

Chamoy or Chimoio
University of British Columbia
Vancouver, Canada
December 22, 2023

African Development Bank Group
Mr. Cesar Augusto Mba Abogo, Country Manager
Avenida Tenente Osvaldo Tazama e Marginal
Torres Rani, 4o Andar Maputo

Dear Mr. Cesar Augusto Mba Abogo,

On behalf of the University of British Columbia, the ‘Chamoy or Chimoio’ Consulting Team would like to humbly present our Monitoring, Evaluating, and Learning (MEL) report assessing the present and predicted achievements of the Chimoio Inclusivity Urban Sanitation Project (CIUSP). Our assessment complies with the Impact Evaluation Analysis (IEA) checklist, and details the contextual background relevant to the target area and the project, as well as an evaluation of the project’s design, implementation, and projected impacts and objectives.

We appreciate the that this project represents the first international investment in Mozambique’s water and sanitation sector since 2010 and, as such, carries considerable importance. Should the CIUSP succeed in developing accessible, resilient sanitation infrastructure, the welfare of hundreds of thousands of Mozambique’s most vulnerable residents could be improved. Furthermore, the completion this project could set a promising precedent for future development initiatives of similar nature, who would stand to benefit from the lessons drawn from CIUSP.

Our goal is to ultimately provide the project’s leading experts with comprehensive, resourceful information that best assures the achievement of the project’s interim objectives for the upcoming 2026 midterm report. Thank you for your continued dedication toward improving the quality of life and health of the people of Chimoio.

Sincerely,

The Chamoy or Chimoio Consulting Team



Improved Public Health in Chimoio

By: Chamoy or Chimoio

Isaac Trenton 75241380

Julieta Martinez Fabris 59632836

Thiago Ribeiro 84957265

FRE 490-Current Issues in Food and Resource Economics



Executive Summary

The ‘Chamoy or Chamoio’ Consulting Team has conducted this IEA compliant MEL proposal to assess the extent to which the Chimoio Inclusivity Urban Sanitation Project (CIUSP) is achieving its objective to improve public health in Chimoio, Mozambique. Considering the current nascency of the project’s implementation, the team closely examined the quality of the project’s appraised design; CIUSP intends on conducting their own mid-term report in April 2026, the purpose of this report is to summarize the current trajectory of the project’s intended impacts. Our M&E report holds consistent to the 17 Sustainable Development Goals presented by the African Development Bank Group (AfDB), as well as the pillars of development presented by the following international commitments:

- United Nations 2030 SDGs
- African Union’s Agenda 2063
- Southern Africa Development Community (SADC)'s Protocol
- African Charter on Human Rights

Our report’s application of IEA parameters yields an evaluation of the project’s design and implementation, followed by an impact analysis broadly contained within the scope of the following six ‘asset types’: Financial, Natural, Physical, Human, Knowledge, and Social Capital. Key features of the evaluation of the project’s design include the logical consistency of the project, the opportunities for income generation created by the project, and the efficacy of the project’s usage of the UA 21.22 million funds granted by the Transition Support Facility (TSF).

Our team primarily sourced data for the project from the CIUSP’s Results Framework, derived from the internal M&E reporting from the Water and Sanitation Infrastructures Administration (AIAS), the Government of Mozambique (GoM), and the Water Supply Infrastructure and Asset Investment Agency (FIPAG). Additionally, various lessons were both applied to the development of this project and derived from this project for initiatives of similar nature.

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List of Acronyms

ADF	African Development Fund
AFD	French Development Agency
AfDB	African Development Bank
AIAS	Water and Sanitation Infrastructures Administration
AURA	Water Regulatory Authority
AWF	African Water Facility
BPS	Borrower Procurement System
BPM	Bank Group Procurement Policy and Methodology
CAW	Climate Action Window
CIF	Climate Investment Funds
CIUSP	Chimoio Inclusive Urban Sanitation Project
COMZ	Mozambique Country Office of the AfDB
CSP	Country Strategy Paper
CWIS	City-Wide Inclusive Sanitation
DMF	Delegated Management Framework
DN	Nominal Diameter
DNAAS	National Directorate of Water Supply and Sanitation
EA	Executing Agency
EIRR	Economic Internal Rate of Return
ESCON	Environmental and Social Compliance Note
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
F.C	Foreign Currency
FIPAG	Water Supply Infrastructure and Asset Investment Agency
FM	Financial Management
GAS	Mozambican Water and Sanitation Group
GEF	Global Environment Facility
GHG	Green House Gases
GMS	Gender Marker System
GOM	Government of Mozambique
HDPE	High Density Polyethylene
INE	National Institute of Statistics

List of Acronyms

EIRR	Economic Internal Rate of Return
ISS	Integrated Safeguards System
L.C	Local Currency
M&E	Monitoring and Evaluation
MOPHRH	Ministry of Public Works, Housing and Water Resources
NPV	Net Positive Value
OS	Operational Safeguards
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PAR	Project Appraisal Report
PCN	Project Concept Note
PCR	Project Completion Report
PDO	Project Development Objective
PIU	Project Implementation Unit
PPCR	Pilot Program for Climate Resilience
PY	Project Year
RAP	Resettlement Action Plan
SCF	Strategic Climate Fund
SDG	Sustainable Development Goal
SMEs	Small and Medium Enterprises
TBC	To be confirmed
TSF	Transition States Facility
UA	Unit of Account
USD	United States Dollars
WASH	Water Supply, Sanitation and Hygiene
WWTP	Wastewater treatment plant

Glossary Of Terms

Climate Variability: Distinct from climate change, which refers to changes over time, usually attributed to human activity. Variability refers to the highly fluctuating nature of Chimoio's climate patterns, regardless of global, anthropogenic patterns.

