

**Client – World Bank, PPP Center and PPP Node**

**Project – Pre-feasibility studies for SWM and student hostel PPPs**

Deliverable – Final pre-feasibility report for Arusha SWM Project

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Lead Partner



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**CLYDE&CO**

# Abbreviations



Abbreviation	Full-form
ACC	Arusha City Council
BOQ	Bill of quantities
BRELA	Business Registration and Licensing Agency
CAPEX	Capital expenditure
CBD	Central business district
CCD	City Council of Dodoma
DBMO	Design, build, maintain, and operate
DBFOMT	Design, build, finance, operate, maintain and transfer
DSCR	Debt-service coverage ratio
EOI	Expression of interest
E&S	Environmental and social
EA	Environmental assessment
EIA	Environmental impact assessment
ERR	Economic rate of return
EPC	Engineering, procurement and construction
EMA	Environmental Management Act
ENPV	Economic net present value
ESIA	Environmental and social impact assessment
ESMF	Environment and social management framework
ESMP	Environmental and social management plan
ESMS	Environmental and social management system
FY	Fiscal year
FYDP II	Tanzania's second five year development plan
GDP	Gross domestic product
GoT	Government of Tanzania
GRM	Grievance redressal mechanism
GRO	Granted right of occupancy
IAS	International Accounting Standards
IASB	International Accounting Standard Board
IRR	Internal rate of return



Abbreviation	Full-form
KPI	Key performance indicators
LGA	Local government authorities
MCC	Mbeya City Council
MMMC	Mtwara-Mikindani Municipal Council
MSW	Municipal Solid Waste
NEAP	National Environment Action Plan
NEMC	National Environmental Management Council
NPV	Net present value
NSSF	National Social Security Fund
O&M	Operation and maintenance
OPEX	Operation and maintenance expense
OSHA	Occupational safety and health authority
POP	Persistent organic pollutants
PMO	Project Management Office
PMS	Project Management Support
PO-RALG	President's office-regional administration and local government
PPE	Personal protective equipment
PPP	Public-private partnership
ProjectCo	Project company
PS	Performance standards
PV	Present value
RFQ	Request for qualification
RFP	Request for proposal
SCF	Standard conversion factor
SLM	Straight line method
SPV	Special purpose vehicle
SWM	Solid waste management
TANESCO	Tanzania Electricity Supply Company Limited
TDV	Tanzania Development Vision
TIN	Tax identification number
TPPP	Tanzania Public Private Partnership Program
TPSP	Tanzania PPP support program
TRA	Tanzania Revenue Authority





**Tanzania PPP**  
Support Program

Abbreviation	Full-form
TZS	Tanzanian shillings
USD	United States dollar
VAT	Value-added tax
WACC	Weighted average cost of capital
WB	World Bank



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# Contents

<b>1</b>	<b>Executive summary</b> .....	<b>8</b>
<b>2</b>	<b>Background and objectives</b> .....	<b>18</b>
2.1	Introduction .....	18
2.2	Consortium Partners .....	19
2.3	Objectives .....	19
2.4	Study execution .....	21
2.5	Report layout.....	22
<b>3</b>	<b>Strategic case</b> .....	<b>23</b>
3.1	Business need .....	23
3.2	Project objectives .....	25
3.3	Stakeholders .....	27
3.4	Strategy and sector review .....	30
3.5	Existing arrangement .....	31
3.6	Project overview.....	37
3.7	Main benefits of proposed PPP .....	39
3.8	Main risks.....	41
<b>4</b>	<b>Economic case</b> .....	<b>44</b>
4.1	Critical success factors .....	44
4.2	Technical options .....	45
4.3	Exclusions from proposed PPP Project .....	48
4.4	Economic appraisal.....	50
4.5	Distributional impact.....	54
<b>5</b>	<b>Commercial case</b> .....	<b>56</b>
5.1	Project structure .....	56
5.2	Proposed PPP model.....	57
5.3	Roles and responsibilities as per the proposed PPP model.....	59
5.4	Risk allocation .....	63



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5.5	Risk mitigation.....	64
5.6	Output specifications and performance standards .....	65
5.7	Recommended payment mechanism .....	72
5.8	Accountancy treatment .....	74
<b>6</b>	<b>Financial case .....</b>	<b>75</b>
6.1	Benchmarking study .....	75
6.2	Willingness to pay .....	78
6.3	Assumptions and methodology of financial analysis .....	80
6.4	Capital expenditure under TSCP .....	82
6.5	Methodology of capex calculation for PPP Project.....	83
6.6	Capital expenditure- Year 1 of PPP.....	83
6.7	Capital expenditure over contract duration of PPP.....	84
6.8	Operation and maintenance expenditure.....	85
6.9	Revenue sources .....	87
6.10	Financial metrics .....	91
6.11	Sensitivity analysis.....	93
6.12	Scenario analysis.....	94
6.13	Value for money.....	96
<b>7</b>	<b>Management case.....</b>	<b>100</b>
7.1	Institutional review .....	100
7.2	Regulatory and legal due diligence.....	100
7.3	Social and environment aspects.....	105
<b>8</b>	<b>Next steps.....</b>	<b>109</b>
8.1	Conclusions.....	109
8.2	Procurement strategy and plan.....	110
8.3	Feasibility study .....	113
8.4	Project implementation plan.....	114
<b>9</b>	<b>Annexure A: Cost estimates.....</b>	<b>116</b>
<b>10</b>	<b>Annexure B: Willingness to Pay .....</b>	<b>122</b>



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<b>11</b>	<b>Annexure C: Demand Study</b> .....	<b>128</b>
<b>12</b>	<b>Annexure D: Legal due diligence</b> .....	<b>132</b>
<b>13</b>	<b>Annexure E: Social and environmental aspects</b> .....	<b>141</b>
	13.1 Environmental and social challenges .....	141
	13.2 World Bank safeguard policies and guidelines .....	144
	13.3 Relevant national environmental and social management requirements.....	145
	13.4 Applicable ESMF and RPF .....	147
	13.5 Annex D: Environmental and social screening form .....	148
<b>14</b>	<b>Annexure F: Municipal Finance Assessment</b> .....	<b>153</b>
<b>15</b>	<b>Annexure G: Institutional review</b> .....	<b>156</b>
<b>16</b>	<b>Annexure H: Project Screening Tool</b> .....	<b>157</b>



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# 1 Executive summary



## Introduction and objectives

The World Bank Tanzania has contracted our consortium to prepare PPP pre-feasibility studies for four solid waste management (SWM) projects in the cities of Dodoma, Mbeya, Arusha and Mtwara and four student hostel projects in the cities of Dodoma and Dar es Salaam. The consortium comprises the following international and national companies: (1) CRISIL (India) as leading partner; (2) Clyde and Co (Tanzania) which provides legal support; (3) Knight and Frank (Tanzania) which provides demand and market input. The study commenced in March 2019 and will be completed by December 2019.

The Project appraised in this report, is one of the four solid waste projects mentioned above and targets an organized and improved solid waste management system in the city of Arusha. The Project aims at upgrading the solid waste management lifecycle in the city of Arusha including the existing processes for collection, transportation, processing as well as disposal at the sanitary landfill site previously constructed under the Tanzania Strategic Cities Program (TSCP).

Rapid urbanization in Tanzania results in an array of solid waste related challenges such as improper handling of solid waste degrading the environment and causing health hazards. In this pre-feasibility study (PFS), we evaluate the major parameters of solid waste management (SWM) assessing the Project's strategic, technical, economic, financial, commercial, legal, social, environmental, regulatory and institutional pre-feasibility under the PPP model. A comprehensive review of solid waste generation, collection, transportation and disposal under the proposed PPP Project is presented and followed by assessing the main benefits and risks of the Project.

## Infrastructure created under Tanzania Strategic Cities Program (TSCP)



The Government of Tanzania (GoT) through the President's Office, Regional Administration and Local Government (PO-RALG) implemented the Tanzania Strategic Cities Project (TSCP) in selected Urban Local Government Authorities for five years and this was financed by a World Bank (IDA) credit and a grant from the Government of the Kingdom of Denmark. The TSCP financed solid waste infrastructure in towns of Mwanza, Tanga, Mbeya, Dodoma, Arusha, Kigoma-Ujiji and Mtwara-Mikindani.

The works supported under the TSCP project in these cities involved- a) construction of sanitary landfill and solid waste collection centers; and b) purchase of equipment and vehicles for waste collection, transportation and waste disposal. The implementation was successfully completed and the facility including the equipment and vehicles was handed over to the LGAs for its operation. The sanitary landfills in various cities were officially opened in the years 2016 and 2017. The investments already made under TSCP in this solid waste infrastructure now has the advantage that only limited additional investments are required for our Project on hand (capex during the first year of PPP is ~34% of capex incurred under TSCP) as we have a strong foundation of the existing solid waste infrastructure. Its operation and management is the main challenge though and this is the primary target of our Project on hand.



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## Strategic case



The estimated population of Arusha in 2019 is 416,446 as per data provided by Arusha City Council (ACC). ACC provides SWM services in all the 25 administrative wards in Arusha covering 24 urban and one rural ward. Arusha generates ~271 tons of solid waste daily from 25 wards. Out of this, 220 tons is collected for disposal at the landfill site. Hence, the current waste collection rate stands at ~81%. Currently, there are several infrastructure and service level deficiencies underpinning the Project's business need such as deficient SWM coverage, low handling capacity (equipment, vehicles and staff), absence of waste segregation at source and public health hazards.

The main stakeholders of the PPP Project are ACC (as the envisaged implementing agency), PPP Node (quality assurance of the process and content), the World Bank (providing funding and technical assistance for the preparation of the detailed pre-feasibility studies), waste generators (as the users of the SWM service), ProjectCo (or the special purpose vehicle, i.e. a private party/ developer/ concessionaire) and staff/casual labor/waste pickers and CBOs (providers of the service).

The Project is both strategically important and embedded in national and sectorial development plans. It will be beneficial both to waste generators as well as casual labor and staff. The upgraded SWM value chain would provide improved quality and coverage of SWM services, safe and hygienic services, local employment opportunities, among other benefits. Implementing the PPP Project would help provide better infrastructure, facilities and service levels and upgrade the SWM value chain in Arusha. The Project would result in higher SWM coverage (in terms of coverage of number of households and other waste generators), increase in waste and bill collection rates, segregation of waste, improved hygiene conditions at the landfill site and sustainable landfill management, increase in employment opportunities and increase in revenue from SWM services.

The PPP Project's main risks are: (1) potential opposition from local CBOs, casual labor and waste pickers due to expected changes in working environments; (2) unwillingness of waste generators to pay higher user charges; and (3) insufficient expertise of ProjectCo to deliver the Project on time and in accordance with an agreed set of specifications. We have formulated a comprehensive set of mitigation measures enabling the local government authority (LGA) effectively managing these risks.

## Economic case



We have analyzed the Project's main cost and value drivers and identified a comprehensive set of critical success factors. Moreover, we have elaborated various technical options.

- a) Only collection and transportation,
- b) Only landfill management; and
- c) An integrated project.

Resulting from an iterative financial appraisal, we recommend integrated SWM operations by the ProjectCo in which the activities of collection & transportation as well as disposal at the landfill site are managed by the ProjectCo. This will lead to better economies of scale and marked improvement in quality of service delivery



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across the SWM value-chain. Amongst the technical options, the integrated Project is recommended, both from an efficiency and effectiveness stand-point. In terms of efficiency, the integrated option ensures that not only waste collection but also bill collection rates are maximized. In relation to effectiveness, it avoids the fault-line between the collection & transportation (C&T) and landfill value chain components. In addition, there is a clear need to avoid contractual and physical interfaces between the C&T component and the landfill component as the two components cannot work in isolation. This would sever the physical and contractual interdependency between the two value chain components. Having in place two separate PPP contracts, or one component as a PPP and the other component managed by the council, has profound implications to the entire system's feasibility, both financially and technically. Hence, the integrated option is more sustainable and the recommended one.

Under the only C&T scenario, the objective to sustain and continue a proper landfill management is not met. Also, the waste quantity to be landfilled in Arusha is small and would therefore require a higher tipping fee per ton to be paid by the C&T operator thus rendering the landfill financially viable, which will negatively impact the financial viability of the C&T operations. Thus, the C&T operator could resort to illegal dumping or burning of waste to avoid paying the high tipping fee. We, therefore, do not recommend this option.

Under the only landfill scenario, the landfill operator has no control on the quantity of waste disposed and will probably insist on a minimum revenue guarantee to be provided by the municipality, labelled as "Put-or-Pay" which is effectively akin to an availability payment. Since, the ACC's budgets are already constrained such revenue guarantees have been discarded. Therefore, this option is not recommended. Carving out landfill or C&T as separate PPPs faces numerous constraints emanating from the current situation in Arusha, with low waste quantities, absence of economies of scale, patchy legal compliance and a high level of illegal dumping. Hence, the two components would not be effective to work in silos.

Currently, the ACC is incurring an annual expenditure of TZS 492 million on SWM services, while the total revenue of council is TZS 133 million. Thus, once the Project is implemented, the ACC will save on its net expenditure (TZS 359 million), and the savings can then be utilized for supervision and contract management.

The economic appraisal takes into account both quantitative and qualitative indicators and assesses various economic benefits under three broad categories i.e., producers' surplus, consumers' surplus and developer's surplus. The economic benefits accruing to producers such as incremental income for casual labor/staff, savings for the council, savings in healthcare expenses and increase in employment opportunities for the casual labor/staff, reduced air, water, soil pollution and stench, etc. Similarly, the economic benefits for consumers (waste generators) would be savings in healthcare expenses of households, reduction in soil, water, air pollution and stench, improved hygiene, cleanliness and aesthetics in the city etc. and economic benefits for developer (ProjectCo) would be profit after tax (PAT). With an economic internal rate of return (ERR) of 42.1% we can unequivocally conclude that the Project is economically justified.

### Commercial case



Given the need to combine in one contract both the investments and operation, as well as the LGA's limited financing ability, we recommend a combination of operate, maintain and transfer (OMT) of the existing SWM assets of the council and design, build, finance, operate, maintain, and transfer (DBFOMT) of the new assets



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to be added by the private operator. It optimizes the ProjectCo's incentives structure and minimizes the life-cycle costs of upgrading the existing infrastructure and its operation.

Under the commercial case, we have analyzed the roles and responsibilities of both ACC and the ProjectCo under the proposed PPP Project. The ACC will assist the ProjectCo in obtaining approvals, it will lease out the collection centers and landfill site to the ProjectCo, it will operate the facilities after completion of the agreement period amongst other responsibilities as mentioned in Section 5.3. The ProjectCo would be responsible for designing, constructing (upgrading), procuring, financing, operating and managing the Project, amongst other obligations and responsibilities as mentioned in Section 5.3.

Under the proposed PPP Project, the ProjectCo would improve the SWM operations in Arusha, by upgrading the SWM value chain. The ProjectCo would be involved in one-time upgrading, operating and maintaining, the collection, transportation, processing and disposal components of the SWM value chain. Under the collection and transportation component, the ProjectCo would incur a one-time capital expenditure for the first year, for upgrading and adding infrastructure such as skip buckets, pushcarts, tricycles, etc. to meet the current shortfall.

Similarly for the landfill component, the ProjectCo would incur capital expenditure for one-time upgradation of the landfill site, and for the purchase of additional equipment. As the population and waste generated increases over the years, additional equipment and vehicles will need to be added. Also, each equipment and vehicle will need to be replaced after a certain replacement period. Thus, taking into account these two factors, capital expenditure has been considered for additional infrastructure over the years. Additionally, the ProjectCo would incur operations and maintenance cost over the years, which would again depend upon the number of equipment, vehicles and staff (which will increase with the quantum of waste generated) over the years and the inflation rate in Tanzania.

Project risks have been analyzed and assigned to either the LGA or ProjectCo or shared between these parties. In addition, we set out a set of comprehensive mitigation measures prior to and during commercial operations. The output specifications, design and performance standards have been detailed out for each of the SWM phases i.e. collection, transportation, processing and disposal. As payment mechanism, we recommend that the ProjectCo collects the fees from the end-users as it is incentivized to maximize revenue collection. In this way it will be a user-pays PPP model.

The ACC operates under the PO-RALG, hence, the approving authority for the Project is the PPP Node. As per the current PPP regulations of Tanzania, since the estimated capex of the Project in the first year is TZS 5,446 million (USD 2.37 million) which is within the limit of USD 20 million, the Project is categorized as a small scale PPP Project. Further, the maximum duration of the PPP agreement allowed under the current PPP regulation is capped at 15 years. However, in the proposed amendments to the PPP Regulations, there will be no cap on the duration of the PPP agreement. Since, the useful life of the landfill site will not exceed 15 years, we have assumed an agreement period of 15 years. Also under the PPP Project, the ProjectCo will be required to make investments. To recover the cost incurred and generate optimal returns, the ProjectCo will be required to operate for a long duration (assumed 15 years as discussed above).



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## Financial case



Feeding into our financial analysis, we present three options in the financial model, wherein the Council can select either one of the three options to be undertaken by the ProjectCo, i.e.

- a) Only collection and transportation,
- b) Only landfill management, and
- c) An integrated project.

The Consultant has proposed an integrated SWM operation in which collection, transportation, as well as landfill components of the SWM value chain will be upgraded and operated by the ProjectCo as a PPP Project. In the case of selecting either C&T or landfill, only the respective components would have to be upgraded and operated by the ProjectCo whereas the other component will need to be upgraded and operated either by ACC or by another ProjectCo under a separate PPP contract. The latter options are less favorable in comparison to the integrated option, as discussed in the economic case above.

The user charges and tipping fee are set at cost recovery level to make the integrated option viable along with a 15% revenue share to ACC. We have calculated capex for year 1 as well as for the remaining years. For integrated operations, the total capex incurred in year 1 is TZS 5,446 million and over a 15 years period equals TZS 26,086 million. With a project IRR of 22.8% and equity IRR of 24.2% for integrated operations, the Project is financially viable with a high probability of attracting market interest.

