area. A supplemental indicator for PDO 1, which was disaggregated by three targeted species, was added. The PDO indicator 2 was revised and re-classified as an IR indicator. Redundant IR indicators were dropped. New IR indicators were added to reflect the limiting factors affecting the survival of the species being monitored. After restructuring, there were one PDO indicator with one supplemental PDO indicator, as well as ten IR indicators (ICR, Annex 1, page 31-38). While this restructuring addressed weaknesses in the results framework at design, it introduced new shortcomings. The revised PDO indicator 1 on the area covered under protection status was not adequately designed to measure the achievement of project objective on biodiversity enhancement, as described in Section 4. In addition, the outcome of the biodiversity conservation enhancement was not adequately measured by the indicator for the KST due to measurability and achievability issues, as described in Section 4. Regarding the original PDO indicator 2 on the operational guidelines, when it was repositioned to the intermediate level, no outcome indicator was set to measure institutional sustainability.

Setting up the M&E arrangement was affected by the slow start of the project due to the freeze in disbursement (ICR, para 58). Notwithstanding the slow start, the Implementation Status and Results Reports reported results and indicated possible challenges in achieving the project's objective. Progress towards meeting the GEF Biodiversity goals were captured and reported in the tracking tools updated at mid-term and completion. The data relevant to breeding and re-introducing the KSTs, the community livelihood activities, and the water quality and quantity was closely monitored and recorded.

c. M&E Utilization

Progress reports were developed and shared regularly with main stakeholders, informing decision-making, restructuring, and work plans. The data collected through experiments on conservation of the three endemic species in the Kihansi gorge, especially those published in a series of papers on the reintroduction of the toads to the wild, was expected to support the global community with subsequent interventions in the future.

In sum, the results framework was not fully adequately designed, with limitations in capturing causal links leading to biodiversity enhancement, sustainability of institutions, and behavior changes. The experimental data collected in the project would inform the future attempts in reintroducing endangered amphibian species to the wild. Overall, the M&E quality is rated modest.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project was given an Environmental Assessment Category B. The triggered safeguards policies were: Environmental Assessment (OP/BP 4.01); Natural Habitats (OP/BP 4.04); Pest Management (OP/BP 4.09); Forests (OP/BP 4.36); and Involuntary Resettlement (OP/BP 4.12). The prepared mitigation measures were: an Environmental and Social Assessment including an Environment and Social Management Plan for OP/BP 4.01, 4.04, and 4.36, an Integrated Pest Management Plan for OP/BP 4.09, and a Process Framework for OP/BP 4.12. All the triggered safeguards policies except for OP/BP 4.12 were complied with (ICR, para 69). A community conservation management plan, which was a requirement under the Process Framework, was not finalized by the government due to the delay with establishing the protected area status for the catchment. The project developed a Grievance Redress Mechanism to receive complaints through the Village Government, the Local Government Authorities or the National Environment Management Council. No grievances were reported in the ICR.

b. Fiduciary Compliance

Financial management was adequately conducted, as interim financial reporting, issue identification and resolution, and external audits were completed in a timely manner. The ICR did not comment on whether the external auditors' opinions were qualified and whether all audit recommendations had been addressed.

Procurement was conducted in line with the Bank's guidelines. It was consistent with the annual work plan and within the expected budget. There were delays during the procurement process especially contracting; nevertheless, the project activities were not affected.

c. Unintended impacts (Positive or Negative)

No unintended impact was reported in the ICR.

d. Other

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11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Satisfactory	Moderately Satisfactory	The quality at entry was moderately satisfactory mainly

			due to the issue with the forest reserve and status, which became a major cause of delays and a failure to finalize the legalization of the protected area by project closing.
Quality of M&E	Substantial	Modest	The results framework was not fully adequately designed, with limitations in capturing biodiversity enhancement, sustainability of institutions, and behavior changes. The experimental data collected in the project would inform the future attempts in reintroducing endangered amphibian species to the wild. Overall, the M&E quality is rated modest.
Quality of ICR	---	Modest	

12. Lessons

The following two lessons in the ICR stood out as important and relevant to other projects on biodiversity conservation and are presented here with some editing.

1. Reintroduction is a long-term process that will require dedicated resources, careful monitoring and continued research. The close monitoring of released population of the KST under the project found that the rate of survival after reintroduction was higher in babies and sub-adults than adults. This could be linked to adaptation and immunity considerations since the KST have been bred for several generations in captivity. Releasing more babies, sub-adults, and gravid females in the wild would improve chances of a self-sustaining population. Moreover, the release of the KST under the project started before the sufficient population was bred in the reproduction facilities, considering the captive population that need to remain within the facilities. An expansion of captive breeding facilities to increase the total KST population and the number of them being released would be critical for sustain the achievements of the project.

2. A multi-sector project needs strong involvement from relevant sectors. The Project Implementation Unit (PIU) was located in the National Environment Management Council (NEMC), which reported to the Vice President's Office and was not tied to any of the ministries in the relevant sectors. This positively affected the project to coordinate multi-sector stakeholders with different expertise and priorities, proceed with procurement, and conduct M&E.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR provides a detailed overview of the project. The narrative loosely supports the ratings and there are some gaps in evidence that are later provided by the TTL/ICR team and the Regional Director. It is candid, concise, and generally aligned to the project development objective. It provided breakdown of data for achievement of indicators where appropriate to explain the achievements against targets. The ICR provided a theory of change which helps the reader to understand the causal relationship among the inputs, outputs, and outcomes; however, there is a limited reference to the theory of change to explain how the ratings have been reached. The ICR's lessons are clear, useful and based on evidence outlined in the ICR. The economic analysis in the efficiency section did not provide sufficient information to assess the benefits attributable to the project. Overall, the quality of ICR is rated modest.

a. Quality of ICR Rating
Modest