Counterfactual: A comparison which allows for the cancelation of impacts stemming from outcomes that would have been achieved regardless. Approaching this assessment through the lens of a counterfactual provides a clearer measure of the impact of the project.

Hard vs. Soft Infrastructure: tangible, physical structures (e.g. the sewerage network) vs. socio-economically important services (e.g. training programs).

High 5-5: The AfDB's 5 development priorities aligned with the United Nation's SDG's: Light up and Power Africa, Feed Africa, Industrialize Africa, Integrate Africa, and Improve the Quality of Life for the People of Africa.

Project Development Objective (PDO): The ultimate goal of the project, facilitated by the successful realization of outcomes, outputs, and components. The PDO of CIUSP is to improve public health in Chimoio, Mozambique.

Transition Support Facility (TSF): A special financial instrument designed by the AfDB specifically for regions struggling with 'resilience and fragility'. The TSF is able to provide concessional loans, offered at better-than-market rates. CIUSP qualifies for pillars I and III of the TSF, and is currently being funded by pillar I: The Supplemental Financing Window.

Unit of Account (UA): Refers to a standard monetary unit of measurement used for accounting and financial reporting purposes by the bank. This unit is derived from a basket of currencies that are chosen to reflect the economic realities of AfDB's member countries; the goal of the UA is to minimize the risk of exchange rate fluctuations.

Context and Project Background

Context

Although Mozambique is not considered water-scarce due to its adequate overall water resources, the nation faces significant water vulnerability. This situation arises from several factors: the inconsistency in water accessibility across regions, especially in rural areas; the impact of climate variability, which brings droughts and floods affecting water availability and quality; infrastructural limitations in water delivery and treatment systems; socio-economic challenges that hinder the development and maintenance of water infrastructure; environmental degradation impacting watersheds and aquifers; and the need for effective water resource management policies. Additionally, Mozambique is prone to dangerous climates such as storms and cyclones in the central and north regions of the country as well as floods and droughts.

With a staggering population of 33,897,354 as of 2023, the municipality of Chimoio depends on a adequate wastewater collection system and treatment plant to properly dispose of sewage and prevent sewage from clogged in channels and storm water drains. In 2020, 37% of residents in Mozambique's Urban areas did not have access to basic sanitation and very limited municipalities contain wastewater treatment facilities. The country is further burdened by “competing needs due to population growth, urbanization, industrialization, and agriculture, coupled with ineffective resource management.” The Government of Mozambique (GOM) created The National Strategy for Water and Urban Sanitation 2011–2510 in aspirations of having “universal access to sanitation by 2025.” However, the ambitious plans were met with severe funding gaps (\$170 million estimated from 2017 expenditures).

The following are key sanitation and health Statistics in Mozambique;

- In 2020, approximately 28.2% of Mozambique's urban population, either relied on substandard sanitation facilities or resorted to open defecation.
- Among the urban population, 72% had access to improved sanitation facilities in 2020. Within this group, only 3% were connected to sewer systems, 25% utilized septic tanks, and 44% used pit latrines or similar options.
- Poor sanitation and unsafe water are responsible for nearly 20% of the country's disease burden, significantly impacting health.
- These sanitation issues contribute to the problem of childhood stunting and are also linked to the under-5 mortality rate, which was 52.8 deaths per 1000 live births in 2020

Municipalities in certain areas are struggling to fulfill their responsibilities effectively, due to limited coverage, challenges in recovering costs for capital and operations, and inadequate integration of services like fecal sludge and solid waste management. To address these issues, our team will adopt and promote City-Wide Inclusive Sanitation (CWIS) methods that encompass the entire sanitation value chain. The Delegated Management Framework will act as a model to provide integrated and sustainable environmental sanitation services.

Context and Project Background

Project Background

As of 2020, Mozambique's population stood at around 30 million people, by 2021, about 38% of the population resided in urban areas, growing at an annual rate of over 4.4%. This significant shift towards urban living has been marked by notable progress in its socio-economic landscape, particularly in infrastructure, health, and environmental sustainability. The Mozambique National Development Strategy (ENDE 2023-2042) has sets forth a strategy to bolster food security and rural development; mining, to harness the country's mineral wealth; industry, for economic diversification and job creation; and tourism, to capitalize on Mozambique's natural and cultural assets. Its implementation will be directed by 5 pillars with specific strategic objectives and intervention areas. These pillars include: I. Economic Structural Transformation; II. Social Transformation; III. Infrastructure Development; IV. Governance; and V. Environment and Circular Economy.

The project is aligned with the following;

- The draft Bank's Ten-Year Strategy 2.0 (2023-32), "through its contribution to sustainable economic infrastructure development"
- Improve the Quality of Life for the People of Africa Strategic Priority (High5-5)
- The Water Strategy (2022 –25), through " Strategic Pillar 2 on Inclusive, Sustainable and Climate Resilient Water Supply, Sanitation and Hygiene."
- The Gender Strategy (2021-2025)
- The Climate Change and Green Growth Policy and Action Plan (2021-2030)
- Jobs for Youth in Africa Strategy (2016-2025)
- Strategy for Addressing Fragility and Building Resilience in Africa (2022-2026)

Context and Project Background

Project Objectives

The ultimate Project Development Objective (PDO) of the CIUSP is to improve the public health within Chimoio. This PDO hopes to be achieved through four key impacts:

- Reduction of the prevalence of waterborne diseases (I)
- Mitigation of river and groundwater pollution (II)
- Facilitation of the reuse of treated wastewater and sludge in agriculture (III)
- Addressing of the poor urban sanitation and regional imbalances in densely populated areas (iv)

Impacts I and II will be supported through the development of sanitation infrastructure. Such measures include: supporting the construction and rehabilitation of 30 public and 2000 household sanitation facilities for vulnerable sectors; implementing sustainable and climate resilient sanitation infrastructure, including a sewerage network servicing 93,693 people within the most urbanized central parts of the city.