As stand-alone, only C&T is financially viable (both with and without a 15% revenue share to the ACC) as we assume that the user charges and tipping fees are set at cost recovery level. However only landfill option is financially viable without a 15% revenue share to the ACC. The Consultant has not considered 15% revenue share to ACC for the only landfill option. Therefore, we recommend the integrated operations from a viability, effectiveness and efficiency point of view as explained in the economic case above. The capex incurred for the first year, capex incurred over 15 years and equity IRR for the three options (with a 15% revenue share to the ACC for integrated and only C&T options) have been provided in the table below.

*Table 1-1: Capex and equity IRR (TZS million and %)*

Scenario	Capex (first year) TZS million	Capex over 15 years TZS million	Equity IRR - %
Base case- Integrated	5,446	26,086	24.2
Option 1- Only C&T	2,534	18,234	28.7
Option 2- Only landfill	2,912	7,851	20.6

Source: Consultant

Our financial analysis builds on a rigorous market demand study and a willingness-to-pay survey. These exercises provide a high level of certainty of the Project's future demand and the proposed user charges to be charged from the waste generators. Both variables are key drivers in the Project's financial analysis. The willingness to pay survey and stakeholder consultations highlighted that a majority of waste generators in



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Arusha are not willing to pay for any further increase in user charges for waste collection services as they feel that current user charges are reasonable.

Considering cost recovery for the ProjectCo and 15% revenue to be shared with the ACC (for integrated operations and only C&T case), the user charges for urban households in both CBD and non-CBD areas have been set at TZS 5,000 per month. The user charges for all other waste generators such as industries, institutions, etc. would need to be increased by 30-60%. In addition, all user charges would be revised by 25% every three years. The current and proposed user charges and tipping fee are summarised in the table below.

Table 1-2: Revenue sources analysis (in TZS)

User charges/ Tipping fee	Current (As per ACC)	Proposed user charges and tipping fees		
		Integrated	Only (C&T)	Only landfill
Urban households – CBD area (per month)	3,000 <sup>1</sup>	5,000	5,000	-
Urban households – Non CBD area (per month)	3,000	5,000	5,000	-
Rural households (per month)	-	2,000	2,000	-
Commercial units (per month)	12,500	20,000	20,000	-
Industrial units (per month)	125,000	165,000	165,000	-
Institutional units (per month)	75,000	100,000	100,000	-
Hospitals (per month)	38,750	50,000	50,000	-
Tipping fee per ton - private transfer trucks	50,000	50,000	-	50,000
Tipping fee per ton - ACC's transfer trucks <sup>2</sup>	-	-	-	18,000
Tipping fee per ton - ProjectCo's transfer trucks <sup>3</sup>	-	-	-18,000	-

Source: Consultant

As explained above, the Project is viable in the base case (integrated operations comprising of collection, transportation and landfill components of the SWM value chain) with an equity internal rate of return (IRR) of 24.2%, user charges set at cost recovery level, indexation of 25% for user charges and escalation period of three years for revising user charges. Additionally under the base case, the ProjectCo would be required to share 15% of the revenue earned with the ACC. In addition to the base case, the Consultant has evaluated two additional scenarios testing the impact of change in (a) user charges, (b) user charges escalation period and (c) percentage of revenue to be shared with the ACC. The base case and additional scenarios have been presented in the table below.

<sup>1</sup> As per the data provided by ACC, the monthly user charges for urban households is TZS 2,000. While as per current municipal byelaws and willingness to pay survey, the user charges for urban households vary from TZS 2,000-10,000 and TZS 2,000-5,000, respectively. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered an average value of TZS 3,000 as current user charge for urban households.

<sup>2</sup> This tipping fee is applicable in the case of only landfill, payable either by ACC or a C&T operator (private player) to the ProjectCo.

<sup>3</sup> In case of only C&T, tipping fee of TZS 18,000 per ton of waste has to be paid by the ProjectCo to ACC or to the landfill operator for disposing waste at the landfill site. Since it's an operational expenditure it is depicted by a negative sign.



Table 1-3: Additional scenarios for the integrated option

Particulars	Base case	Scenario-I	Scenario-II
User charges from waste generators	Cost recovery	No increment	Limited increment
Escalation period and % indexation in user charges	3 years, 25%	3 years, 25%	5 years, 25%
Revenue sharing by ProjectCo with LGA	Yes	No	No
Number of urban wards covered for waste collection	24	24	24
Number of rural wards covered for waste collection	1	1	1
Role of ProjectCo	Integrated	Integrated	Integrated
Monthly user charges - urban households CBD (TZS)	5,000	3,000	5,000
Monthly user charges - urban households- Non CBD (TZS)	5,000	3,000	5,000
Monthly user charges from rural households (TZS)	2,000	Not levied	2,000
Average increase in user charges for other waste generators	30%-60%	0%	30%-60%
User charges escalation period (in years)	3	3	5
User charges escalation rate (in %)	25%	25%	25%
% revenue share by ProjectCo with LGA (in %)	15%	0%	0%
Total Project capex over 15 years (in TZS mn)	26,086	26,086	26,086
Equity IRR (in %)	24.20%	19.80%	23.90%
Agreement period (in years)	15	15	15
TZS subsidy per ton per day to be provided by LGA	Not required	13,000	Not required
Annual increment in subsidy (in %)	Not required	5%	Not required
Subsidy in Year 1 (in TZS mn)	Not required	999	Not required
Subsidy in Year 5 (in TZS mn)	Not required	1,748	Not required
Subsidy in Year 10 (in TZS mn)	Not required	2,754	Not required

Source: Consultant

### Legend

	Scenarios		Tariff escalation & revenue share
	Ward coverage & role of ProjectCo		Project cost, duration and returns
	User charges per month		Subsidy from LGA to ProjectCo

In the **base case**, as described above, 15% of revenue earned by ProjectCo will be shared with the ACC and no subsidy is required to be paid by the ACC to the ProjectCo. However, for it to be implemented, awareness will need to be created among waste generators, officials and political representatives through information, education and communication (IEC) to justify the increase in user charges at cost recovery level. They need to be made aware of the benefits of the proposed Project such as higher SWM coverage (in terms of coverage



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of households and other waste generators), increase in waste and bill collection rates, segregation of waste, improved hygiene conditions at landfill site and sustainable landfill management, increase in employment opportunities etc. In addition, it is to be noted that under this case the level of user charges for waste collection is ~1% of household's income which seems reasonable.

Under **scenario-I**, the user charges for all the waste generators have been set at the current level and there will be no revenue sharing by ProjectCo with LGA. The current user charges for urban households vary from TZS 2,000-10,000. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered a value of TZS 3,000 for urban households taking a conservative approach. However, it is noted that the ACC would be required to pay a subsidy of TZS 13,000 per ton per day to the ProjectCo, which would increase by 5% per annum, to factor in the inflation in cost of service delivery. The subsidy would also increase per year with the increase in the quantum of waste generated. The total subsidy to be paid by ACC to the ProjectCo in year 1 is TZS 999 million, in year 5 is TZS 1,748 million and in year 10 in TZS 2,754 million. This scenario would require significant expenditure by the LGA but the LGA's budgets are already stretched.

Under **scenario-II**, the user charges will be increased to levels as set under the base case for all waste generators. However, user charges will be revised by 25% every five years (as compared to three years in base case) and revenue earned by the ProjectCo will not be shared with the ACC in comparison to the base case. Under this scenario, ACC would not be required to pay any subsidy to the ProjectCo as compared to scenario-I.

The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of ACC with their management and councilors. Further, the Project has been assessed on its value for money, both on qualitative and quantitative perspectives. The quantitative analysis evaluates the net difference in cost for the government in implementing the Project using public procurement versus PPP procurement. The qualitative aspects deals with public sector capability, and time and cost required for Project implementation

### Management case



The LGA has limited institutional capacity and understanding of the intricacies of a PPP model, not only in the bidding phase but also in the operational phase. In order to address these deficiencies we have presented various recommendations in Section 7.1. We have carried out a comprehensive legal due diligence and have reviewed pertinent laws and regulations. We do not discern any legal impediment for carrying the Project as a PPP. We also recommend solutions to work around various legal non-material issues. The details related to legal due diligence have been provided in Section 7.2 of this report.

From a social and environmental perspective, we do not expect any material obstacles, and we propose a comprehensive set of mitigation measures for both environmental and social challenges. The Tanzania Public-Private Partnership Project (TPPP) program has been assigned Environmental Assessment Risk Category–B and triggers the following World Bank safeguard policies: (a) Environmental Assessment Policy (OP/BP 4.01), which requires screening and undertaking environmental and social impact assessment (ESIA) for each Project under the program; and (b) Involuntary Resettlement Policy (OP/BP 4.12), which would be triggered in



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situations involving involuntary taking of land, impacts on or loss of assets, loss of income, sources or means of livelihood etc. As per the World Bank Environmental Assessment Policy (OP/BP 4.01) and the Involuntary Resettlement Policy the proposed SWM Project falls under category-B; and thus, it requires a comprehensive ESIA as well as a resettlement action plan (RAP)/ abbreviated resettlement action plan (ARAP).

Under TSCP an ESIA was undertaken for the solid waste management in Arusha. The existing ESIA covers environmental and social aspects of road improvements, drainage channels, street lights and construction of landfill infrastructure. Under the proposed PPP Project, an additional ESIA would be required to be conducted including collection and transportation components of the SWM value chain and a review of the existing environmental and social baseline study, and ESMP must be undertaken

### Project screening tool



Arusha SWM PPP scores 3.38 out of maximum possible score of 5.00 on the six parameters presented in the Project Screening Tool and driven by the following factors. The SWM PPP has a strong case for its strategic suitability and preliminary feasibility, as there is a high demand for the Project from a social and environmental perspective. The SWM PPP Project will have multiple revenue sources such as user charges from various waste generators (households, commercial units, industrial units, institutional units and hospitals) and tipping fees, from private trucks. As per stakeholder consultations and willingness to pay survey conducted with waste generators in Arusha, majority of waste generators are not willing to pay higher user charges.

Being the first of its kind PPP project in Tanzania, it might be challenging to achieve financial closure. Also, the Project is expected to encounter environmental and social safeguard challenges. The institutional capability is also limited as ACC is yet to execute any PPP project and has lack of staff with adequate experience in SWM PPPs. For further details please refer to Section 16.

### Conclusions and next steps



Our rigorous, comprehensive and multi-disciplinary analysis confirms the proposed PPP is strategically, economically, commercially, financially and managerially viable wherein the user charges are set at cost recovery level along with a 15% revenue share to the ACC.

In addition to the base case, the Consultant has evaluated two additional scenarios testing the impact of change in- a) user charges, b) user charge escalation period, and c) percentage of revenue to be shared with the ACC. The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of the ACC with their management and councilors. All the waste generators including households, commercial establishments, industrial units, institutional units, waste collection staff/casual labor/workers and CBOs will benefit from the Project. The Project conforms to all local rules and regulations and is aligned with the PPP law.

A project implementation plan has been prepared identifying the next steps i.e. conducting feasibility study, proof of land ownership of landfill site, firming up user charges, future user charges indexation, stakeholder consultations, penalties, enforcement and controls on illegal dumping of solid waste, support to ProjectCo in integration of casual labor, support to ProjectCo to work/partner with the CBOs etc. The feasibility study would



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need to include: a) an update of the 2012 baseline study, b) detailed design of the SWM system, and c) detailed information on costs and application process of waste operator permits issued by National Environmental Management Council. We present a procurement plan in which we propose a two-phase procurement strategy with a prequalification and bidding phase. We also propose various options for the financial bidding variables. We estimate that a period of 15 months is required for the procurement process commencing with the contracting of a transaction advisor till the moment of executing the PPP agreement.



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## 2 Background and objectives



*This chapter contains the background of the assignment and the objective of the Project and this study. It also briefly explains the Project timelines and provides the details of the consortium.*

### 2.1 Introduction

#### Leveraging the PPP platform in the country

As per the report released by the Tanzania National Bureau of Statistics (NBS) in March 2018, the GDP rose +7.1% in 2017 as compared with 7% in 2016. The value of the annual GDP at 2007 constant prices in absolute terms increased to TZS 50.5 trillion in 2017 from TZS 47.1 trillion in 2016, while the annual GDP at current prices in absolute terms for 2017 increased to TZS 116.1 trillion from TZS 103.1 trillion in 2016. Growth in 2017 was supported by expansion in both the industrial and agriculture sectors. An important component driving growth will be leveraging the PPP platform that the country has been assiduously creating over the past two decades.

Vision 2025, the 15-year Perspective Plan (2010-25), and the Second Five-Year Development Plan (2017-22) have also identified PPP as a means to attract new investment. Today, PPPs in Tanzania are governed by PPP Act No 18 of 2010 as amended by the PPP Amendment Act No 3 of 2014 and the PPP Act, No 18 of 2010– Regulations of 2011. The Public Procurement Act, No 7 of 2011, and the Public Procurement Act - Regulations of 2013 regulate PPP procurement. The country will now need to explore effective PPP initiatives leveraging the PPP platform effectively.

#### Assignment description

The PPP Center and PPP Node in Tanzania plan to implement a number of investments through low-risk user pay PPPs in projects that may not require any public funding (apart from land contributions) and may generate new sources of revenue for the ministries, departments and agencies (MDAs) in sectors such as municipal markets, student hostel, SWM, bus/ daladala terminals and abattoir. In an era where the central government funding for MDAs is decreasing and giving rise to challenges, they are seeking new mechanisms to meet public service expectations. The limited size of MDA projects often creates a challenge when considering a PPP owing to the associated transaction costs of project preparation.




With a view to advise the PPP Center and PPP Node in Tanzania to further reduce the cost of these projects, and achieve economies of scale in their implementation, the World Bank has appointed a consortium to undertake PFSs of potential PPP projects. The consortium comprises CRISIL Infrastructure Advisory and Tanzania-based firms, Clyde & Co Tanzania, and Knight Frank Tanzania. Based on the recommendations of the Consultant, eight potential PPP Projects have been finalized under this assignment. Upgrading and streamlining the solid waste management in Arusha for ACC is one of the eight projects.



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## 2.2 Consortium Partners

The consortium partners (further the Consultant) for this assignment comprise one international (CRISIL as leading partner from India) and two national firms as presented below:

 <p>CRISIL An IRRP Global Company</p>	<p>CRISIL is the lead contractor and is responsible for the deliverables, project management, financial analysis, infrastructure gap assessment, economic review, risk assessment and conducting workshops and PPP clinics.</p>
 <p>CLYDE&amp;CO</p>	<p>Clyde and Co conducts legal due diligence and reviews national and municipal laws, Acts and guidelines of Tanzania relevant to identified projects, title deeds, ownership, use and user rights, and other relevant legal aspects.</p>
 <p>Knight Frank</p>	<p>The firm is responsible for the market and demand studies. It has studied the user charges, demand-supply gap, occupancy rates, and conducted the willingness-to-pay survey.</p>

## 2.3 Objectives

### Project objective

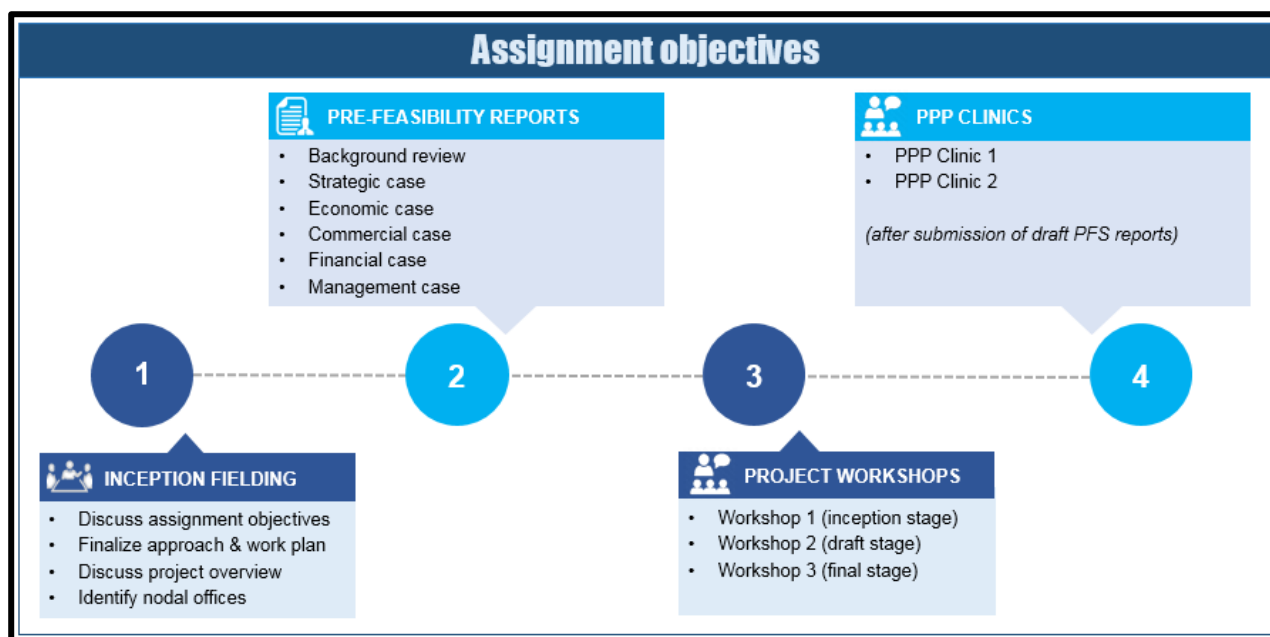
The overall objective of the Project is to improve the solid waste management system in the city of Arusha. The Project involves the upgradation of the existing processes for collection, transportation, processing as well as disposal at the sanitary landfill site that had previously been developed as a part of the Tanzania Strategic Cities Program (TSCP).