Impacts III and iv primarily relate to components that strengthen institutions and enhance project management. These components can be achieved by founding a more informed and health-conscious community, assuring adequate human and financial resources, and enhancing the competencies and abilities of local institutions. Most importantly, the projects hopes to increase the capacity of the Water and Sanitation Infrastructures Administration (AIAS). Each of these components will be funded via Phase I of the TSF, and will be reviewed again in 2026.

Funding Structure

Due to the fragility and risk of conflict present within the Chimoio Inclusive Urban Sanitation Project (CIUSP), the AfDB has committed to funding the project through a Transition Support Facility (TSF) sizing 20 million Units of Account (UA). This instrument grants funds that are sourced from other other member countries of the AfDB; these funds are separate from the Bank's general resources, and are meant to provide rapid, flexible assistance for targeted areas. The TSF is also able to provide concessional loans, offered at better-than-market rates, further equipping Chimoio with the necessary tools to build institutional capacity, promote social and economic development, and improve infrastructure.

IEA Resources & Methodology

Team Overview

Julietta Martinez Fabris



Ms. Martinez Fabris graduated with a degree in Global Resource Systems from the University of British Columbia with a specialization of International Trade and Development. Promptly after her graduation, her passion for policy implementation and M&E inspired her to continue her studies at Harvard Law. Throughout her studies, Ms. Martinez Fabris monitored and evaluated development projects in Africa alongside the World Bank. Her field experience makes Ms. Martinez Fabris an excellent candidate to work with the Chamoy or Chimoio Team.

Isaac Trenton



Mr. Isaac Trenton brings over a decade of experience to this IEA compliant MEL proposal. In 2010, at the age of 6, Mr. Trenton donated \$7 billion US dollars to the \$65 billion Deepwater Horizon Cleanup across the Gulf of Mexico. In 2015, Mr. Trenton oversaw the development of Pakistan's Quaid-e-Azam Solar Park, one of the largest operational solar thermal power stations worldwide. Last year, after getting his Driver's Licence, Mr. Trenton made the executive decision to cancel the ¥12 billion Guangzhou Evergrande Football Stadium.

Thiago Ribeiro



Mr. Thiago Ribeiro graduated with a BA in Human Geography and a minor in Food and Resource Economics from The University of British Columbia. Pairing his two specializations, Thiago moved onto work internationally with multiple NGOs focusing on pairing economic analysis with geographical concepts. In collaboration with Ms. Martinez Fabris and Mr. Trenton, he started 'Chamoy or Chimoio', a worldwide renowned development consultant agency, which has successfully provided M&E support and broad development support across 180 countries.

Summary of IEA Methodology and Principles

Key IEA features

The consultants at Chamoy or Chimoio will be adhering to the following methodology to complete the M&E. This details the steps required for the completion of the report on the date agreed with the AfDB.

Methodology

1. Distribute tasks amongst the consultants, ensuring each skillset is matched to the required task
2. Data Collection: Visit the site of the WWTP to conduct an analysis, connect with a series of stakeholders (Municipality of Chimoio, Government of Mozambique, and the project beneficiaries) by conducting interviews, and meet with the local health and environment ministry to collect existing data on public health and environmental quality
3. Data Analysis: Establish the progress of the project and identify potential areas for acceleration or extra attention. The consultants will ensure project beneficiaries are aware of the project goals and developments, allowing for time-sensitive input from beneficiaries
4. Implementation of Analysis
5. Judgement of Findings
6. Recommendations

Team Involvement

As detailed, Chamoy or Chimoio will be distributing the tasks required by our rigorous methodology to best suit the specialty of each member. By analyzing our previous work with other similar projects, we are able to recognize our individual strengths to maximize the efficiency of the M&E. This distribution will occur before the commencement of the M&E, which will include a detailed individual timeline for each consultant, allowing each other to ensure progress is made on individual fronts, allowing for broader milestones to be achieved.

Summary of Proposed Activities and Timeline

The project outlines a detailed summary of categorized, yearly expenditures, accounting for the total UA 21.22 million in funding provided by the TSF. Table 4 organizes the expenditures as following:

Table 4: Project Expenditure Schedule

Components	Currency (UA million)					
	PY1	PY2	PY3	PY4	PY5	Total
1. Sanitation Infrastructure	1.48	5.16	5.16	2.21	0.74	14.75
2. Design studies for water supply for Cuamba and Lichinga	0.18	1.07	0.53	-	-	1.78
3. Institutional Strengthening and Project Management	0.92	0.73	0.73	0.74	0.55	3.67
Total Base Costs	2.58	6.96	6.42	2.95	1.29	20.2
Physical contingencies (2.5%)	0.07	0.18	0.16	0.07	0.03	0.51
Price contingencies (2.5%)	0.07	0.18	0.16	0.07	0.03	0.51
Total Project Costs	2.72	7.32	6.74	3.09	1.35	21.22

IEA Resources & Methodology

Project Timeline

01-11-2023 to 31-12-2028

Cost Summary

The total estimated cost is UA 21.26 million (USD 28.64 million). The financing will be provided by a TSF Pillar I grant of UA 20 million (USD 26.94 million) the remaining 6% of projects costs (USD 700,000) will be incurred from Climate Investment Funds (CIF) for component 2 - Design Studies for Water Supply for Cuamba and Lichinga cities. The Government will contribute in servicing land for resettlement within Chimoio and offering office space while covering the cost of utilities estimated at UA 0.7 million (or USD1.00 million). Despite the country's debt, The Banks funding will be tax and duties free.

Table 1: Estimated Cost of the Project by Component

Components	Currency (UA million)			% of Total Project Cost
	Foreign Currency	Local Currency	Total	
1. Sanitation Infrastructure	11.87	2.88	14.75	69.3%
2. Design studies for water supply for Cuamba and Lichinga	1.37	0.41	1.78	8.4%
3. Institutional Strengthening and Project Management	2.10	1.57	3.67	17.3%
Total Base Costs	15.34	4.86	20.2	95.0%
Physical contingencies (2.5%)	0.40	0.11	0.51	2.5%
Price contingencies (2.5%)	0.40	0.11	0.51	2.5%
Total Project Costs	16.14	5.08	21.22	100.0%

Table 2: Project sources of financing

Sources of financing	Costs (UA million)	Costs (USD million)	% of Total Project Cost
African Development Fund	20.00	26.94	94.1%
Climate Investment Funds	0.52	0.70	2.4%
Recipient's Counterpart Contribution (in kind)	0.74	1.00	3.5%
Total Project Costs	21.26	28.64	100%

Table 3: Project cost by category of expenditures

Category	(Currency UA million)			% of Base Total Cost	
	F.E.	L.C.	Total		
Goods	0.27	-	0.27	1.6%	1.5%
Works	11.80	2.92	14.72	72.6%	69%
Services	3.21	0.96	4.17	20.6%	19.6%
Operating/Miscellaneous Costs (includes in kind)	-	1.04	1.04	5.2%	4.9%
Total Base Costs	15.28	4.92	20.2	100%	95%
Physical contingencies (2.5%)	0.40	0.11	0.51		2.5%
Price contingencies (2.5%)	0.40	0.11	0.51		2.5%
Total Project Costs	16.08	5.14	21.22		

Application of IEA Parameters

Evaluation of Project Design

Conceptual Integrity of the Project

A. Logical Consistency

With the intention of improving Chimoio's public health, the project proposes three central components: the development of resilient and inclusive sanitation infrastructure (I), design studies for water supply for Cuamba and Lichinga cities (II), and institutional strengthening and project management (III). Components I and III align cohesively with the project's PDO, as well as our analysis of the project's impacts. However, the purpose of component II is not clearly outlined within the CIUSP's Project Appraisal Document (PAD). The decision to conduct these studies outside of the targeted area (Chimoio) is not explicitly stated; given that UA 1.87 million is being dedicated to this component, it's expected that the AfDB will closely monitor the continued importance of these studies during the tenure of the TSF.

B. Theoretical Underpinning

The project's feasibility assessment yields compelling, calculated evidence supporting the project's success. Our analysis gave an Economic Internal Rate of Return (EIRR) of 19.99% and a Net Present Value (NPV) of \$14.96 million US, discounted at 12%; both of these metrics indicate economic viability. The calculated rate of EIRR is considerably higher than the discounted rate, and the NPV is a positive value; the PAD uses both of these facts as proof that the Operation and Maintenance (O&M) costs of the project will be covered by its cashflow.

C. Development Setting

As mentioned, Chimoio's population is urban, diverse, and vulnerable to waterborne diseases, corruption schemes, and environmental degradation. The key interventions posed by the project aim to improve these vulnerabilities by targeting their respective proximate and root causes. Examples of proximate causes include low coverage of sewage systems, non-functional wastewater treatment facilities, and inadequate public sanitation; examples of root causes include funding gaps, limited technical capacity, and poor cost recovery in sanitation services. By designing components that address several layers of causation, the CIUSP lays the foundation for viable, sustainable improvements in sanitation.

Application of IEA Parameters

Evaluation of Project Design

Contributions to Poverty Reduction

A. Opportunities for Income Generation

Given the project's considerable emphasis on infrastructure, employment opportunities will be created along the sanitation value chain. During the initial stage of development, an estimated 150 temporary jobs in construction will be produced, as well as 45 permanent jobs in operations; over a quarter of these jobs would be available to women, who have been traditionally marginalized in Mozambique's workforce. Additionally, the construction of wastewater treatment plants (WWTPs) would not only create more jobs in landscaping and agriculture, but the potential reuse of compost from waste could derive greater revenues from crop yields.

B. Inclusivity and Security

By providing over 2,000 vulnerable households with access to basic sanitation facilities, health and medical costs amongst the poorest communities could be significantly reduced.

Furthermore, the project posits that improving sanitation also improves:

- Education, via time related expenses (especially for girls, who usually care for the sick)
- Property expenses, via protection from flooding
- Overall resilience against fragility in densely populated areas, e.g. the spread of disease

By tackling poverty through the lens of tackling fragility, the project aims to reduce regional imbalances across Chimoio by improving capacities in relation to Water Supply, Sanitation and Hygiene (WASH) services. To further combat gender inequality, 50% of training, hygiene education, and communication will be reserved for female beneficiaries; 'disaggregation by gender' is also specified within all job-related indicators. The project's attitude toward inclusivity is further summarized by Sustainable Development Goal (SDG) 5:

“Achieve gender equality and empower all women and girls - recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.”

Application of IEA Parameters

Evaluation of Project Design

Intentions of Internal M&E

The project is being implemented by the Ministry of Public Works, Housing and Water Resources (MOPHPH); monitoring and regulation is being handled by AIAS and the Municipality in conjunction. Together, these two entities direct the implementation of components I and III, guided by the Monitoring and Evaluation (M&E) Expert at AIAS, Helio Bertachini. However, component II is under the authority of the Water Supply Infrastructure and Asset Investment Agency (FIPAG). Our team will aim to balance the M&E duties between National and Municipal agencies.

The basic structure of the project's internal M&E consists of using baseline and endline surveys to create annual and completion reports for the project. Due to budgetary constraints, the project's M&E officer was not hired full time; these gaps in M&E will be filled by the Bank and the Government of Mozambique (GOM). As of 2023, CIUSP has not yet provided any interim reports. The project addresses potential concerns of corruption with the involvement of the GOM throughout the M&E process; however, recent legislation has been enacted with the intention of improving transparency and accountability regarding the use of public resources. However, there are challenges in coordinating FIPAG's reports with the tariff and billing mechanisms of the region's sewage system.