### Assignment objective

The objective of the assignment is to prepare PFS for eight Projects, four of which are related to setting up SWM systems in the cities of Dodoma, Mbeya, Arusha and Mtwara and four Projects are related to construction of student hostels in universities/colleges in the cities of Dodoma and Dar es Salaam. In addition, three Project workshops for each of the eight projects will be organized (the study will cover 24 workshops in total). Moreover, the assignment also includes two PPP clinics of five days each, one for SWM and the other for the student hostel Projects.



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*Inception fielding:* The Consultant undertook an inception mission from March 25 to 29 and April 5 to 12, 2019 with an objective to conduct the first set of PPP workshops. During the inception meeting, the team undertook detailed stakeholder consultations with the LGAs and institutes, along with officials from World Bank, PPP Center and PPP Node at their respective offices. The workshops presented a detailed approach and methodology, work plan, sector overview, objective of inception mission, discussions on current operations as well as perspectives on PPP structuring, etc. Detailed discussions on existing facilities and the proposed facilities for the PPPs were also carried out during the workshops

*Pre-feasibility reports:* The pre-feasibility study (PFS) aims at assessing the project's strategic, economic, commercial, financial, legal, social, environmental, and value for money (VfM) viability. We appraise the viability of the Project to be done as a PPP and also recommend a preferred PPP model.

*Project workshops:* After submitting the draft pre-feasibility report, the Consultant conducted the second set of workshops for each of the Projects. The Consultant presented the key findings of the draft prefeasibility report to various stakeholders, and gave detailed presentations on each Project covering the strategic, economic, commercial, financial and management cases. The Consultant recorded the comments and feedback provided by the stakeholders during the discussions and the same have been incorporated in this final pre-feasibility report.



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*PPP clinics:* After conducting the second set of workshops for the projects, the Consultant conducted a PPP Clinic for the SWM projects from September 30 to October 4, 2019, at Morogoro, Tanzania. The main objectives of the PPP Clinic were to discuss the findings of the community engagement exercise conducted by each implementing agency, firming up the proposed facilities and role of ProjectCo, user charges and duration of the PPP contract. Further, the clinic was also used as a platform to prepare the implementing agencies for market sounding by engaging them in various class exercises and role-plays. The Consultant recorded the comments and feedback provided by the stakeholders during the discussions and the same have been incorporated in this final pre-feasibility report.



## 2.4 Study execution

The actual/proposed timelines for deliverables submitted/to be submitted are summarized in the table below. These are indicative and will be revised/firmed up as per the guidance and suggestions provided by the World Bank, PPP Center, PPP Node and implementing agencies.

Table 2-1: Main deliverables and the progress

Deliverables	Progress	Actual / proposed submission
Project workshops 1	100%	March 25-April 12, 2019
Inception report	100%	April 24, 2019
Submission of draft prefeasibility reports	100%	July 31 - August 2, 2019
Project workshops 2	100%	August 13-23, 2019
PPP clinics	100%	September 23-October 4, 2019
Submission of final prefeasibility report	100%	November 14, 2019
Project workshops 3	-	To be firmed up



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## 2.5 Report layout



**Section 1** : Project summary, which includes Project background, the strategic case, economic case, financial case, commercial case, management case, and subsequent steps for the institution.



**Section 2:** Project background, progress of the assignment till date and layout of prefeasibility assessment report.



**Section 3:** Strategic case outlining the Project objectives, main stakeholders along with their roles and responsibilities, sector-level and Project overview, existing arrangements and main benefits and risks.



**Section 4:** Economic case delineating the critical success factors, alternative technical options, economic appraisal along with sensitivity analysis and the impacts and benefits accrued to economy.



**Section 5:** Commercial case outlining the proposed PPP Project structure, roles of institution and ProjectCo, risk allocation matrix, output specifications, payment mechanisms, term of PPP contract and accountancy treatment.



**Section 6:** Financial case evaluating the cost structure, revenue configuration, overall feasibility of the Project along with scenario, sensitivity and VfM analysis along with market demand and willingness to pay responses.



**Section 7:** Management case dealing with the institutional review, regulatory, legal due diligence and environmental and social aspects applicable.



**Section 8:** Project procurement strategy and plan, preliminary project schedule and milestones and project implementation plan.



**Section 9:** Annexures related to cost estimates, willingness to pay, market demand study, legal due diligence, social & environmental aspects, municipal finance assessment, institutional review and project screening tool



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## 3 Strategic case



*This chapter presents the strategic case underpinning the proposed solid waste management project in Arusha. It details the Project's rationale/ objective and its economic benefits. It also covers the roles and responsibilities of the various stakeholders of the Project and the existing arrangement between these stakeholders. It seeks to explain how the proposed project can cater to their needs while taking into account the prevailing conditions and major risks involved in the Project.*

### 3.1 Business need

This section presents the infrastructure deficiencies observed and underpinning the Project's business need.

#### Deficient SWM coverage

ACC provides SWM services in all 25 administrative wards in Arusha covering urban and rural areas. SWM activities in the city covers cleaning, collection, transportation, processing, and disposal of waste. Currently, there are six private operators engaged in providing the SWM services in nine wards and there are 14 CBOs engaged in providing SWM services in 15 wards in Arusha. The private companies are Arusha Travel Agency, Lemali Investment, Atdjodam company, Khadija Co. Ltd., Azania Agency and Neha Amca Ltd. The remaining one ward is covered by ACC for providing SWM services. In addition to private companies and CBOs, ACC also collects waste from highways, markets, and schools. Though all 25 wards are covered for SWM services, various households and other waste generators in these wards are not covered for SWM services.

#### Low SWM capacity

CBOs have been sub-contracted by the council to collect solid waste directly from generators. CBOs are small informal groups having 10–30 members. The CBOs must mandatorily be registered with the council in order to operate. CBOs are regulated by the NGO Act and NGO regulations. The NGO Act (which has recently been amended) defines NGO (which includes CBOs) as a voluntary grouping of individuals or organizations which is non-partisan and non-profit sharing. CBOs are currently registered as NGOs. The CBOs registered under the council can enter into a contract with the council in order to carry out the function of collecting solid waste from households and businesses and disposing it at collection centers (Rule 8 of ACC fees regulations). Currently, CBOs in Arusha use their own equipment and their own vehicles for collection in 15 wards out of a total of 25 wards served by ACC. The transportation of waste from collection centers to the landfill site is carried out both by CBOs as well as ACC.

	<b>Low coverage</b>
<ul style="list-style-type: none"><li>• All households &amp; other waste generators are not covered</li></ul>	
	<b>Inefficiency</b>
<ul style="list-style-type: none"><li>• No separation at source</li><li>• Inefficiency of CBOs</li><li>• Current landfill operations</li></ul>	
	<b>Low capacity of LGA</b>
<ul style="list-style-type: none"><li>• Low revenue sources for LGA</li><li>• Low financial and technical capacity</li><li>• Shortage of equipment &amp; staff</li></ul>	
	<b>Health hazard</b>
<ul style="list-style-type: none"><li>• Public health hazard to citizens</li><li>• Health hazards to staff/workers</li></ul>	



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ACC possesses some collection equipment, trucks and staff of their own, which can be further utilized for the PPP project. In total 270 pushcarts and wheel barrows and 16 skip containers (combined for both ACC & CBOs) are utilized during the collection phase. ACC has five transfer trucks (three skip master trucks and two side loaders) each having capacity of 8-10 tons for transferring waste to the landfill site. Additionally, it has one tipper truck for carrying material to the landfill site. Also, one CBO has five transfer trucks and all other CBOs have one transfer truck each. The SWM staff of ACC comprises of over 800 permanent and temporary employees including sweepers, waste collectors, loaders drivers, supervisors and managers. More workers and equipment may be needed over the years to increase the waste collection rate as well as to cover all the wards and all households and establishments in each ward.

#### Management of the landfill site

The sanitary landfill was constructed under the Tanzania Strategic Cities Project (TSCP) and was funded by the World Bank. The sanitary landfill was officially opened in 2016 after the project completion. However the site was being used as a dump site since 2003. The landfill size is about 29.1 hectares and is located ~7 km from the city center. Currently only 2 out of a total of 7 cells are operational at the landfill site. TSCP involved the construction of the Muriyet sanitary landfill and purchase of equipment and vehicles for landfill. We have reviewed the landfill site and we confirm that the work undertaken under the TSCP is of a high professional standard. However, the operations of the landfill site are deteriorating and once the TSCP assistance comes to a close in 2020, the landfill operation might deteriorate further. Addressing the need to sustain and continue operating as a sanitary landfill, we recommend a PPP.

#### No separation at source

There is no segregation of the waste at source by households and other waste generators. Hence, the primary waste collected co-mingles biodegradables, recyclables and other waste streams. A low percentage of recyclables is collected during primary and secondary collection. The remaining recyclables are transported to the landfill site. Waste pickers work at the landfill site collecting the remaining recyclables.

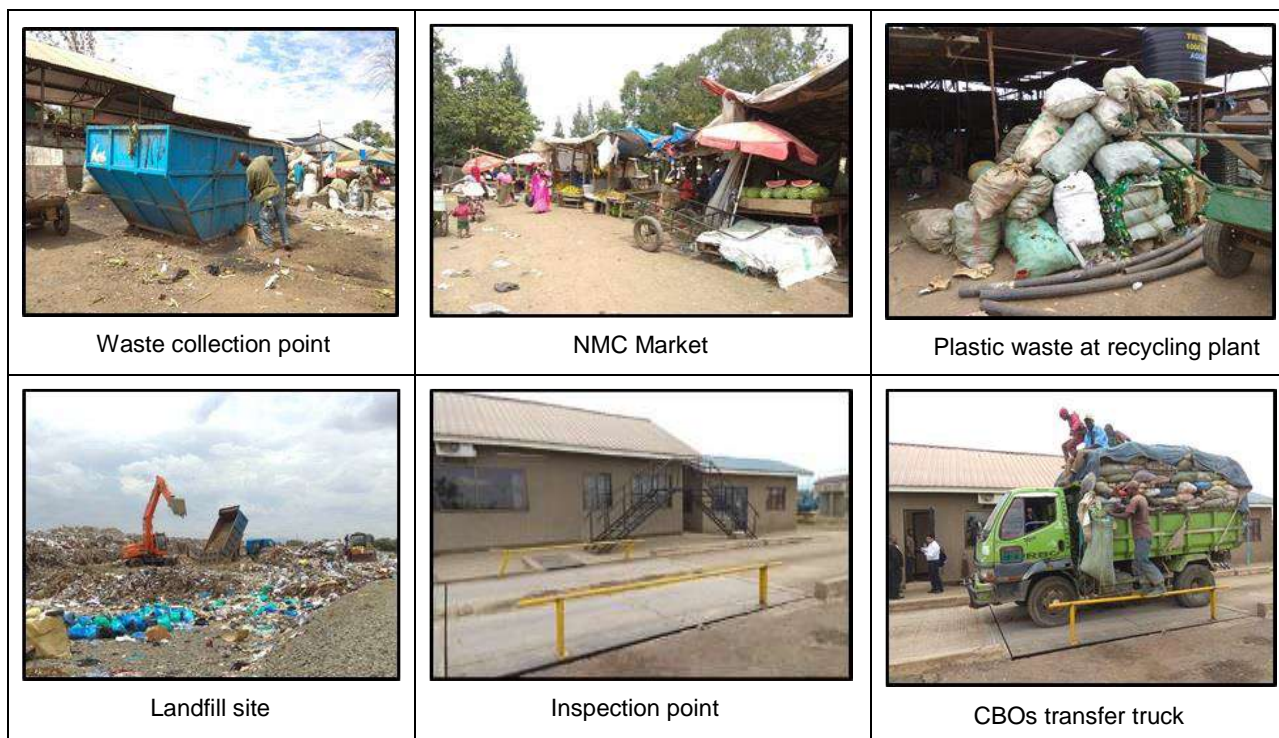
#### Health hazards

Accumulation of solid waste in open areas is a public health hazard and a breeding ground for insects, rodents, wild and domesticated animals. It causes odour nuisance and creates a poor environment for growing children. The current SWM operations in the city pose health hazards to workers due to the non-availability of protective equipment and appropriate safety protocols.



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### 3.2 Project objectives

The Project aims at upgrading the existing processes for collection, transportation, processing as well as disposal of waste at the sanitary landfill site. The PPP project would streamline the process of waste collection, achieving high waste collection and bill collection rates. The proposed redevelopment of the SWM lifecycle in the city aims at an integrated process of waste, collection and disposal at the sanitary landfill site.

#### Higher SWM coverage

The proposed PPP project includes all the waste generators in all 25 wards in Arusha city (including one rural ward) wherein collection, transportation and disposal at the landfill site will be managed by the ProjectCo. Thus, an integrated system would be developed wherein all the stages of the SWM lifecycle will be managed by the ProjectCo. The CBOs could work/partner with the ProjectCo under the PPP Project under two arrangements that is either a) ProjectCo takes over the CBO employees who are then added to its headcount; or b) ProjectCo subcontracts the CBOs. The objective is to combine both CBOs and the ProjectCo allowing both entities to exist together, carrying out their waste management responsibilities. The aim is to amalgamate the CBOs with the PPP. As it is evident from the community engagement exercise, the first option of ProjectCo taking over CBO employees, faces significant resistance from the CBOs management as they prefer continuing their members' current employment status within the CBO. Under this option, CBO as a formal entity remains unaffected by transferring its employees to the ProjectCo, however, the CBOs would become a shell entity. Under the second option of the ProjectCo subcontracting the CBOs, the present situation is marginally modified wherein the employees remain with their respective CBOs and the CBOs are contracted by the ProjectCo to perform their services with higher performance standards. Thus, under this option both



entities remain independent and are tied together by a sub-contract specifying responsibilities and rights of both the ProjectCo and the CBOs. The decision to choose one out of the two options needs to be taken by ACC as explained in detail in Section 3.3.

### Increase in collection rates

Currently, the waste collection rate in Arusha stands at ~81%, wherein 220 tons are collected out of a total of 271 tons generated on a daily basis. The PPP Project aims to achieve an even higher level of waste collection rate and a high level of bill collection rate. In our financial model, we have envisaged a waste collection rate of ~80% in the first two years, and it would increase gradually to 95% in further years. Similarly, we expect a bill collection rate of ~80% in the first year, which will gradually increase to 100% in further years. Currently, the bill collection rate is about ~60% from households. An increase in bill collection rate from 60% to 80% and eventually to 100% for households will lead to an increase in revenue. Additionally, the number of households covered for waste collection will increase over the years and more households will be created in future, thus leading to further increase in revenue through bill collection.

### Segregation of waste

Another objective of the PPP Project is to incorporate a systematic process that comprises of segregation of waste at secondary collection points/transfer stations. This would help identify recyclable material early in the SWM lifecycle, increasing the efficiency of the process. Under the proposed PPP Project, most of the waste segregation would take place at the secondary collection centers and if required at the landfill site as well. In the financial model, we have assumed that out of the total recyclable waste generated, 50% would be segregated from secondary collection points and 50% would be segregated at the landfill site. Segregation at source has not been included under the PPP Project, as the main focus of the Project is to first upgrade/refurbish and streamline the existing processes of waste collection, transportation and disposal while at the same time preserving the livelihood of waste pickers. Segregation at source is a lengthy and cumbersome process requiring significant awareness campaigns and education. Following this, we propose a gradual process in which we firstly aim at secondary segregation. In time, segregation at source can also be added to the PPP Project.

### Adequate staff, machinery and equipment for collection, transportation and landfill.

Currently, CBOs, ACC and few private players are engaged in the process of collection of waste from 25 urban and rural wards in Arusha. They have adequate staff to carry waste from the collection centers to the landfill site during initial years (i.e. 1-2 years) of operations. But, over the years, more workers would be needed to increase the waste collection rate and to cover all households and establishments under a particular ward.

	<b>Increasing coverage</b>
	• All waste generators to be covered
	<b>High collection rate</b>
	• 95% waste collection rate
	• 80-100% bill collection rate
	<b>Increasing efficiency</b>
	• Adequate staff to be recruited
	• Adequate equipment
	• Sustainability of landfill operations
	• Segregation at secondary collection
	<b>Increasing awareness</b>
	• Through community participation
	• To ensure hygiene at each step
	• To ensure public health standards
	• Prevent injuries & diseases, etc.



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Additionally the council does not have sufficient equipment, machinery and vehicles. Therefore, more staff, equipment, machinery and vehicles for the collection, transportation and landfill processes will be required during the term of PPP.

Under the proposed PPP Project, the ProjectCo would purchase and operate equipment and vehicles such as skip bucket containers, pushcarts and tricycles which would be utilized for waste collection. Similarly, for transportation the ProjectCo would add transfer trucks of type 1 (15 tons, capacity) and type 2 (10 tons, capacity). Higher capacity trucks (15 tons) have been considered as these can cover two skips at a time. For the landfill operations, the ProjectCo would add equipment and vehicles such as wheel loaders, bulldozers, excavator, compactor, etc to meet the current and future waste management requirements. Also, for the casual labor and staff, the ProjectCo would provide personal protective equipment such as facemask, hand gloves, gum boots, uniform, etc. under the PPP Project. The ProjectCo would also need to hire additional staff in tandem with increased waste quantities.

#### Sustainability of landfill operations

Officially opened in 2016, the sanitary landfill was constructed under the Tanzania Strategic Cities Project (TSCP) and was funded by the World Bank. The TSCP assistance ends in 2020 and thereafter the landfill operation would be the sole responsibility of the LGA. Addressing the need to sustain and continue adequate landfill management we recommend a PPP. Additionally, we recommend folding into the Project the purchase of adequate machinery and equipment and hiring of adequate number of staff for the management of the landfill.

#### Active community participation

Public participation is crucial to the success of solid waste management projects. The proposed Project envisages creating public awareness, fostering effective community participation, transparent and clean administration, introduction of citizen charters and accountability at all levels.

#### Hygiene and public health standards at each step of the SWM lifecycle

Lastly, the proposed Project would need to ensure cleanliness and hygiene at each step of the SWM value chain i.e. collection, transportation, processing and disposal of waste at landfill site with an aim to prevent injuries, diseases and infections for the staff and citizens.

### **3.3 Stakeholders**

This section outlines the roles and responsibilities of the main stakeholders for the refurbishment/upgrading of solid waste management services in Arusha.



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### Arusha City Council

The council will be the main implementing agency of the Project wherein the ProjectCo would be responsible for the refurbishment/upgradation of the existing processes for collection, transportation, processing and disposal of waste at the sanitary landfill site. The council would be responsible for monitoring the refurbishment/upgradation and implementation of the Project.

### PPP Node

The PPP Node, established under the President's office-regional administration and local government (PO-RALG), will be responsible for the assessment of the Project submitted by the city council and approving the Project in its decision making process. The PO-RALG will assist ACC in conducting market sounding for the Project, reaching out to investors and developers. Additionally PO-RALG will be providing technical assistance to ACC on a continuous basis during the duration of the Project.

### World Bank

The World Bank collaborates with the PPP Node and funds the preparation of prefeasibility studies for the four solid waste management (SWM) PPP Projects as well as four student hostel PPP Projects. Further, it will be involved in providing technical assistance to the Consultant by reviewing the pre-feasibility studies along with providing their comments on the same.

### Community based organizations (CBOs)

Currently there are CBOs providing waste collection services to households and businesses in 15 wards in Arusha. As mentioned earlier, almost all the CBOs have 10–30 members, consisting of a chairman, a secretary and other members. With the aim of being inclusive, the PPP Project proposes to continue with the CBOs in the city's waste management system. The proposed PPP will assume responsibility for both the C&T and landfill management (i.e. integrated option) including both the urban and rural wards. The PPP Project will seek to combine the CBOs and the ProjectCo allowing both entities to exist and carry out their waste management responsibilities. Thus, the CBOs will be amalgamated with the PPP and to this end the following options are proposed.



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- *Option 1 - ProjectCo takes over the CBO employees who are then added to its headcount:* As is evident from the community engagement exercise, this option faces significant resistance from the CBOs management as they strongly prefer to continue their members' current employment status within the CBO. Under this option, CBO as a formal entity remains unaffected by transferring its employees to the ProjectCo, however, the CBOs would become a shell entity only without any content or substance. Although, the employees would lose their status as CBO employees they would become permanent employees of the ProjectCo. The main advantage of this option is that the current CBO employees would get the advantage of skill and productivity enhancement through better management practice of the ProjectCo. This is expected to lead to career progression for the employees and better working conditions.
- *Option 2 - ProjectCo sub-contracts CBOs:* Under this option, the present situation is marginally modified. The employees remain with their respective CBOs and the CBOs are contracted by the ProjectCo to perform their services with higher performance standards. Both entities remain independent and are tied together by a sub-contract specifying responsibilities and rights of both the ProjectCo and the CBOs Accordingly, the primary responsibility of delivering the city's waste management activities shall be with the ProjectCo and the CBOs will be sub-contracted (and therefore made responsible) for waste collection activities in their respective wards. Consequently, the CBOs will be directly accountable to the ProjectCo and not to the LGA.

The decision to choose the option needs to be taken by ACC. And in doing so, it should also assess the quality of the current equipment, adequacy of staff as well as financial and operational performance standards that are being achieved by each of the CBOs and how the ACC intends to support both the ProjectCo and the CBOs to achieve better waste collection services for the city.

#### Staff/ casual labor

Staff/casual labor are crucial for upgrading SWM services in the city and instrumental in increasing the waste collection rate in the city. Currently, the council and the CBOs do not have enough staff to meet the SWM requirements in Arusha. The current staff/casual labor of the council will need to be integrated with the ProjectCo. While the casual labor of ACC could be integrated with the ProjectCo due to short contracts of three months duration, the permanent staff of ACC could be involved in functions such as street cleaning, drainage and monitoring and supervising the ProjectCo, thus integrating them within the Project. Also, additional staff would need to be hired to meet the current and future needs.

#### Waste pickers

Waste pickers is another category of stakeholders involved in the SWM value chain. Currently, waste pickers work at the collection centers and landfill sites. They collect the recyclables and sell it to processing plants thus earning their livelihood. Under the PPP Project, they will be provided access to the collection centers and the landfill site, so that they can continue to collect recyclables and sell it to the processing plants and in this manner preserving their livelihood.



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### Waste generators (households, commercial units, etc.)

Waste generators include households, industrial units, commercial units, institutional units, hospitals, etc. Waste generators are crucial as they pay the waste tariff for collection of waste and must cooperate in the waste collection, and not resorting to practices such as open burning of waste or unsafe disposal in pits, thus contributing to a high waste collection rates.

### ProjectCo

ProjectCo is the Project company (or the special purpose vehicle), i.e., a private party/ developer/ concessionaire and responsible for the design, construction, financing, operating and maintaining the Project over a period of 15 years. Currently, private players such as Arusha travel agency, Lemaly investment and Atjodm company are engaged in providing SWM services at 5 wards in the city. Once the PPP Project is deployed, the current SWM services by private players in 5 wards will cease to exist. These private players can also bid for the proposed PPP Project for the entire 25 wards in the city.

## **3.4 Strategy and sector review**

This section provides a brief overview of solid waste management in ACC and other councils, in addition to explaining Project's strategic alignment with national development plans

### Solid waste management overview

The Government of Tanzania through the President's Office, Regional Administration and Local Government (PO-RALG) has been implementing the Tanzania Strategic Cities Project (TSCP) in selected Urban Local Government Authorities for five years and financed by a World Bank (IDA) credit and a grant from the Government of the Kingdom of Denmark. The TSCP is an investment operation that provides finance for critical infrastructure in towns of Mwanza, Tanga, Mbeya, Dodoma and Arusha; two municipalities of Kigoma-Ujiji and Mtwara-Mikindani. Works supported under the TSCP project in Arusha involved the construction of the Muriet sanitary landfill, solid waste collection centers, purchase of equipment for waste transportation and compacting at the landfill site. The implementation phase has successfully been completed and the facility and its equipment<sup>4</sup> has been handed over to the ACC.

### Solid waste management in other councils

*City Council of Dodoma (CCD)*: Out of a total of 41 administrative wards in the city, the City Council of Dodoma manages the SWM operations in 21 wards covering urban areas, wherein eight wards are covered by a private company, Green Waste and 13 wards are covered by CBOs. The remaining 20 wards are not covered by the council. For CCD, currently there are multiple sources of revenue that are generated from SWM operations such as revenue from user charges, revenue generated from CBOs and revenue from tipping fees at the landfill site.

*Mbeya City Council (MCC)*: Out of a total of 36 administrative wards in the city, the Mbeya City Council manages SWM operations in 29 wards. Out of 29 wards, 19 are served by CBOs wherein only waste collection

<sup>4</sup> Tipper trucks, skip containers, skip masters, wheel loaders, bulldozers, weighbridge, excavator and compactor.



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is managed by them. In the remaining 10 wards, which are not served by CBOs, the communities engage directly in the collection of solid waste from generation points to the designated collection points or skip buckets. Once the skip bucket is full, the waste is transferred to trucks for transport to the landfill site. MCC transports the waste from the collection point to the landfill site using five transfer trucks of 12 tons capacity each. For MCC, currently there are two sources of revenue that are generated from SWM operations namely revenue from user charges and tipping fees at the landfill site.

*Mtwara- Mikindani Municipal Council (MMMC):* MMMC provides SWM services in all 18 wards in the city. While the CBOs collect waste in nine wards, the council collects waste in 18 wards such that some of the wards are simultaneously covered by both the CBOs as well as the council. For MMMC, currently there are two sources of revenue that are generated from SWM operations namely revenue from user charges and tipping fees at the landfill site.

#### Strategic alignment with sector/ national plans goals

Tanzania's development objectives are outlined in the Tanzania Development Vision 2025 (TDV 2025) which was developed in the late 1990s guiding economic and social development efforts up to the year 2025. The TDV 2025 targets transforming Tanzania into a middle-income country. The strategic direction of Tanzania's second five year development plan (FYDP II) is to ensure that Tanzania is characterized by planned and serviced urban settlements with functioning town planning procedures, including improved solid and liquid waste management, use of sustainable transport and cleaner energy.

The National Human Settlements Development Policy, 2000 stresses the need to ensure that human settlements are kept clean and pollution effects of solid and liquid wastes do not endanger the health of citizens. The National Environment Action Plan (NEAP) was first prepared in 1994 with several strategic actions for its implementation. The NEAP provides the basis and guiding framework for environmental management in the country. Under NEAP, achievements have been made in waste management in the country. Some of these achievements include improved collection of solid waste in urban areas from an average of about 5% in 1990's and increasing up to 50% to date. Therefore, the proposed PPP Project is in strategic alignment with the above mentioned development plans and goals.

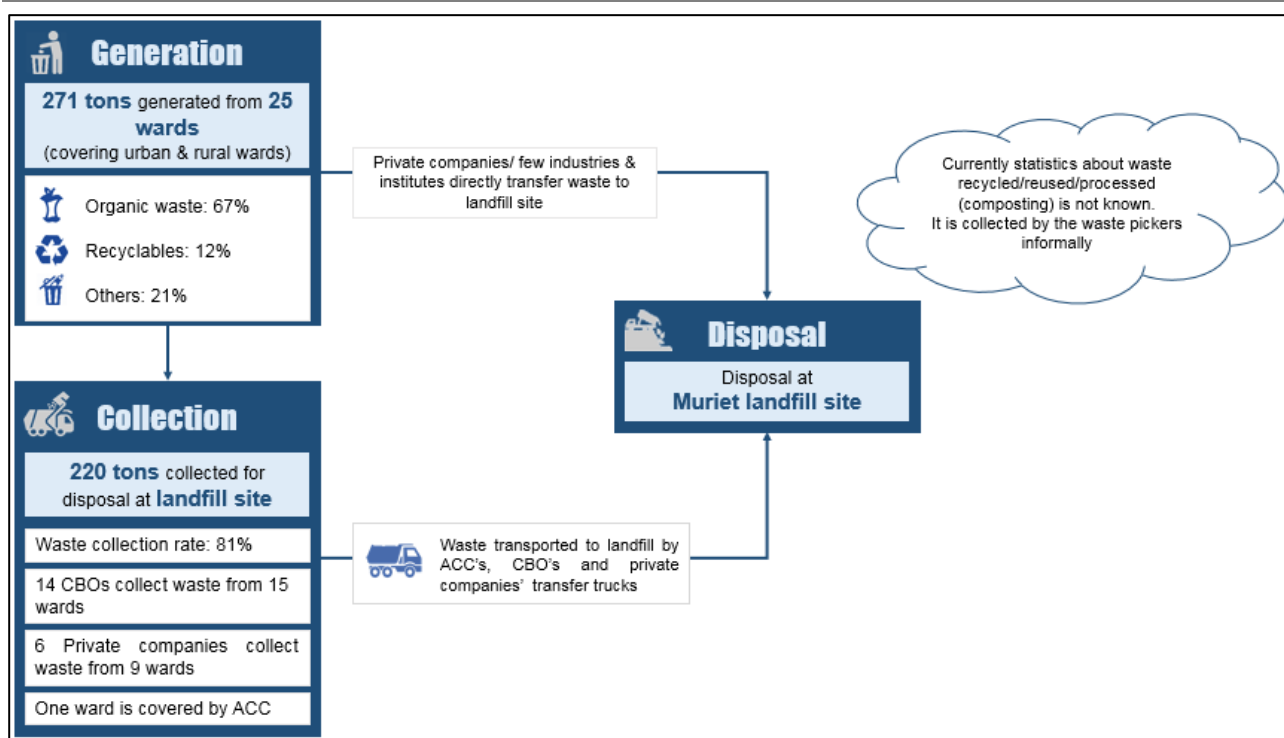
### **3.5 Existing arrangement**

This section outlines the existing arrangement of SWM in Arusha.



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Figure 3-1: Existing SWM arrangement in Arusha



Source: Consultant

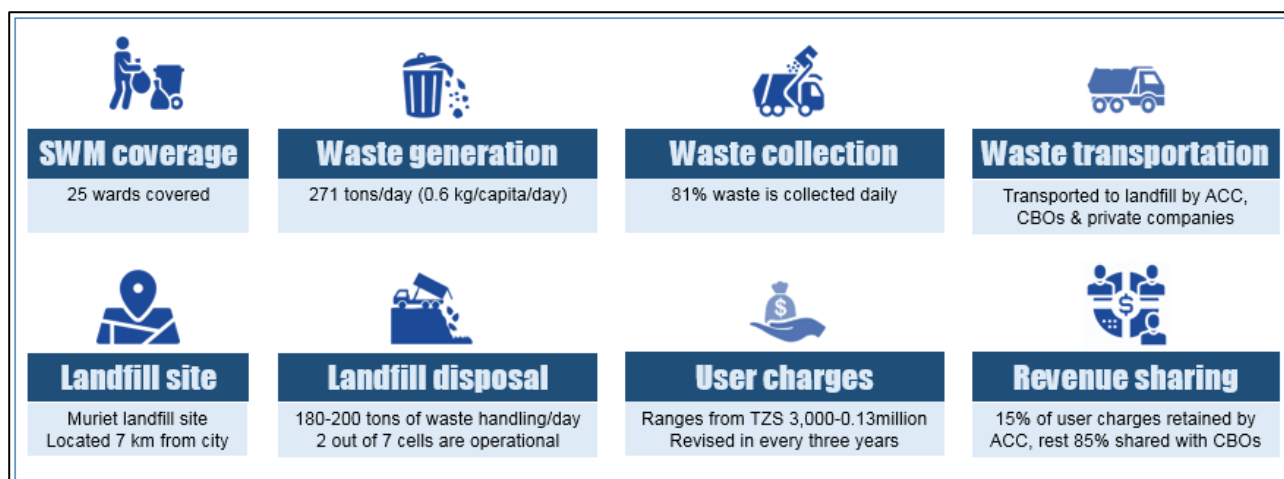
### SWM coverage

ACC provides SWM services in all 25 administrative wards in Arusha covering both urban and rural areas. SWM activities in the city covers collection, transportation, processing, and disposal of waste. Currently, there are 6 private operators engaged in providing the SWM services in 9 wards and there are 14 CBOs engaged in providing SWM services in 15 wards in Arusha. The private companies are Arusha Travel Agency, Lemali Investment, Atdjodam company, Khadija Co. Ltd., Azania Agency and Neha Amca Ltd. The remaining one ward is covered by ACC for providing SWM services. In addition to private companies and CBOs, ACC also collects waste from highways, markets and schools.



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### Solid waste generation

Arusha city generates about 271 tons of solid waste daily from 25 wards. Of this, 220 tons is collected for recycling and disposal at the landfill site. So, the current waste collection rate is 81%. Out of 220 tons thus collected, about 20 tons is recycled and processed on a daily basis and about 200 tons is disposed at the landfill site. The solid waste generated in one rural ward is not collected at all. In the table below we present the current waste generated per day, as well as, the number of each waste generator category. The third column is derived from the first two columns and provides the waste generated per unit, for each waste generator category.

Table 3-1: Existing status of waste generation in Arusha City

Waste generator	Waste generation per day (Tons) <sup>5</sup>	Number	Waste generated per unit(Kg/ day)
Urban Households	203	88,842	2.28
Rural Households	5.6	3,702	1.51
Commercial Units	22.7	3,550	4.8
Industrial Units	13.6	6	1,512
Institutions	17.0	288	47.3
Hospitals	9.1	7	1,296

Source: Consultant

<sup>5</sup> Total waste generated for different establishments has been calculated by benchmarking it with the waste generated in other councils, due to lack of data provided by ACC.



### Solid waste collection

Waste is collected by CBOs, private companies as well as ACC, wherein, CBOs collect waste from 15 wards, and private companies collect waste from nine wards. ACC collects waste from one ward as well as from all highways, markets and schools in all the other 24 wards. Five collection points are situated at strategic locations near highways, schools, and markets for collection by the council. Collection from households and other establishments in 24 wards is carried out by CBOs and private players. In total, there are 14 primary collection points at strategic locations and streets within the city. A total of 270 pushcarts and wheelbarrows and 16 skip containers are used during collection phase. The distribution of the waste collected is provided in the table below. The waste generated is divided into three components i.e. organics, recyclables and others. Recyclables comprise of plastics, glass and metals whereas other comprise of textile, paper and inert waste. Organic waste is 67% of the total waste generated, whereas recyclables and others together form the remaining 33%.

*Table 3-2: Waste composition in Arusha*

Waste composition in Arusha	Type of waste	Composition (%)	Overall (%)
Organics	Organic waste	67%	67%
Recyclables	Plastic	7%	12%
	Glass	4%	
	Metal	1%	
Others	Textile	2%	21%
	Paper	11%	
	Wood	2%	
	E-waste	2%	
	Inert waste	4%	

*Source: Potential of MSW as renewable energy source – A case study of Arusha Tanzania*

Some industries and institutes collect their own waste which is transported directly to the landfill site through private transfer trucks which are charged a tipping fee of TZS 50,000 per ton. Additionally private companies, collecting waste from nine wards (as mentioned above), also transport their waste directly to landfill site, through their own trucks which are also charged a tipping fee of TZS 50,000 per ton.

### Solid waste transportation

The transportation of waste from collection points to the landfill site is carried out by private companies, CBOs and ACC. The council has five transfer trucks (three skip master trucks and two side loaders), each having capacity of 8-10 tons for transferring waste to the landfill site. Additionally, it has one tipper truck (6 ton capacity) for carrying soil and depositing its layer over the waste material at the landfill site. The number of transfer trucks available with private companies for waste transportation varies from one to five transfer trucks, depending on the number of wards covered by each company. Also, one of the CBOs has five transfer trucks and rest all the other CBOs have one transfer truck each.