Broader Strategic Alignment

The project states that it is Mozambique's first investment in water and sanitation since 2010; in effect, there are no comparatives drawn between this project and similar projects. However, CIUSP has committed to the goals set by the following seven movements described in the 'Context' section. Through the TSF, the Bank plans to enable Mozambique's structural transformation through two key mechanisms: improving economic governance and to facilitate private sector investments, and sustainably transforming agricultural value chains by strengthening 'hard' (e.g. the sewerage network, WWTPs, household sanitation facilities) and 'soft' (e.g. training programs, empowerment initiatives, service delivery) infrastructure .

Application of IEA Parameters

Evaluation of Project Design

Logical Framework

Despite the absence of a formal 'Logframe', the PAD contains a comprehensive overview of the project's goal, activities and anticipated results. Our team has identified the missing components of the logframe below.

Ultimate Outcome: Improve public health in Chimoio.

Intermediate Outcomes:

Improved public usage of sanitation facilities,
Greater equality regarding access to sanitation facilities,
Enhanced communal hygiene awareness,
Further adoption of environmentally conscious practices by local institutions

Immediate Outcomes:

Increased Municipal, Provincial, and National capacity for delivering sanitation services,
Improved capacity and quality of sanitation infrastructure

Outputs:

Construction of sewerage system (including 30 public waterborne sanitation facilities and 2,000 onsite household sanitation facilities for vulnerable households),
Temporary and permanent jobs, sanitation service training programs

Inputs:

Various pieces of infrastructure (14 primary collectors, two reinforced concrete interceptor sewers, 44 km of secondary collectors, etc.),
Estimated budget of UA 21.22 million (15.49 million Component I, 1.87 million Component II, 3.86 million Component III)

Objectively Verifiable Indicators (OVIs):

Number of people in Chimoio with access to safely managed sanitation facilities,
Quality of wastewater discharged from the wastewater treatment plant,
Proportion of sanitation operation and maintenance costs covered from services delivery,
Direct permanent jobs created (disaggregated by gender),
Sewers, interceptors, new network connections, and pumping stations constructed,
People sensitized on sanitation and hygiene practices (disaggregated by gender)

Means of Verification (MoV):

Household surveys, management entity reports, municipal surveys, quarterly progress reports, engineer's reports, design reports

Application of IEA Parameters

Evaluation of Project Design

Stakeholder Engagement

The project is dedicated to improving the living conditions of Chimoio's most vulnerable regions. The feasibility assessment was conducted through a participatory process involving national and local government institutions, community leaders and residents, farmers, public service providers, business owners; the project is especially emphatic on the inclusivity and empowerment of local female beneficiaries, considering their traditional role in managing the home, as well as the importance of proper sanitation in relation to menstruation. Additionally, 49 farmer households were surveyed on the potential usage of their land for WWTPs. The Municipality of Chimoio also hosted two public consultations in 2021 regarding the environmental and social implications of their proposed construction initiatives, as well as the importance of including local leaders within their development plans; the Municipality paired with the AIAS to create a multistakeholder task team, led by the project environment and social safeguard expert. It is unclear what specifically this task team hopes to accomplish; it is also unclear whether all or any of these measures apply to the development of Component II in Cuamba and Lichinga.

Mobilization of Relevant Portfolio Assets

Of the UA 21.22 million sourced primarily from the TSF (2% sourced from the CIF), the projected expenditures are expected to be divided as following (all in UA million):

Goods: 0.27 , 1.5% total

Services: 4.17, 19.6% total

Works: 14.72, 69% total

Operating/Misc. Costs: 1.04, 4.9% total

Physical Contingencies: 0.51, 2.5% total

Price Contingencies: 0.51, 2.5% total

Over two thirds of the granted funds will be dedicated toward 'works', ie. the 'hard infrastructure' initiatives; approximately one fifth will be devoted to 'soft infrastructure' developments, such as training programs and communal hygiene sensitization. Also, 5% of the TSF is reserved for various contingencies, including unforeseen technical issues, inflation or other changes in market prices, or additional labor requirements. Whether these contingencies are expected to be distributed equally or proportionately across the project's three components is unclear.

Application of IEA Parameters

Evaluation of Project Design

Potentially Disabling Conditions

Climate disasters are highly prevalent in Mozambique, including storms, cyclones (e.g., Indai and Kenneth in 2019 and Ana 2023), floods, and droughts. All of these hazards exacerbate the current weaknesses in Chimoio's sanitation system, as well as complicate the timing and completion of larger construction projects. At the same time, the constant risk of adverse weather conditions urges prompt action; the studies funded by component II are especially designed to prepare climate resilient infrastructure. Other potentially disabling conditions include the political and institutional challenges associated with establishing effective sanitation service tariffs crucial for the financial health of the service delivery unit. These challenges will be approached through extensive engagement with all relevant parties, including local authorities, AIAS, FIPAG, the Water Regulatory Authority (AURA), cesspit emptier providers, and the community. Foreseen risks such as institutional barriers, stakeholder behavioral dynamics, and technical complexities have been integrated into the project's design, with robust mitigation strategies in place. To address the potential shortfall in co-financing, the project is being strategically re-scoped, with certain activities earmarked for subsequent phases. The challenge of securing compensatory land for those affected by the project is being managed through firm commitments from the government, ensuring alignment with Bank policies. To mitigate implementation delays, including the submission of financial and procurement audit reports, the Bank is providing stringent implementation support and regular oversight, ensuring adherence to agreed financing terms and procedural guidelines.