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Solid waste treatment at the landfill site

Officially opened in 2016, the sanitary landfill was constructed under TSCP and was funded by the World Bank. It was being used as a dump site since 2003. The site is about 29.1 hectares in size and is located ~7 km from the city center. Currently only 2 out of 7 cells are operational at the landfill site. The expected life span of the landfill is 20-22 years. The waste received at the landfill must be weighted, leveled, disposed, compacted and filled with the soil. About 180-200 ton of solid waste is handled daily at the landfill from different sources of waste production, such as from residences, markets, shops, industries, as well as various government and private institutions. A summary of responsibilities and existing arrangement for collection, transportation and landfill management is provided in the table below.

*Table 3-3: Summary of SWM responsibilities*

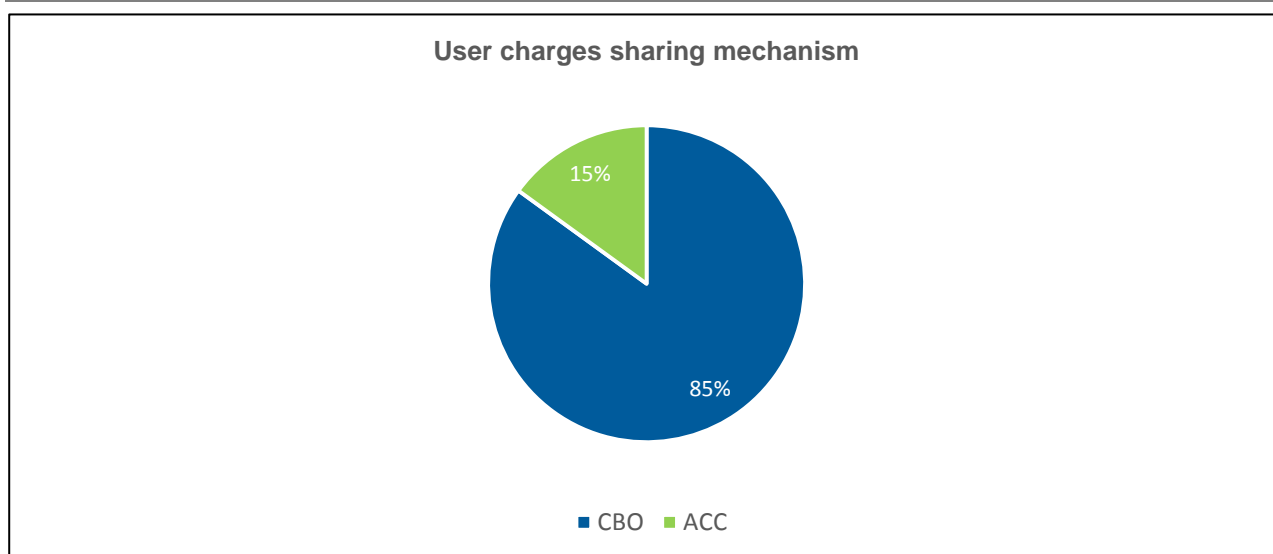
Waste activities	Responsible	Equipment & vehicles owned by
Collection	CBOs, private players & ACC	CBOs, private players & ACC
Transportation	CBOs, private players & ACC	CBOs, private players & ACC
Landfill management	ACC	ACC

Source: Consultant

Revenue sources

*Revenue from user charges:* User charges are collected both by CBOs and private operators from households, commercial units, institutional units, industrial units, hospitals, petrol pumps, etc. on a monthly basis. The user charges collected by the CBOs are deposited in a council collection account. Around 15% of such user charges are retained by the council, while 85% of the user charges are shared with the CBOs.

*Figure 3-2: User charges sharing mechanism*



Source: Consultant



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User charges collected from different waste generators are summarized in the table below. The table below lists the user charges per unit per month levied for each of the waste generators such as households, commercial units, etc. Additionally, the bill collection rate is mentioned for each waste generator category.

*Table 3-4: User charges and collection rates in Arusha City*

Waste generator	User charges per month (TZS) – As per ACC	Bill collection rate (%)
Households	3,000 <sup>6</sup>	60%
Commercial unit	12,500	50%
Institutional unit	75,000	50%
Industrial unit	125,000	80%
Hospitals	38,750	80%

Source: Arusha City Council

Currently, the ACC is incurring an annual expenditure of TZS 492 million on SWM services, while the total revenue of council through SWM services is TZS 133 million. Therefore, the council is currently incurring an operating loss by spending more than what they are earning.

*Tipping fees at the site:* The waste collected by companies such as Otama group and A to Z Textiles along with some other companies that occasionally dispose of their waste directly at the landfill site is charged a tipping fee of TZS 50,000 per ton.

#### Equipment and vehicles

The council currently owns the following equipment and vehicles for its SWM operations as depicted in the table below. The first two columns of the table list the equipment/vehicles as well as the number of each equipment/vehicle, whereas the third column mentions the component of the SWM value chain wherein the equipment/vehicle is used (i.e. collection, transportation or landfill).

*Table 3-5: Current equipment status*

Equipment	Number	Used in
Skip bucket containers	16	Collection
Wheel barrows & pushcarts	270	Collection
Skip master trucks	3	Transportation
Side loaders	2	Transportation
Tipper truck	1	Collection
Bulldozer	1	Landfill
Landfill compactor	1	Landfill
Excavator	1	Landfill

<sup>6</sup> As per the data provided by ACC, the monthly user charges for urban households is TZS 2,000. While as per current municipal byelaws and willingness to pay survey, the user charges for urban households vary from TZS 2,000-10,000 and TZS 2,000-5,000, respectively. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered an average value of TZS 3,000 as current user charge for urban households.



Equipment	Number	Used in
Wheel loader	1	Landfill

Source: Arusha City Council

#### Staff employed

The council employs the following staff for SWM operations as mentioned in the table below. The first column of the table lists staff categories whereas the second column presents the number of each of these staff categories, required and the third column depicts the salary in TZS for each of these workers.

Table 3-6: Details of SWM staff in Arusha

Staff	Number	Monthly salary (TZS)
Sanitation workers	63	150,000 - 350,000
Waste collectors	62	150,000 - 350,000
Sweepers	430	150,000 - 650,000
Loaders	144	150,000 - 350,000
Drivers	36	150,000 - 650,000
Supervisors	74	150,000 - 650,000
Managers	24	150,000 - 350,000

Source: Arusha City Council

#### Collection center for recyclable material

During the inception meeting, the Consultant visited a recycling plant located in Arusha. The plant is operational and focuses exclusively on the collection of recyclable waste such as cardboards, plastic bottles, tin cans, etc. The recyclable waste is segregated from the solid waste that is collected. The recyclable waste is directly collected from each household and also from waste pickers. Plastic bottles cost around TZS 100 per Kg and cardboard boxes cost TZS 50 per Kg at the collection center.

### 3.6 Project overview

This section provides an overview of the location of the landfill site and collection centers and assesses the landfill site's road connectivity. It also assesses the current status of the landfill site and collection centers in terms of ownership and availability of title deed.

#### Location suitability

*Collection centers:* Waste is collected by CBOs, private companies as well as ACC, wherein, CBOs collect waste from 15 wards, private companies collect waste from nine wards and ACC collects waste from remaining one ward as well as from highways, markets and schools from all the 24 wards. Five collection points are situated at strategic locations near highways, schools, and markets for collection by the council. Collection from households and other establishments in 24 wards is carried out by CBOs and private players. In total, there are 16 primary collection points at strategic locations and streets within the city. For the proposed PPP



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Project, the existing skip bucket containers would be utilized and additional skip bucket containers would be required to be added with increase in waste generation over the years.

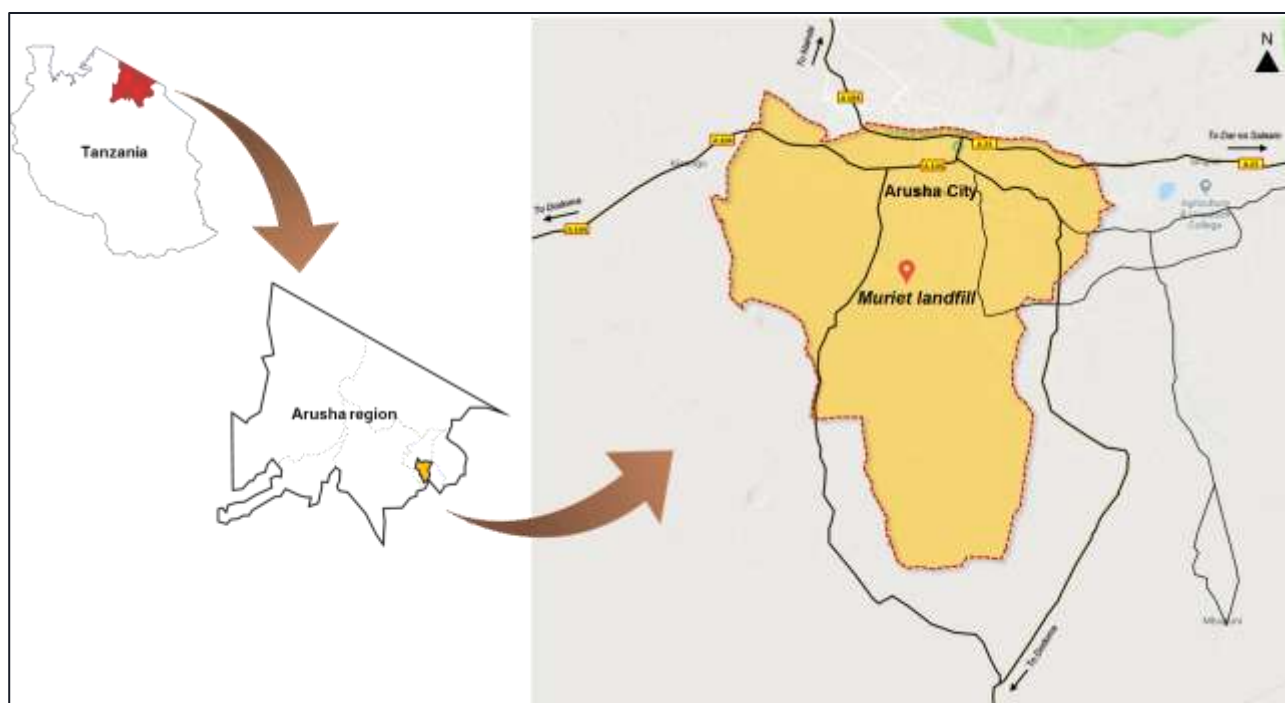
*Landfill site:* The Muriet sanitary landfill was developed under the TSCP and was funded by the World Bank. The site is located ~7 km from the city center. It is owned by the council and is currently operational. We confirm the work undertaken under the TSCP is of a high professional standard and the landfill site is highly suitable for the proposed PPP Project. We reviewed the site, and indeed its location is suitable as it is situated away from the city, but at the same time is well connected. Of the total available area of ~29.1 hectares of land and 7 cells for landfill at Muriet, only 2 cells are currently operational. The expected life span of the landfill is 20-22 years.

#### Location connectivity

*Collection centers:* The collection centers (skip bucket containers) are located at such locations that are easily accessible for transfer trucks, so as to enable transfer trucks to easily carry the waste to the landfill site.

*Landfill site:* The landfill is well-connected to the main city, thus ensuring that trucks from the council and those from institutes/industries easily carry solid waste from the collection points to the landfill site.

Figure 3-3: Location of Arusha City



#### Land title deed

ACC has not yet submitted the land title deed for the proposed site for our legal due diligence. The same would be required before the launch of bid process management.



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### 3.7 Main benefits of proposed PPP

This section highlights the Project's main benefits for all stakeholders.



#### Higher SWM coverage

With the deployment of the PPP Project, all the households, commercial establishments, institutions and industries would be covered for waste collection. Additionally, the rural ward will also be covered for waste collection. Therefore, waste generators would not resort to illegal burning/unsafe disposal of waste in pits thus resulting in better waste collection rates.

#### Increase in waste and bill collection rates

Currently, the waste collection rate in Arusha is higher as compared to other towns in Tanzania, at 81%, wherein 220 tons are collected out of a total of 271 tons generated on a daily basis. But the PPP project envisages to achieve an even higher waste collection rate as well as a higher bill collection rate. In our financial model, we have envisaged waste collection rates of ~80% in the first two years, gradually increasing to 95% in future years. Similarly, we envisage a bill collection rate of ~80% in the first year, gradually increasing to 100% in future years. Currently, the bill collection rate is ~60% from households - the main waste generators in Arusha. Increase in bill collection rates from 60% to 80% and eventually to 100% for households will lead to an increase in revenue. Additionally, the number of households in the waste system will increase over the years, thus leading to higher waste revenues.

#### Improved environmental conditions

The project would deploy sanitary procedures at all steps of the SWM value chain thus ensuring cleanliness and hygiene, thereby reducing health related risks to the staff/casual labor. Currently, many waste generators (such as households, commercial units, industries, institutions and hospitals) are not included in waste collection process. These un-serviced waste generators are expected to resort to illegal burning/ unsafe



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disposal of waste in illegal pits. Also, the uncollected waste gets piled up, leading to stench and posing health and environmental hazards to the community at large. The proposed PPP Project, aims at increasing waste collection rates and improving the environmental conditions in the city.

#### Segregation of waste

Segregation of waste such as glass, metal and plastics during the collection process, would help in identifying recyclables early in the lifecycle of SWM. These can then be sent to the recyclable plant thus increasing the efficiency of the process. Additionally, waste pickers would visit the collection centers and landfill sites to collect recyclables (glass, paper and metal) and sell them to processing plants. Similarly, most of the e-waste generated would be picked up by informal waste pickers from the landfill site, and would be then recycled. The waste pickers would continue to function in the same way as they are currently doing.

Under the proposed PPP Project, most of the waste segregation would take place at the secondary collection centers and if required at the landfill site as well. Segregation at source will not be a part of the PPP Project initially because the priority is to first upgrade/refurbish and streamline the existing processes of waste collection, transportation and disposal while at the same time preserving the livelihood of waste pickers. Segregation at source is a lengthy and cumbersome process requiring significant awareness campaigns and education. Following this, we propose a gradual process in which we firstly aim at secondary segregation. In time, segregation at source can also be added to the PPP Project.

#### Improved hygiene conditions at landfill site and sustainable landfill management

Proper and organized disposal of solid waste at the landfill site would create a positive impact on the living conditions of human beings as well as overall environment, thus preventing the spread of communicable and non-communicable diseases among human beings and animals. Organized and hygienic disposal at landfill sites would prevent environmental issues such as contamination of soil, surface water, ground water and generation of toxic and greenhouse gases.

#### Increase in employment opportunities

The Project would require hiring adequate number of staff/casual labor to achieve higher waste collection and bill collection rates, and also for transportation and landfilling. Thus, the project would involve contracting new staff and increasing employment opportunities for Tanzanians.

#### Increase in revenue from SWM services

The user charges to be collected from households, commercial units, industrial units, institutions and hospitals have been increased to cost recovery level to make the Project viable. User charges for urban households are proposed to be increased to TZS 5,000 per month, and user charges for all other waste generators are proposed to be increased by 30-35%. The user charges for rural households have been set at TZS 2,000 (currently no charges are levied). In addition, all user charges would be revised by 25% every three years. Also, 80%-100% bill collection rates would be achieved thus leading to further increasing the SWM revenues. However, it has to be noted, as per stakeholder consultations and willingness-to-pay survey assessment undertaken by the Consultant, majority of waste generators are not willing to pay higher user charges as they feel that current user charges are reasonable.



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### 3.8 Main risks

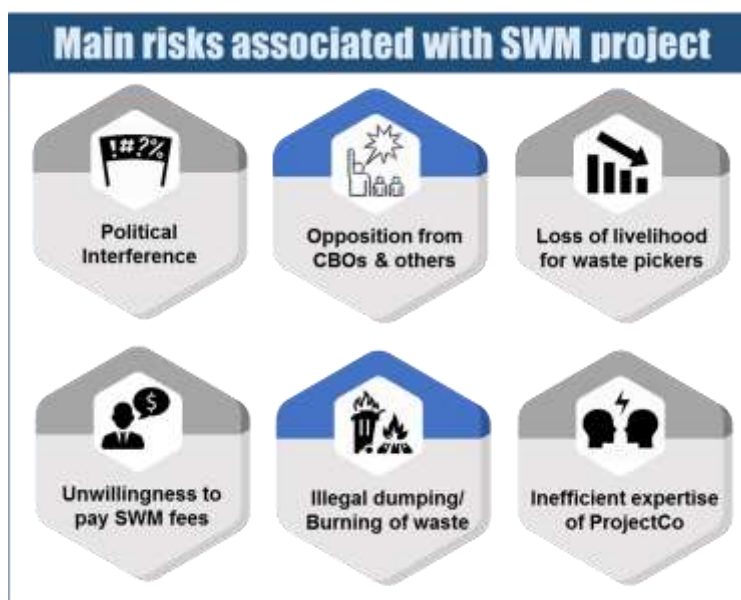
This section highlights the main risks of refurbishing/upgrading SWM services in Arusha.

#### Political interference

This is the risk related to political aspects such as changes in laws or regulations which reduces the ProjectCo's revenue or increases its costs, or new policies reduce the importance attached to SWM services and government support.

#### Opposition from CBOs, private players and casual labor

CBOs are local communities consisting of 10-30 members (minimum 15 in case of Arusha) providing SWM services in the city. Engagement of a new private player (ProjectCo) to upgrade the existing processes for collection, transportation, processing and disposal might generate opposition from CBOs and casual labor as they may worry that their livelihood will get affected.



#### Addressing livelihood concerns of waste pickers

Currently, waste pickers work throughout the city in search of recyclable materials. They collect recyclables and sell it to processing plants, earning their livelihood. As part of the proposed PPP Project, there might be a situation wherein most of the recyclables would be segregated upstream in the SWM lifecycle at primary and secondary collection points and these recyclables could be sold by the ProjectCo to the recycling plants. This could potentially affect the earnings for waste pickers.