Application of IEA Parameters

Evaluation of Project Implementation

Responsiveness of Project to Internal M&E

The internal Monitoring and Evaluation (M&E) is managed by the Administrative Infrastructure of Water and Sanitation (AIAS). Our team will provide a comprehensive monitoring plan will provide baseline and endline surveys, for assessing the initial state of the project areas and measuring progress against set targets. The insights derived from these surveys will be implemented in the project's annual and completion reports.

Due to budgetary constraints, there is no established full-time Monitoring and Evaluation (M&E) Officer specifically assigned to the Project Implementation Unit (PIU). Despite this, the project will receive support from the AIAS team, ensuring that the project's implementation is closely monitored and evaluated. The Bank and GOM will closely evaluate the project implementation through regular supervisions. AIAS is responsible for the submission of annual work programs, including procurement and financial plans, as well as quarterly progress reports to the Bank ensuring transparency and accountability within the project. Additionally, the AIAS will complete and submit a Project Completion Report (PCR) to the Bank.

Responsiveness to External Third-Party

Although the project implementation does not include third party participation, the GOM has provided strategies to maintain transparency and accountability. The Regulation on the Award of Public Contracts (RPC), enacted on March 8, 2016, is the primary law governing public contracts for works, goods, and services. This is consistent with the policy of the Government of Mozambique (GOM), which is supported by the Procuradoria-Geral da República and the Tribunal Administrativo de Moçambique which will evaluate and approve contracts, ensuring accountability. Furthermore, the Fórum de Monitoria do Orçamento platform will provide regular monitoring of public resource consumption. Procurement will follow the "Procurement Policy for Bank Group Funded Operations" from 2015, and bidding documents will include severe regulations against fraud and corruption. Additionally, the Project's Manual of Procedures will outline the process for reporting fraud or corruption during the project.

Application of IEA Parameters

Evaluation of Project Implementation

Building Social Capital

Our teams institutional strengthening and capacity building strategies in place are designed to “better deliver and manage services”. The total budget for this component is UA 3.86 million and will encompass the implementation of sanitation services including sanitary sewerage, urban drainage, and solid waste management, including cost recovery for long-term sustainability. The project will emphasize the promotion of improved sanitation and hygiene practices, for women and youth. To achieve this, educational and promotional activities will be developed to help shift social norms and behaviors towards better hygiene and sanitation. Additionally, the project will integrate gender and vulnerability considerations into its strategy, developing guidelines for gender mainstreaming in infrastructure to ensure accessibility and safety for women.

Job opportunities for youth and women in the operation and maintenance of the sanitation infrastructure will also be available. Alongside this, a commissioning plan for the sanitation services delivery unit is set to be implemented in the 12 months leading up to the conclusion of construction works, encompassing critical project management activities including staffing, procurement, and annual audits.

Stakeholder Engagement

The project primarily targets the Municipality of Chimoio, the capital of Manica Province in Mozambique. The population for Phase 1 intervention is 483,025 people, with approximately 50.8% being female and 44% being children aged 0 to 14 years. Improvements in environmental sanitation and hygiene education will directly benefit residents, especially women, who are disproportionately affected by poor sanitation. The development of infrastructure and hygiene education will also contribute to 39 educational institutions and 8 health units. More specifically, the project will provide 30 public sanitation facilities and up to 2000 household sanitation facilities for vulnerable groups, such as women, children, the elderly, and the disabled.

Additional stakeholders include national and local government institutions, community leaders, residents, farmers, public service providers, and business owners. The environmental and social impact assessment included physical and social surveys from 49 farmer households (304 people, 54.9% women) whose land would be used for the wastewater treatment plant (WWTP) and pumping stations.

A stakeholder engagement plan was developed for grievance mechanisms “managed through a multistakeholder task team from AIAS and the Municipality of Chimoio”. Finally, the project is expected to create 150 temporary jobs during construction and 45 permanent jobs during the operation phase.

Application of IEA Parameters

Evaluation of Project Implementation

Project Implementation Efficiency

Community

The emphasis on local stakeholders allowed municipalities to be actively involved in decision-making and operational processes. Furthermore, close proximity of the PIU team allows for efficient communication, collaboration, and responsiveness between the project team and the local authorities. The projects support for local communities will be incorporated by implementing non-sewered sanitation solutions and fecal sludge treatment, for groups that lack sanitary sewer systems.

Financial

An extensive analysis, spanning from 2024 to 2048, forecasts a favorable economic return on both local and national levels. The Economic Internal Rate of Return (EIRR) is projected to exceed the discount rate, providing substantial benefits for communities and the economy. Additionally, the financial framework of the project is designed to self-sustain, covering operational and maintenance costs effectively. It is predicted that the revenues generated by the project will be able to cover all operational and maintenance costs over time without requiring continuous external funding or subsidies. Furthermore, this model allows the project to maintain sustainability by providing long-term viability and a safe financial investment for stakeholders.

Management

The management structure distributes responsibilities between national and municipal levels, among local government entities, municipal administrations and national agencies. These tasks are aligned with the specific capacities and requirements of the municipality. This involves appointing a project manager and technical experts at the municipal level and establishing robust fiduciary support for procurement and financial management. Fiduciary officers from AIAS will operate both centrally and municipally, optimizing the use of existing resources and skills. Additionally, the implementation of early start-up and proactive management and the advance contracting of services and staff, will facilitate progress. Collectively, these elements will ensure efficiency and secure long-term economic and social benefits.

Lessons Learned

A. Lessons to be Learned (Identified from the project's M&E)

We identified three key lessons that should be considered throughout later stages of the project: (i) the need to address service delivery and cost recovery, effectively outlining the connection between implementing sustainable behavior changes and maximizing the impact of new infrastructure; (ii) acknowledging the limitations and setting realistic expectations for the capacities of municipalities to deliver sanitation services; and (iii) understanding that focusing solely on sewerage systems is insufficient, highlighting the importance of recognizing the need for a comprehensive approach that includes the entire sanitation service chain.