#### Un-willingness of waste generators to pay increased user charges

Waste generators may be unwilling to pay for higher user charges for SWM services. They might resort to illegal burning and dumping of waste, posing environmental issues and health hazards to the community at large. As per stakeholder consultations and willingness-to-pay survey assessment undertaken by the Consultant, majority of waste generators are not willing to pay higher user charges as they feel that current user charges are reasonable. Thus, in order to implement higher user charges, an awareness will need to be created amongst waste generators, officials and political representatives through information, education and communication (IEC) to justify the increase in user charges at cost recovery level. They need to be made aware of the benefits of the proposed Project like higher SWM coverage (in terms of coverage of households and other waste generators), increase in waste and bill collection rates, segregation of waste, improved hygiene conditions at landfill site and sustainable landfill management, increase in employment opportunities



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etc. In addition, it is to be noted that under this case the level of user charges for waste collection is around 1% of household's income which seems reasonable.

#### Illegal dumping/ burning of waste

Waste generators might resort to illegal burning of waste and disposal in pits thus impacting the waste and bill collection rates negatively and posing environmental problems and health hazards to the community at large.

#### User charges collected illegally or not reported

User charges collected by CBOs are not reported many a times, as they would be required to share the same with ACC, or the user charges are collected illegally, thus leading to low bill collection rates. Therefore, the bill collection rate would ideally be more than that reported.

#### Insufficient expertise of ProjectCo

The ProjectCo should have significant experience as a PPP operator in SWM services. This does not seem to be available in Tanzania though. The council should appoint a ProjectCo which should preferably be a consortium of national and regional companies with sufficient experience in the solid waste sector and PPP space.

#### Risk mitigation

Detailed stakeholder consultations need to be undertaken and managers of CBOs/some key members of casual staff need to be taken in confidence. These will play an important role in convincing their employees that they would not lose their livelihood as under the PPP Project, CBOs would work/partner with the ProjectCo wherein either- a) ProjectCo takes over the CBO employees who are then added to its headcount; or b) ProjectCo subcontracts the CBOs. The objective is to combine both CBOs and the ProjectCo allowing both entities to exist together, carrying out their waste management responsibilities. The aim is to amalgamate the CBOs with the PPP. As it is evident from the community engagement exercise the first option of ProjectCo taking over CBO employees, faces significant resistance from the CBOs management as they prefer continuing their members' current employment status within the CBO. Under this option, CBO as a formal entity remains unaffected by transferring its employees to the ProjectCo, however, the CBOs would become a shell entity. Under the second option of the ProjectCo subcontracting the CBOs, the present situation is marginally modified wherein the employees remain with their respective CBOs and the CBOs are contracted by the ProjectCo to perform their services with higher performance standards. Thus under this option, both entities remain independent and are tied together by a sub-contract specifying responsibilities and rights of both the ProjectCo and the CBOs. The decision to choose one out of the two options needs to be taken by the ACC as explained in Section 3.3.

In the same vein, the waste pickers need to be explained that the proposed PPP Project would not affect their livelihood, as they would be allowed to visit the collection centers as well as the landfill site to collect recyclables. Also, in order to deal with political risks, ACC should get appropriate legal advisors to validate the implications of any change in regulations on the Project and should compensate the ProjectCo for changes in laws. ACC should assess the impact of the public policies and assess the loss which would be borne by the ProjectCo. Additionally to mitigate the risk of political interference, discussions need to be carried out with



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officials such as the commissioner, mayor, city director and other key decision makers and awareness about the Project needs to be created.

Similarly, in order to implement higher user charges for waste collection, an awareness will need to be created amongst waste generators, officials and political representatives through information, education and communication (IEC) to justify the benefits of the proposed Project such as higher SWM coverage (in terms of coverage of number of wards, households and other waste generators), increase in waste and bill collection rates, segregation of waste, improved hygiene conditions at landfill site and sustainable landfill management, increase in employment opportunities. Small minority of waste generators, not entirely convinced of the need for higher user charges will have to be convinced of the need for the same during community engagement explaining them about the Project's environmental and public health benefits. Under the PPP Project, bill collection rates need to be improved through better monitoring, technology and an escrow account and the role of the council will change from a service provider to service monitoring, preventing illegal methods of bill collection. Lastly, there is a need for strict enforcement of existing environmental rules/ laws and appropriate penalties would be imposed for illegal dumping/ burning of waste by the waste generators.



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## 4 Economic case



The main objective of the chapter is to demonstrate that enhancing the city's SWM capacity and streamlining operations results in significant economic benefits to the wider economy. It identifies the critical success factors for the PPP. We identify a limited number of technical options and recommend the preferred option. The Project will result in increased employment opportunities, reduced pollution and savings in healthcare expenditures. A distributional impact analysis sets out how the stakeholders are expected to benefit. A sensitivity analysis, clarifies how the economic rate of return (ERR) is impacted by different variables. The chapter finally presents the conclusion underpinning the economic case for the proposed SWM Project.

### 4.1 Critical success factors



#### Financial closure

One of the key success factors of a PPP Project is obtaining financial closure on time. In many cases, we can observe that the government signs the contract and then the selected bidder takes excessive time in arranging the financing. In the meantime, the government waits and often without any remedies or penalty clauses in the contract. This can be avoided by requesting the selected bidder to submit an irrevocable and first-demand guarantee, linked to the financial closure deadline agreed to. In the proposed SWM Project, financial closure should ideally be achieved in about 12 months. If after 12 months, financing agreements have not been signed, the government can exercise the guarantee. While the risk of achieving financial closure on time persists, it needs to be noted that the capex required is relatively small, about TZS 5,446 million in the first year and TZS 26,086 in total over 15 years. This is explained by the fact that the majority of capex has already been incurred during TSCP and major infrastructure has been created.

#### PPP agreement

After selecting the preferred bidder, the draft PPP agreement is finalized in the final negotiations. However, to ensure timely completion of the negotiation process, it is proposed the draft PPP agreement should be shared with all the shortlisted bidders. Feedback and comments will then be incorporated into the contract's final



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version and this then will be the reference used for bidders' proposals. Final contract negotiations with the preferred bidder would therefore take limited time.

#### User charges

As explained above, the user charges have been set at cost recovery level, to make the Project financially viable. Hence, the user charges for urban households in CBD and non-CBD areas would need to be increased to TZS 5,000 per month. The user charges for all other waste generators like industries, institutions, etc. would need to be increased by 30-60%. The user charges for rural households have been set at TZS 2,000 (currently no charges are levied). In addition, all user charges would be revised by 25% after every three years and 15% of the total revenue earned by ProjectCo will be shared with ACC. The upgraded operations of SWM in Arusha will result in better waste coverage, increase in waste collection and bill collection rates, improved environmental conditions, increase in revenue sources and better hygienic conditions at the landfill site. The ACC will need to make relevant changes in the municipal bye-laws reflecting the revised user charges.

#### Willingness of waste generators to pay the increased user charges

The user charges to be collected from households, commercial units, industrial units, institutions and hospitals have been set at cost recovery level to make the Project viable. User charges for urban households (CBD and non CBD area) are proposed to be increased to TZS 5,000 per month, and user charges for all other waste generators are proposed to be increased by 30-60%. The user charges for rural households have been set at TZS 2,000 (currently no charges are levied). In addition, all user charges would be revised by 25% every three years. However, it has to be noted, as per stakeholder consultations and willingness-to-pay survey assessment undertaken by the Consultant, majority of waste generators are not willing to pay higher user charges as they feel that current user charges are reasonable.

#### Contract management skills

Both before and after commercial operations start, it is imperative that the council has adequate contract management skills. These include Project management capability, capacity of designing and running awareness campaigns, managing contractual risks, and Project financing skills. The institutional assessment review highlights the main skill gaps of the Project officers. It is recommended that all concerned officials should attend adequate training that covers all the above mentioned aspects. In addition, we recommend bringing in a resident international PPP contract management consultant for all four solid waste management PPPs, who could be visit the sites regularly and could be supported by local / national resource located in each city. This will also enable transmission of knowledge to local teams and support the council in contract management.

## 4.2 Technical options

This section explores the rationality of the various technical options for enhancing capacity and streamlining SWM operations for Arusha city.

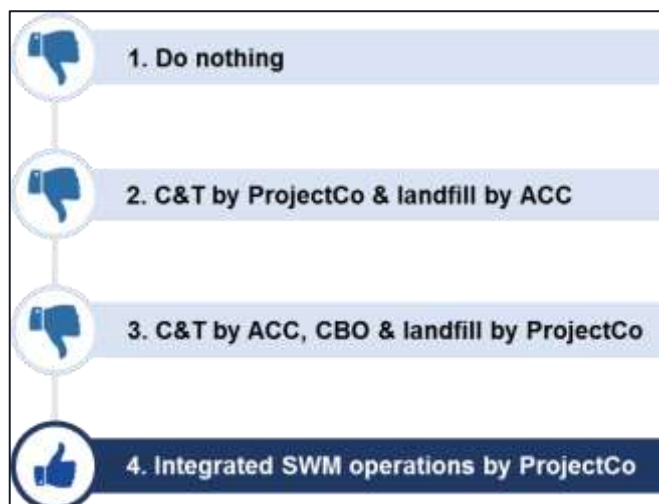


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### Option 1 - Do nothing

This option maintains the current status quo, which would result in further degradation of the SWM services in Arusha in years to come. As the current infrastructure is inadequate, the current situation is unhygienic. Hence, there is a high chance of infection and water-borne diseases. Additionally, is not maintained properly, the current equipment would become obsolete and landfill management would not be done in a sustained manner. Based on this, we discard this option.

### Option 2 – Collection and transportation by ProjectCo and landfill operations by ACC or by another private player under PPP



Under this scenario, only C&T component of the SWM value chain will be upgraded and operated by the ProjectCo. The other component that is only landfill will be upgraded and operated either by ACC or by another private operator under a separate PPP contract. Muriet sanitary landfill was developed and is operated and maintained as part of World Bank's TSCP project. The TSCP assistance comes to end in 2020 and thereafter the landfill operation would be the sole responsibility of the LGA. There is a need to purchase adequate number of machinery and equipment, hiring adequate number of staff for day-to-day operations of the landfill site, as well as maintaining proper sanitary conditions and hygiene at the landfill site. The LGA does not have the technical and financial capability to achieve these objectives. Considering the need to sustain a proper landfill management, we do not recommend this option.

Additionally, there is a need to reduce the interface between collection & transportation phase and the landfill phase as severing the physical and contractual dependency between C&T and landfill components in two separate PPP contracts will have profound implications on the entire systems feasibility, both technically and financially. Separating the two value chain components, we end up with a contractual and physical disconnect, which may result in sub-optimization of the entire value chain. In the case the C&T faces higher tipping fees, it cannot transfer these additional costs to the households in the form of higher user charges for waste collection. The level of user charges are capped by the affordability ceiling of about 1% of the household's income spent on user charges for waste collection. Therefore, there is only limited leeway offsetting higher tipping fees.

Arusha is a town with only 200 tons of waste reaching the landfill site on a daily basis. The quantity to be landfilled is small and translates into a higher tipping fee per ton of waste to be landfilled that must be paid by the C&T operator rendering landfill financially viable but rendering C&T unviable. Thus, the C&T operator could resort to illegal burning/ dumping of waste avoiding the high tipping fee. Carving out C&T as a separate PPP faces numerous constraints mostly emanating from the current situation with low waste quantities, absent economies of scale, patchy legal compliance and high level of illegal dumping. Thus, we discard this option.



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Option 3 - Only landfill operations by ProjectCo and collection, transportation by ACC and CBOs, or by another private player under PPP

In this case, the collection and transportation phase would face the same inefficiencies as present in the Option 2. The LGA does not have the financial capability to purchase equipment and vehicles and hire additional staff to enhance capacity for collection and transportation phase. Also, the waste collection and bill collection rate would remain at low if the collection and transportation phase is entrusted with ACC and CBOs.

As discussed above, in Arusha, the quantity to be landfilled is small and translates into a higher tipping fee per ton of waste to be landfilled that must be paid by the C&T operator rendering landfill financially viable but rendering C&T unviable. The landfill operator has no control or leverage on the quantities of waste disposed and will probably insist on a minimum revenue guarantee to be provided by the municipality, labelled as “Put-or-Pay” which is effectively akin to an availability payment as it is decoupled from the actual quantities landfilled. Municipal guarantees in any form have been discarded right from the outset as the ACC’s budgets are already constrained. Additionally, operating the landfill site is a small contract which will not attract private interest from the region and, in addition, does not warrant the transaction costs. Additionally, the ProjectCo should then be paid by the ACC in the form of an availability payment that is decoupled from the actual waste disposed.

As described above in Option 2, the two phases of the SWM value chain cannot work in isolation. There is a need to reduce the interface between the two components as severing the physical and contractual dependency between C&T and landfill components in two separate PPP contracts will have profound implications on the entire systems feasibility, both technically and financially. Therefore, we discard this option.

Option 4 - Integrated SWM operations by ProjectCo (option proposed by Consultant)

In this case, the existing SWM value chain is upgraded, the capacity is enhanced (equipment, vehicles and staff) and the processes of collection, transportation and disposal of waste at the landfill site are streamlined and managed by the ProjectCo. The ProjectCo has the required financial capability to upgrade the SWM facilities in the city, both for collection and transportation phase and for the landfill phase. Additionally, the ProjectCo can work/partner with CBOs’ and integrate casual laborers of ACC in the Project, thus continuing their employment and livelihood. The LGA does not have financial and technical capability to purchase equipment, machinery and hire additional staff for either the C&T phase or the landfill.

Integrating the entire SWM value chain (i.e. combining the C&T and the landfill components) in the hands of one PPP Operator, is recommended both from an efficiency and effectiveness point of view. It ensures that the waste collection and bill collection rate is maximized, and it avoids the fault line between these two value chain components. A working assumption in PPP structuring is first and foremost avoiding contractual hand-overs in the value chain as much as possible. Carving out the landfilling as a separate PPP faces numerous constraints, mostly emanating from the current situation with low waste quantities, absence of economies of scale, patchy legal compliance and a high level of expected illegal dumping. If the landfilling is separated from C&T thus cutting the SWM value chain in two components, we end up with a contractual and physical disconnect which may result in sub-optimization of the entire value chain. Rendering the landfill operations financially viable requires sufficiently high tipping fees to be paid by the upstream C&T Operator (either a



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private operator under a PPP or ACC). Equally, high tipping fees also affects the C&T PPP operator's financial returns as it increases its operating costs and, by extension, reduces its profits.

The law of communicating vessels applies to this dilemma in which a higher landfill tipping fees increases the landfill operator's financial return but equally decreases the C&T operator's return. The landfill operator's gain is the C&T operator's loss- a zero sum game affecting each party's financial return. Two separate PPPs for the two components of the value chain, is quite a complex construction which would require additional contract management, and revenue monitoring measures. The complexity can simply be avoided by combining the two value chain components of C&T and landfill in one PPP contract, thus resulting in economies of scale and uplifting the quality and service levels. Hence, this is the most viable and recommended option.

Table 4-1: Summary of technical options

S.no.	Technical option	Recommendation
1	Do nothing	Discarded
2	Collection & transportation by ProjectCo and landfill by ACC	Discarded
3	Collection & transportation by ACC and CBOs and landfill by ProjectCo	Discarded
4	Integrated SWM operations by ProjectCo	Accepted

Source: Consultant

We conclude that the technical option of integrated SWM operations by ProjectCo is our recommended option. The financial and economic analysis below seeks to estimate both the costs and revenues of this option.

### 4.3 Exclusions from proposed PPP Project

#### Waste to Energy

Waste to energy (WTE) or energy from waste is the process of generating energy in the form of electricity and/or heat from the primary treatment, or the processing of waste into a fuel source. WTE is a form of energy recovery. Most WTE processes generate electricity and/or heat directly through combustion, or produce a combustible fuel commodity, such as methane, methanol, ethanol or synthetic fuels. The main reasons for exclusion of a Waste to Energy plant from the proposed PPP Project have been described below.

- *Uncertainly feed-in-tariff:* Power produced is usually fed into the grid and this requires both a feed-in-tariff and a power purchase agreement with the TANESCO. Both are yet unknown and it remains uncertain if TANESCO is willing to absorb the power produced.
- *Financial impact:* Required investments of a Waste-to-Energy process include the facilities, scrubbers and filters for reducing toxic emissions such as lead, cadmium, dioxins, volatile organic compounds, and other harmful acidic gases and other emission control mechanisms.
- *High moisture content and low calorific value of the waste.* Another problem in Tanzania is the low average calorific value of garbage will be low (calorific value of garbage in developing countries is around 800 cal/kg). Additionally garbage in tropical countries like Tanzania, is high in moisture content, thus further decreasing the calorific value of garbage. For combustion technologies to succeed, 2,000-3,000 cal/kg of



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calorific value of garbage is required, otherwise auxiliary fuel will have to be added. This will result in additional cost, thus making the process even more uneconomical and more polluting than it already is. Moreover, an incineration plant requires highly skilled and trained personnel, thus adding to its costs.