B. Institutional 'Remembered' Learning

The AfDB's extensive experience in supporting water and sanitation investments in Africa is being applied to this project. Specific influences on the project's design include the 2020 Water Sector Evaluation, a 2015 AfDB report titled 'Water Supply & Sanitation in Africa: Findings, Lessons and Good Practices to Improve Delivery', sector specific PCRs, and the experience of other development partners, including the World Bank in Mozambique.

C. Lessons Acted Upon from Previous Projects

Drawing from the institutional influences outlined in the previous section, two key lessons have been identified and applied to the project: (iv) the need to implement advance contracting of design review and supervision services, water supply studies, and key Project Implementation Unit (PIU) staff to facilitate timely project start-up and progress, and (v) further involving municipalities in operational aspects to foster ownership and alignment with end-user needs. Establishing the PIU team in Chimoio is a practical step towards this engagement.

Impact Analysis

Methodology

An integral part of M&E is the impact assessment. It allows us to understand the success or failure of a development project beyond the parameters of the IEA sections A and B by framing the project through a series of indicators. As part of this analysis, we will look at the project's broader impacts by addressing the 6 capital assets: Financial, Natural, Physical, Human, Knowledge, and Social. Through these 6 capital assets, we will provide a strong case for the success or failure of the project and provide a clear indicator of the respective welfare change produced by the project. Impact will be assessed from both explicitly mentioned components of the PDOs, as well as important OVIs that may not have been addressed in the PAD but are still important aspects of the 6 capital assets. These impacts will be compared to the baseline of the project, counterfactuals (in this case, similarly sized cities outside the Manica province), and similar projects conducted by the AfDB in Tanzania, Malawi, and Zimbabwe.

Through thorough investigation of collected data, statistical analysis, and interviews with key stakeholders, our expert consultants will produce an in-depth analysis of the project's impact. The 6 capital assets are detailed below, paired with a series of QQT indicators respectively. This will ensure replicability and verifiability for each of the measurements.

Financial Capital

Changes in financial capital concerning this project revolve around reduced costs achieved through the treatment of wastewater effluent and sludge, and compost from solid waste. Per the PAD, this includes providing treated wastewater, sludge, and compost to be used for agricultural purposes, both through water and fertilizer use.

Cubic meters of treated wastewater used in agriculture.

Treated wastewater is known as a cost-saving input in farming (CITE). By measuring the amount of treated wastewater used, we can analyze how it may create a positive impact through reduced costs for farmers in Chimoio.

Tonnes of solid waste compost used in agriculture.

Solid waste compost is a nutrient-rich input that can improve crop yields for farmers. By measuring the amount of solid waste compost used, we can analyze how this may reduce costs for farmers and increase their productivity, allowing them to produce more efficiently and sell a greater quantity of crops at a cheaper price (Alston & Pardey), producing a positive impact for farmers.

From these measurements, we can evaluate the impact by assessing the reduction in costs to farmers of pumping groundwater, as well as the change in agricultural output, which will reflect a change in financial capital for the beneficiaries of the project.

Impact Analysis

Natural Capital

Changes in natural capital concerning this project revolve around changes in soil quality and water quality

Assessment of water pollution

By comparing the water quality to the benchmark set by the AfDB and UN Environment Programme(UNEP)Sanitation and Wastewater Atlas of Africa tool, we can assess the environmental quality and improved quality of life for those living near waterways. (AFDB, 2021)

Assessment of soil contamination

By assessing soil contamination through the AfDB's Environmental and Social Assessment Procedures (ESAP) guidelines, we can evaluate the effectiveness of the project in improving the environmental quality for residents of Chimoio.

Ensuring strong natural capital can ensure success for the project. Fecal sludge volumes within waterways and soil should not exceed 0.25 percent to prevent high contaminant loads that have negative impacts on ecosystems as well as negative human health outcomes, primarily diarrhea (AFDB, 2021).

Physical Capital

Changes in physical capital concerning this project revolve around changes in the number and extent of primary and secondary collectors in Chimoio, the presence of a pumping station, the expansion of the sewerage network, the construction of a WWTP, and the upgrade of existing public and household sanitation facilities in non-sewered areas. These are adapted from the framework set up within the PAD. Assessing the physical capital will investigate whether the primary deliverables for the project have been achieved as they underpin the success of the PDOs and have a broad influence on the project's impact.

Construction of sewers and interceptors

This assessment will evaluate the length, in kilometers, of new sewage pipes and interceptors to evaluate the accessibility of the new sewage network. This should achieve at least 76 kilometers.

Sewage pumping and WWTP built

This assessment will evaluate whether the proposed pumping stations and WWTP are constructed, which underpins the impact of the project within all the other capital assets.

New connections to the sewerage network

This assessment will evaluate the increased accessibility within Chimoio to the new sewerage network, allowing for improved access and quality of life for residents. This should create 2800 new connections within the municipality of Chimoio.

Impact Analysis

Human Capital

Changes in human capital concerning this project can be divided into two main components. Firstly, a focus on human capital that center's on job creation and the potential upward mobility produced during the project in Chimoio. Secondly, a focus on human capital that center's on important health and education factors, such as infant mortality and mean years of schooling.

Job Creation and Training

Assessment of permanent and temporary job creation through WWTP construction

This will be assessed by evaluating the number of new positions created through the construction and operation of the WWTP. According to the PAD, this should be 200 jobs.

Assessment of the number of people trained in sanitation service delivery

This will assess the sustainability of the project as employees are put through the necessary training to operate the WWTP and support the new sewerage network.

Health and Education Factors

Assessment of the Human Development Index (HDI)

By evaluating the change in HDI before and after the project is implemented, we can better evaluate the impact and welfare change of the project.