- *Environmental issues:* Despite being an attractive process of waste management, waste to energy facility and other combustion-based processes for municipal solid waste (MSW) treatment can emit harmful pollutants, chemicals and toxic substances into the air, land and water, in the absence of effective controls. These pollutants would pose environmental issues and public health hazards to the community at large. Though a waste to energy facility can be a part of integrated solid waste management process, however strict controls and regulations are required to prevent the adverse impacts of the technology on public health and the environment. Emissions due to incomplete combustion of municipal refuse contain a number of toxic compounds, requiring appropriate emissions control systems. While there are technologies to control the emissions, including them in the proposed Project will not only increase cost but also place pressure on the city council to effectively supervise and ensure compliance. The ash generated by incineration has to be buried properly in special hazardous waste landfills cells. In short, incineration or a waste-to-energy facility does not encourage recycling or reduction of waste while the long term strategy should be to focus on recycling and reduction of waste, as ineffective incineration could add to environmental issues.
- *Limited waste quantities:* A waste-to-energy plant requires a significant upfront capital investment as well as high operating costs on a per year basis. The plant requires the guaranteed supply of significant amount of waste. Since the total amount of waste generated in Arusha, is only 271 tons currently which is projected to increase to ~364 tons by year 5 of the PPP Project, and is projected to increase to ~466 tons by year 10, the waste quantity is too small to support a waste-to-energy plant. Through a typical waste-to-energy plant the range of electrical energy produced is about 500-600 KWh per ton of waste incinerated. Thus assuming that even 100% waste collection occurs in Arusha, 271 tons of solid waste will produce 136-163 MWh of energy on a per day basis, which is not very high and will not generate much revenue for the ProjectCo by selling power, injected in the grid to TANESCO. Therefore the revenue stream will not be enough to offset the high capital cost and operational cost incurred for the waste-to-energy plant and user charges for waste generators would need to be increased to such a level that it would not be possible for them to pay such a high amount.
- *Low land cost in Arusha:* Waste-to-energy facility is particularly useful for countries which have shortage of land or the land prices are very high thus making landfilling a costly option as there isn't simply enough usable space. Waste-to-energy is therefore highly effective in countries such as Japan and other urbanized nations. In Tanzania, in a city like Arusha, the indicative cost of land is TZS 20,000–TZS 40,000/sqm in the Muriet ward (where the landfill currently is), suggesting that there is no dearth of land in the region and it is cheaper to landfill than to incinerate.

### Composting

Composting is a process which biodegrades or breaks down organic waste such as food waste, manure, leaves, grass, paper, wood, crop residue, etc. and turns it into a valuable organic fertilizer. It is a natural biological process and is carried out under controlled aerobic conditions, i.e. the process requires oxygen.



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Organic matter is broken down by microorganisms including bacteria, fungi and actinomycetes into simpler substances. The main reasons for excluding composting from the proposed PPP Project are given below.

- *Financial impact:* Construction of a composting facility at the landfill site would lead to significant increase in the Project cost, however the revenue generated through such a facility (by sale of compost and other recyclable material) is low and highly uncertain. This might affect the Project's viability as it would decrease its financial returns. A typical composting plant requires technical units such as bag openers, magnetic separators, sieves, shredders, homogenization and mixing equipment, turning equipment, aeration systems, bio-filters, scrubbers, control systems etc. Composting costs include site development, regulatory compliance, facility operations and marketing of the finished product. Additional requirements may include land for buffer around the facility, site preparation and handling equipment such as shredders, screens, conveyors and turners. Facilities to control odour, leachate and runoff are a critical part of any compost operation.
- *Low composting rates in similar context:* The quantum of waste generated in Arusha is limited and composting rates are typically low in developing countries. In general, composting in low and middle income countries is not successful due to a number of reasons including technical, financial and policy issues. Composting plants in developing economies operate in a fragile environment. Consumers face competing products that provide quick results and are cheaper due to fertilizer subsidies. Therefore, it is recommended that the proposed PPP Project focuses on current process of collection, transportation and disposal at landfill, and composting if required should be implemented as a separate Project in phase two.

#### Street cleaning and drainage

Street cleaning and drainage have not been included in the scope of the proposed PPP Project and such functions would remain with ACC. While the casual labor of ACC could be integrated with the ProjectCo due to short contracts of three months duration, the permanent staff of ACC could be involved in functions such as street cleaning, drainage, monitoring and supervising the ProjectCo. We recommend excluding this from the PPP aiming at preserving the livelihood of permanent staff and casual labor of the ACC. Moreover, including street cleaning and drainage in the ProjectCo's scope of operations will increase the Project cost as additional capex (to purchase the cleaning equipment) and additional opex (due to more number of staff required) would be required. This will further increase the user charges to be charged from waste generators by the ProjectCo in order to make the Project viable. It will also add complexity to the contract as cleaning and sweeping feed into other municipal activities.

## 4.4 Economic appraisal

This section assesses the economic impact of the Project and the benefits accruing to the economy in terms of increased income and employment opportunities for casual labor and other staff, savings on account of reduced healthcare spending for citizens, environmental benefits such as better hygiene, and better aesthetics in the city. Financial and economic analysis have similar features; they both estimate the net-benefits of a Project investment based on the difference between the with-Project and the without-Project situations. The basic difference between these two is that the financial analysis compares revenues and costs looking



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exclusively at the Project. In an economic analysis, we take a wider perspective and look at the Project's contribution to the wider economy considering its positive and negative externalities.

### Assumptions and methodology

The economic analysis looks at both quantifiable and non-quantifiable factors such as incremental income, taxes paid, savings in healthcare expenditure, job creation, better hygiene and cleanliness and better aesthetics. We quantify the economic benefits wherever possible. When this is not possible, we describe the economic benefit qualitatively. The various assumptions and considerations arriving at the economic benefit for this Project are presented below:



- *Period of analysis* - The economic appraisal of the SWM Project in Arusha has been undertaken for a time period of 20 years since the expected life span of the landfill site is 20 years.
- *Economic prices* - In a financial analysis we use market prices reflecting the financial costs to a Project. In an economic analysis we convert these financial prices (both revenues and costs) into economic prices using a standard conversion factor (SCF). A SCF of 0.9 has been assumed to eliminate the effect of market price distortions, especially taxes and subsidies.
- *Discount rate* - A discount factor of 12% has been assumed to calculate the economic net present value (NPV) of the Project. This is in keeping with other infrastructure appraisal benchmarks used by the World Bank and other multilaterals

### Economic indicators

The economic appraisal considers both quantitative and qualitative indicators under three broad categories i.e., producer surplus, consumer surplus and developer surplus. The details of various economic benefits accrued under these categories have been provided below.

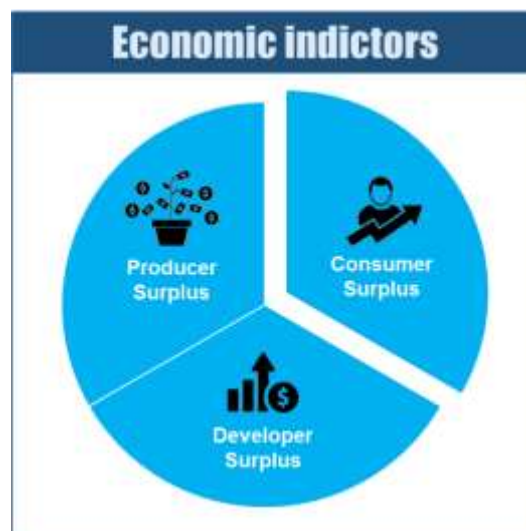
1. *Producer surplus*: These are the net profits/incremental income accruing to the LGA, the casual labor, workers and other staff from the Project. The LGA currently spends more than what it earns as revenue. Once the PPP Project is implemented the LGA will save on this extra expenditure. The producer surplus also includes the overall increase in income for labor/staff (to be employed with the ProjectCo), and increase in income of CBO employees working/partner with the ProjectCo due to the upgraded SWM value chain under the PPP Project. The overall savings in healthcare expenses of these labor/workers and staff, due to hygienic methods of waste handling as well as the usage of personal protective equipment is a further addition to producer surplus. Other factors enhancing the producer surplus would be reduced air, water, soil pollution and stench, improved hygiene, cleanliness and aesthetics in the city and reduced contamination of soil and ground water at landfill site.



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2. *Consumer surplus:* This covers net benefits accruing to households. The major economic benefit to consumers is in terms of savings in healthcare expenses of households through better hygiene conditions in the city. The upgraded facilities will provide hygienic and clean services reducing the overall healthcare expenses of the households. Other qualitative factors enhancing the consumer surplus would be reduced air, water, soil pollution and stench, improved hygiene, cleanliness and aesthetics in the city and reduced contamination of soil and ground water at landfill site.
3. *Developer surplus:* The developer of the Arusha SWM project will obtain the benefits in terms of overall profits generated from the Project. The profits accrued will then be converted from their financial values into economic values using the standard conversion factor.



To calculate the economic benefits we have used the following indicators presented in the table below.

Table 4-2: Economic indicators for solid waste management project

Indicators	Quantified?
<b>Producer surplus</b>	
Incremental income of casual labor/workers/staff/CBOs	Yes
Savings for ACC	Yes
Savings in healthcare expenses of casual labor/workers/staff	Yes
Increase in employment opportunity	No
Reduced air pollution (from burning of solid waste)	No
Reduced stench (foul smell)	No
Reduced water pollution	No
Reduced soil pollution	No
Improved hygiene and cleanliness in city	No
Improved aesthetics in the city	No
Reduced contamination of ground water at landfill site	No
Reduced soil contamination at landfill site	No
<b>Consumer surplus</b>	
Savings in healthcare expenses of households	Yes
Reduced air pollution (from burning of solid waste)	No
Reduced stench (foul smell)	No
Reduced water pollution	No



Indicators	Quantified?
Reduced soil pollution	No
Improved hygiene and cleanliness in city	No
Improved aesthetics in the city	No
Reduced contamination of ground water at landfill site	No
Reduced soil contamination at landfill site	No
<b>Developer surplus</b>	
Profit after tax (PAT)	Yes

Source: Consultant

### Metrics

As explained in the table above, the capex and opex for the ACC SWM Project have been adopted from the financial analysis and multiplied by the SCF to arrive at the economic costs. Here, the capex taken excludes the value added tax (VAT) amount since VAT is considered as a form of transfer payment.

In producer surplus, the incremental income of SWM workers (casual workers, truck/equipment operators casual workers and truck/equipment operators of ProjectCo integrated under PPP), incremental income of CBO workers working/partner with the ProjectCo, revenue from savings in healthcare spending, and savings in operating expenses for ACC have been considered. The incremental income for SWM workers, operating expenses for ACC have been calculated, considering both with-project and without-Project scenarios. The difference between the with-project and without-project scenarios result in the incremental income for SWM workers and savings in O&M cost for ACC.

In the consumer surplus, the savings in healthcare expenditure of the waste generators has been calculated by multiplying the estimated population of Arusha city in the coming years with the average per capita healthcare expenditure on solid waste-related diseases.

In the developer surplus, the overall profits generated from the Project are considered. The profits accrued are then converted from their nominal value to real value resulting in the economic benefits to the developer.

The net economic benefit generated by the Project has been calculated by adding the producer surplus, consumer surplus and developer surplus over the 15 years period.

Based on the above presented assumptions, the Project's economic rate of return (ERR) for the 15-year period of analysis is 42.1% and exceeds the economic cut-off rate of 12%. The economic NPV amounts to TZS 13,495 million. This implies the Project is viable from a socio-economic viewpoint underpinned with robust economic metrics. Moreover environmental issues will improve considerably. The high ERR is consistent with other solid waste projects' in which a relatively small investment results in high economic benefits and emanating from public health improvements. SWM is crucial for a society and this is reflected in the strong economic impact of our Project.



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### Sensitivity analysis

We consider the following scenarios: 1) the Project's capex increases or decreases 20%; 2) the Project's PAT increases or decreases 20%. Even in these adverse circumstances, the ERR remains high and robust as shown in the table below.

Table 4-3: Sensitivity analysis




	ERR (%)
<b>Base case</b>	42.1%
<b>Scenario 1</b>	
With-Project capital cost higher by 20%	37.7%
With-Project capital cost lower by 20%	48.1%
<b>Scenario 2</b>	
With-Project PAT lower by 20%	41.8%
With-Project PAT higher by 20%	42.4%

Source: Consultant

## 4.5 Distributional impact


This section assesses the distribution of economic benefits across the stakeholders and concludes that they are better off with the implementation of the Project. The distributional impact has major implications. The benefits of the Project need to be redistributed ensuring that all stakeholders are made better off.

Table 4-4: Distributional impact on various stakeholders

Beneficiary	Distributional Impact	Impact level
 Arusha City Council (ACC)	It will be able to fulfill its social responsibility without any significant capital investment. The Project gives ACC an opportunity to leverage private sector efficiencies in upgrading the SWM infrastructure and streamlining operations, while ACC will still remain the owner of the assets.	High
 Waste generators	They will benefit immensely as the proposed SWM project will have a higher coverage (all wards and all waste generators). The waste generated from various establishments will be collected from door to door which will help in reduction of illegal dumping/ burning of waste. This will further help in reducing health hazards/ risk of diseases and hygienic conditions will prevail in the community.	High
 CBOs and casual labor	They will benefit immensely as the CBOs will work/partner with the ProjectCo under the PPP Project. Currently, the income of CBOs is fluctuating depending on the bill collection rate but under the proposed Project the CBO employees are expected to receive higher monthly salary. The casual labor/staff will be integrated within the Project and	High



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Beneficiary	Distributional Impact	Impact level
	are expected to receive higher monthly salary. Additionally, the CBOs/ casual labor will be provided with protective gearing, equipment, machinery and vehicles by the ProjectCo.	
 ProjectCo	ProjectCo will generate optimal returns for the investment made in the proposed SWM PPP. The ProjectCo would be provided freedom to collect user charges from the waste generators of the SWM services as per the PPP agreement.	Medium



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## 5 Commercial case



*This chapter demonstrates that the recommended PPP model results in a well-structured and viable PPP transaction. It provides an overview of the Project's structuring aspects, outlines the proposed PPP model, the contractual agreements and the roles and responsibilities of the council and ProjectCo.*

*The risk allocation matrix presents the risks each party faces in each of the Project phases: designing, building, financing, operating, maintaining and transferring (DBFOMT). The output specification provides an insight into the overall proposed project design related to the technical components.*

*We have also provided a brief description of the proposed payment mechanism. The proposed term of the PPP, the procurement methodology and the accountancy treatment of the proposed PPP model have also been detailed.*

### 5.1 Project structure

This section provides an overview of the Project structuring aspects in terms of the roles and responsibilities allocated to the council and ProjectCo.

Structuring a PPP Project boils down to allocating responsibilities, rights, and risks to each contract party. The aim is structuring a PPP that is technically feasible, economically and commercially viable, fiscally responsible, and provides VfM to the council. A typical PPP structure involves contractual arrangements between the various parties including the government, Project sponsor, Project operator, financiers, suppliers, contractors, engineers, and end users.

Information from the feasibility study and economic feasibility analysis is a key input to the PPP structuring. The PPP structure then feeds into the commercial feasibility, and affordability and VfM analysis, which could iteratively result in changes to the proposed risk allocation. In short, PPP structuring is a crucial component in the overall development process of preparing a PPP Project.

#### Project structuring overview

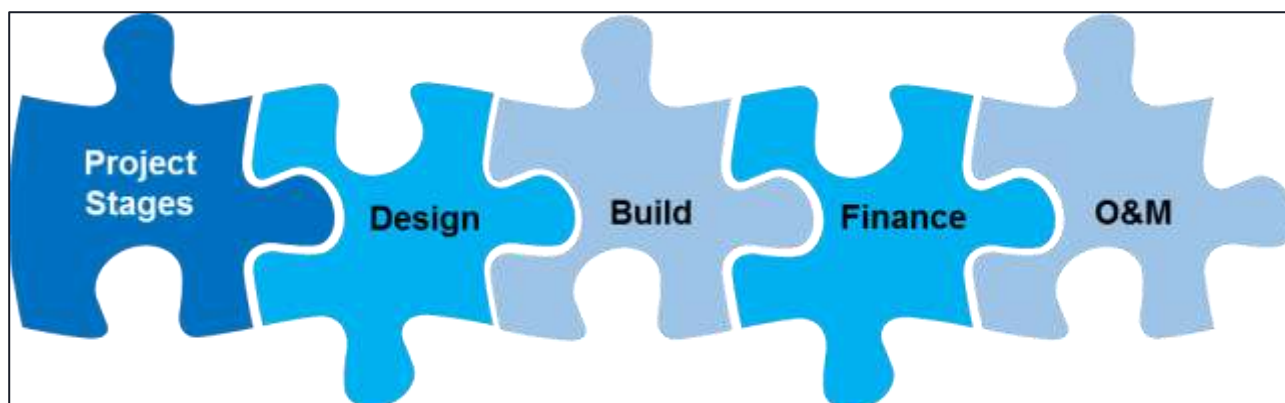
Arusha currently has infrastructure in place for day to day SWM operations. CBOs utilize their own equipment and staff to collect solid waste. Additionally, ACC owns 16 skip bucket containers and five skip master trucks for collection and transportation of solid waste. Arusha city also has a new, engineered sanitary landfill which was financed by the World Bank TSCP. Therefore, most of the infrastructure is already in place. The PPP project aims at streamlining the entire value chain of SWM operation and buying additional equipment and vehicles, managing daily operations and maintaining the existing landfill facility.

In PPP structuring for SWM operations, we discern the following building blocks which must be allocated to the parties and their responsibilities defined. Given the need to combine in one contract both the investments and operation, as well as the LGA's limited financing ability, we recommend a combination of operate, maintain and transfer (OMT) of the existing SWM assets of the council and design, build, finance, operate, maintain, and transfer (DBFOMT) of the new assets to be added by the private operator. It optimizes the ProjectCo's incentives structure and minimizes the life-cycle costs of upgrading existing infrastructure and its operation.



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*Design* - The task in this stage is preparing the design plan for the refurbishment/upgrading of the value chain of the entire SWM lifecycle, including preparing location plans for skip containers to be added in all the wards. The task would also involve designing processes for collection, transportation and disposal at the landfill site. The proposed design plan should be approved by ACC for the Project to move ahead. The proposed design plan should also take care of the regulations and municipal bye-laws applicable to the facility. Designing the Project would also take into account environmental and safety regulations in addition to identifying the Project's scope of services, design characteristics and specifications for all Project components, and performance and quality requirements.

*Build* - The task in this stage is the actual refurbishment and upgrading of the entire SWM lifecycle including collection, transportation and landfill management. Timelines and budgets should be adhered to in this stage by ProjectCo.