Prevalence of childhood stunting

We will assess the rate of childhood stunting in Chimoio, which currently sits at around 60% according to the PAD.

Child mortality rate

We will assess the child mortality rate in Chimoio, which currently sits at 52.8 per 1000 births according to the PAD.

Evaluating changes in human capital is a crucial component of evaluating welfare change because of the project and understanding its impact. By dividing the assessment into a job and training-centered assessment, and a wellbeing-centered assessment, we can effectively capture a more diverse set of indicators allowing for a more holistic impact evaluation.

Impact Analysis

Knowledge Capital

Changes in knowledge capital concerning this project revolve around assessing improved information access and improved institutional strength in Chimoio.

Assessing the effectiveness of the municipal sanitation services model

Assess establishing a sanitation services delivery model for the Chimoio municipality, ensuring it addresses the sanitation value chain and green sanitation services outlined within the PAD. This relates to the assessment of human capital but investigates job creation throughout the sanitation chain.

Assess the design of climate-resilient water supply systems for Cuamba and Lichinga

An important aspect of the PDOs is to ensure the replicability of similar systems in other inland municipalities in Mozambique.

Evaluating changes in knowledge capital is intimately tied to changes in human capital, however, changing knowledge capital, through the improvement of the sanitation services model and development of systems for other municipalities, will allow us to investigate the impact of the project beyond Chimoio. This speaks to the effectiveness of the project and also has implications within Chimoio for the efficiency of the institutions participating in the project, such as the Water Supply Infrastructure and Asset Investment Agency (FIPAG) and the Administration of Water and Sanitation Infrastructure Unit (AIAS).

Social Capital

Changes in social capital concerning this project revolve around monitoring collaboration between stakeholders for the PDOs as well as monitoring stakeholder engagement overall.

Collaboration between stakeholders

There are many stakeholders involved in this project, including the Government of Mozambique (GoM) and the Municipality of Chimoio, the many sanitation and infrastructure institutions within Chimoio, the AfDB, and the project beneficiaries, the residents of Chimoio. By assessing the ease of communication and transparency across all these stakeholders, which can be determined through the number of public consultations and meetings held, we can assess the social capital developed through the project.

Social capital is an important player for the longer-term impact of the project as strong social capital ensures issues are addressed promptly, and cements future cooperation to maintain PDOs ex post.

Impact Analysis

Evaluation of Impact

Each component of the respective capital asset impact analyses will be evaluated through the rating below, which will provide a concise response to the welfare change produced by the project within each capital asset. By comparing the results across the six capital assets, we can paint a picture of the impact of the project.

Rating	Comment
Exceptional	The results produced exceeded the expected impacts detailed in the PAD or by 'Chamoy or Chimoio'
Satisfactory	The results produced met the expected impacts detailed in the PAD or 'Chamoy or Chimoio'
Insufficient	The results produced did not meet the expected impacts detailed in the PAD or 'Chamoy or Chimoio'

Sustainability

Beyond producing a rating above, sustainability must be considered to assess the project's impact. Chamoy or Chimoio will be consistently monitoring all the indicators detailed above to accompany the state of the project. This should extend beyond the project's five-year timeline for another five years, monitoring the indicators and thus the capital assets until 2033. Successful sustainability is determined as the maintenance or improvement of the expected impacts detailed above.

Unintended Impacts

As detailed previously, part of the impact assessment is the use of a counterfactual. In this case, it is a similarly sized city outside the Manica province. This also allows us to assess the unintended impacts of the project. The comparison will allow our team to differentiate between what changes in the indicators can be attributed to broader changes within Mozambique and ones that result directly from the implementation of the project in Chimoio. This will allow us to cancel out impacts from outcomes that would have been achieved regardless. Approaching this assessment through the lens of changing outcomes relative to a counterfactual, our team will provide a clearer measure of the impact of the project.

Concluding Remarks

We have assessed that the CIUSP marks a significant milestone in Chimoio's journey towards improved public health and urban resilience. 'Chamoy or Chimoio' acknowledges the following achievements fulfilled within the project's design and early implementation:

- The creation of a multidimensional Result framework, properly outlining the project's intended outcomes and outputs, a comprehensive set of OVIs and MoVs, and logical baseline values for 2023 and targeted values at the project's 2028 completion.
- The preparation of a multistakeholder feasibility assessment, including the survey participation of 49 farmer households, and the formation of a task team supported by AIAS and the Municipality of Chimoio.
- Further stakeholder engagement was facilitated through two Public Consultations held in 2021 and 2022, disseminating both the scoping phase and the Environmental and Social Impact Assessment (ESIA) of the project.
- The preparation of an internal M&E plan, purposed with evaluating the quality of baseline values and monitoring the achievement of targets. The plan involves creating annual and completion reports, facilitated by baseline and endline surveys.

We laud the work contributions of all involved stakeholders thus far. However, our analysis questions the practicality and relevance of Component II (design studies for water supply for Cuamba and Lichinga cities); we recommend that the efficacy and efficiency of this component be closely monitored and consistently reevaluated, especially considering the fact that this component incorporates two additional target areas to the project's scope, as well as the involvement of additional agencies (e.g. FIPAG). We also suggest implementing an organized Logical Framework, to compliment the provided Theory of Change.

All factors considered, the Chimoio Inclusivity Urban Sanitation Project is primed to mobilize its assets and resources intelligently, and achieve its interim goals by the midterm report in 2026. Tables 1-4 yield compelling evidence that the project's expenditures will be logically distributed in a timely manner, and the collective engagement between local stakeholders and AIAS, the GoM, CIF, MOPHPH, and other institutional entities inspires confidence that the project's SDG's concerning inclusivity, empowerment, accessibility, and equality will be met without compromise.

Thank you for your time and consideration,

The Chamoy or Chimoio Consulting Team

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