*Finance* - The task in the stage is providing finance to upgrade the SWM services in Arusha city following a typical project finance structure. Typical financial gearing is 30% equity and 70% debt arranged from commercial banks or multilateral financing institutions. Arranging project finance could be challenging in our case given that the immovable assets (i.e. the land) will remain under the LGA's ownership and cannot be used as a lending security. This financing constraint brings an additional challenge to the table and is further discussed in the legal section. However, it needs to be noted that only minimal additional investments are required for our Project on hand (capex during first year of PPP is ~34% of capex incurred under TSCP) as we have a strong foundation of the existing solid waste infrastructure.

*Operation and maintenance* - After upgrading, it has to be decided which party takes up the responsibility of the operation and maintenance of the SWM system. The ProjectCo will include the skills and resources to operate the system.

## 5.2 Proposed PPP model

This section explores the different options of implementing the PPP Project and also delves into aspects which we believe are crucial for the successful implementation of the Project.



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### ACC's constraints

ACC has a current surplus of TZS 3.3 billion as per the income statements of 2017. However, the average surplus for years 2016 & 2017 is ~5.9% of the total revenue which is still insufficient to fund the project. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained. Additionally, the council has cash and cash equivalents of ~TZS 2.6 billion in 2017 which will not be enough to fund the capex for the proposed PPP project which is ~TZS 26.0 billion over a 15 year period. The central government would be required to step in providing viability gap funding, if required. Therefore, the LGA does not have sufficient resources to fund the Project alone. Preferably, the party responsible for upgradation should preferably also operate, avoiding contractual hand-overs and disconnects.

The rationale for the PPP model is driven by the private sector's resources and expertise. It also assists the LGA in providing basic infrastructure services in the current context of constrained financial budgets. Additional underpinning arguments for the PPP are explained below:

- *Sufficient experience in arranging finances* – ProjectCo is expected to have past experience in implementing similar kind of Projects and sufficient experience in arranging finances from different sources based on its technical and financial credentials.
- *Utilize modern technologies* – With past experience in this field, ProjectCo can leverage its expertise and modern construction technologies to upgrade the SWM value chain and can include features that the public sector may not have envisaged.
- *System efficiency* – ProjectCo will leverage its past experience in EPC management and bring in efficiency in operation and maintenance techniques, which will in turn maximize profits (i.e. maximize revenues and minimize costs)
- *Incentivized to maximize collected revenues* – ProjectCo is incentivized to maximize the collection of fees. By transferring the upgradation as well as operation and maintenance of the services, it is provided with the commercial freedom to exploit the SWM value chain in the best way possible.

### Recommended DBFOMT Model

Based on the above constraints, we recommend a DBFOMT model. In this model, ProjectCo is responsible for designing, building, financing, and operating and maintaining the Project and its services and finally transferring the Project to the LGA at the end of the agreement period. The LGA will be responsible for providing the land parcel (landfill site and collection centers) equipment, vehicles, machinery and other assets created under TSCP. The LGA will be responsible for facilitating necessary approvals, such as environmental permits and regulating tariff charges as per the municipal byelaws where deemed necessary. In addition the LGA will be responsible for monitoring the activities and services provided by the ProjectCo. Therefore, the LGAs role will be more of supervision and monitoring once the PPP Project is implemented.

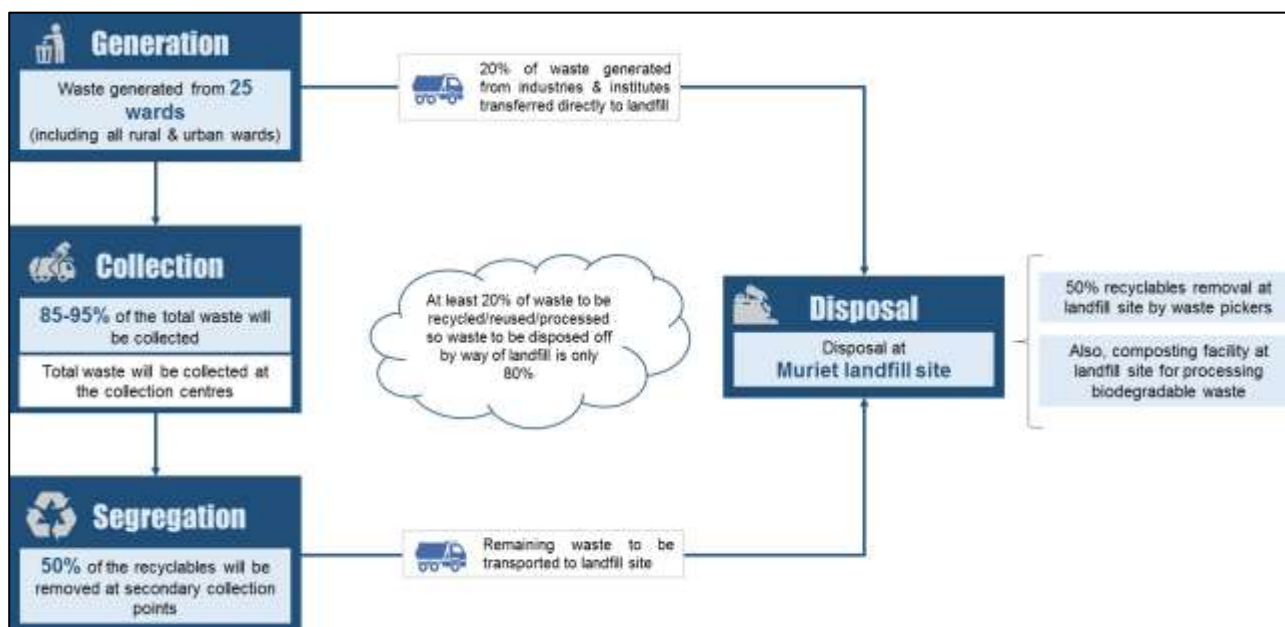
We also see the need to tie together in one contract both upgrading and operations, as well as the LGA's limited financing ability. The recommended model also optimizes ProjectCo's incentives structure as it minimizes the total life cycle costs of upgrading and operations. The transfer of assets will only be partial as the land remains with LGA as the Tanzanian law does not separate ownership of the land from its immoveable assets. Moveable assets can be owned by the ProjectCo, though.



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The proposed model for solid waste collection in Arusha is depicted in the figure below.

Figure 5-1: Proposed PPP model for solid waste management



Source: Consultant

In the proposed PPP Project, a hub and spoke model has been conceptualized wherein tricycles and pushcarts will be utilized for collecting waste from door to door. This waste would then be collected in skip containers (secondary collection points) from which it will be transported to the landfill site by transfer trucks. As discussed during the second workshop, if only trucks are utilized for collecting waste on a door to door basis, the capital expenditure (capex) and operating expenditure (opex) incurred for the same will be too high and trucks will not be able to maneuver through rural and remote areas.

The skip containers and other vehicles required for waste collection and transportation will not only be kept at a centralized location but will also be distributed/shared among the wards as per the requirement. This will be done to ensure that even the most remote of rural wards is serviced.

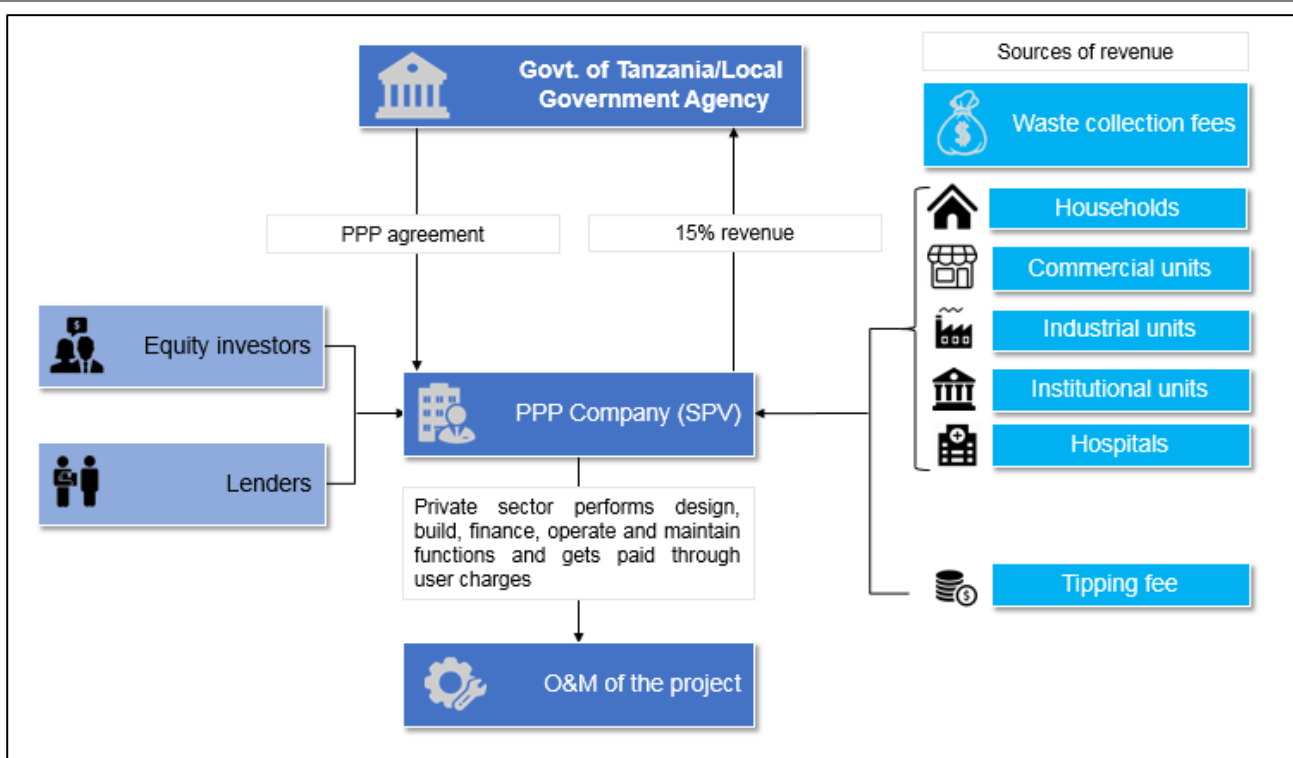
### 5.3 Roles and responsibilities as per the proposed PPP model

This section depicts the proposed PPP model as well as the allocation of roles and responsibilities of both the council and ProjectCo. Additionally, it covers key procurement components such as bidding variables and agreement period.



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Figure 5-2: Proposed PPP Model



Source: Consultant

The proposed PPP model will have Arusha City Council enter into an agreement with ProjectCo (i.e., the SPV) to carry out the Project during the agreement period of 15 years. The ProjectCo will be responsible to finance the Project, combining both equity investors and lenders (commercial banks or domestic financial institutions). It will generate revenue through fees collected from households, commercial units, industrial units, institutional units, hospitals and also tipping fee collected from private transfer trucks.

#### Responsibilities of ACC

- *Assist the ProjectCo in obtaining approvals* - The city council would take the Project through the PPP process, in line with the provisions of the PPP Act 2010 and assist the ProjectCo in obtaining approvals necessary for entering into the PPP agreement with the ProjectCo.
- *Development of ESIA and ESMP*: For PPPs yet to undertake an ESIA, the implementing agency will be responsible for ensuring the development of an ESIA inclusive of an ESMP. For PPPs that have undertaken an ESIA and secured an EIA Certificate separately to TPPP, the World Bank will review the ESIA to verify alignment with the World Bank's safeguards policies and guidelines and requirements of the ESMF. Under TSCP, an ESIA was undertaken for the solid waste management in Arusha. The existing ESIA covers environmental and social aspects of road improvements, drainage channels, street lights and construction of landfill infrastructure. Under the proposed PPP Project, an additional ESIA would be required be conducted including collection and transportation components of the SWM value chain.



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- *Leasing of collection centers and landfill site to the ProjectCo, with ownership remaining with ACC* - The existing collection centers and landfill site, procured under TSCP, will be leased to the ProjectCo by ACC during the agreement period, however the ownership will remain with ACC. Under the PPP Project, ACC can help reduce the capex to be incurred by the ProjectCo by leasing these assets to the ProjectCo as discussed above. The ProjectCo will then hand over the Project along with the assets to ACC at the end of the agreement period and without encumbrances. The operation and maintenance of the structure will be transferred, but the ownership will not be transferred, as the municipality owns the land and its structures.
- *Handover of existing assets* - As mentioned above, ACC will hand over all existing vehicles, equipment and machinery to the ProjectCo, for their upgradation as well as operations and maintenance. However, their ownership will not be transferred to the ProjectCo as the municipality owns the assets.
- *ACC to operate the SWM facilities after the completion of agreement period* – At the end of the agreement period, ACC has the right to continue with the SWM operations, as per the Tanzanian laws.
- *ACC to facilitate all environmental approvals* - The city council would also be responsible for facilitating the environmental approvals required for the Project. There are a range of approvals such as operations permit, utilities permit, etc. that need to be obtained from the city council or other authorities (as required) within well-defined timelines. However, the ProjectCo is responsible for obtaining these approvals.
- *Support the ProjectCo in integration of casual labor* – The city council would facilitate the integration of casual labor such as sweepers, drivers, loaders within the Project so that they can be easily contracted by the ProjectCo. This would provide continued employment to them and will not affect their livelihood due to the proposed Project.
- *Support the ProjectCo in working/partnering with the CBOs* – The city council would facilitate CBOs to work/partner with the ProjectCo within the Project. This would ensure the continuation of their livelihood and employment. In return, ProjectCo would also benefit from their intricate knowledge and expertise.
- *Enforcement of solid waste byelaws* – ACC to guarantee that users do not dodge their fee payment by either burning or illegally dumping the waste. This will be a significant revenue loss for the ProjectCo, if users dump their waste and do not pay fees for their waste collection. ACC to enforce rules and regulations.

#### ProjectCo responsibilities

- *Obligations of ProjectCo* - ProjectCo would be responsible for designing, constructing/ upgrading, procuring, financing, operating and maintaining the Project for the designated agreement period.
- *Incorporation of the SPV* - ProjectCo will be contractually obligated to incorporate and register the special purpose vehicle as per the rules and regulations of Tanzania, for the performance of the PPP agreement.
- *Commercial operation of the SWM facilities* - ProjectCo would be given the right to develop, build, finance, operate and maintain the Project during the period of agreement. During this period, it would have the right to commercial operation i.e. the economic use of the SWM operations and collection of the revenues.
- *Overall management of SWM facilities* - ProjectCo would be responsible for the performance of the SWM facilities and for the discharge of all obligations to the city council throughout the agreement period.



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- *Sub-contracting to other firms* – The ProjectCo would be given the right to sub-contract certain aspects of the operations to reputable parties, if required.
- *Revenue sharing with ACC* – As per the base case proposed by the Consultant, the ProjectCo must share 15% of the revenue earned through SWM activities with ACC.
- *Integration of casual labor* – The ProjectCo will be required to proactively integrate casual labor such as sweepers, loaders and drivers in the Project and provide them continued employment thus sustaining their livelihood.
- *Working/Partnering with CBOs* – The ProjectCo will be required to proactively work/partner with CBOs and casual under the Project and provide them continued employment thus sustaining their livelihood.
- *Environmental monitoring* – While the ACC will monitor and supervise the ProjectCo, the ProjectCo will undertake its own monitoring and will submit such reports periodically to ACC as defined in the PPP agreement to be signed between ACC and the ProjectCo.

#### Agreement period

- *Content of the PPP agreement* - The PPP agreement will be entered into between the ACC and ProjectCo for the performance of the rights and obligations of both parties as detailed in the agreement. The PPP agreement will also include an annexure on user charges to be charged over 15 years for each category of waste generator. The same will need to be charged from waste generators over the agreement period of 15 years.
- *Agreement period* - The ACC operates under the PO-RALG, hence, the approving authority for the Project is the PPP Node. As per the current PPP regulations of Tanzania, since the estimated capex of the Project in the first year is TZS 5,446 million (USD 2.37 million) which is within the limit of USD 20 million, the Project is categorized as a small scale PPP Project. Further, the maximum duration of the PPP agreement allowed under the current PPP regulation is capped at 15 years. However, in the proposed amendments to the PPP Regulations, there will be no cap on the duration of the PPP agreement. Since, the useful life of the landfill site will not exceed 15 years, we have assumed an agreement period of 15 years. Given that the ProjectCo will be required to make investments, it needs the 15 years contract duration to recoup its investments and operational costs.
- *Commercial freedom given to ProjectCo, subject to certain conditions* - The PPP agreement would specify commercial freedom in respect of the development undertaken and would give the ProjectCo the right to increase user charges as per the contract.
- *Setting up an escrow account* - A special account, would be set up specifically for this purpose, wherein all the revenues collected by the ProjectCo would be deposited daily and these would be ring fenced avoiding uncontrolled diversion of funds.
- *Provisions in PPP agreement* - The PPP agreement should also contain provisions for conducting regular audits and impose penalties on the ProjectCo in case of overcharging.



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Table 5-1: Summary of responsibilities of the ProjectCo and ACC

Stages in PPP Contract	ProjectCo	ACC
Design	√	-
Build/ upgrade	√	-
Finance	√	-
Operate	√	-
Maintain	√	-
Transfer	√	-

## 5.4 Risk allocation

In this section, we identify the risks and allocate them to the contractual party that is best able to manage them.

### Introduction

Project risk management is an iterative process conducted throughout the Project's life cycle and involves systematically considering possible outcomes before they happen and defining procedures to accept, avoid or minimize the effect of risk on the Project. The first necessary step is the identification and allocation of risks. Given that the PPP Projects involve complex financial and contractual structures, risk identification and allocation of risks to the appropriate contractual party is essential to successful implementation. The essential principle driving risk allocation is that management of risks should be allocated to the party best able to handle them.

### Methodology of risk assessment

The risk assessment has been carried out through the following steps, which are detailed out as under:



- *Identify key risks for the Project and consequence of the risks* – Risks to the Project's success are generally low to moderate and are considered manageable. The risks of greatest concern relate to the illegal

burning/dumping of waste, opposition faced from CBOs and casual laborers, that user charges will be paid without any exception, and that the ProjectCo can secure affordable finance in time.

- *Allocate the risks to the appropriate contractual party* – The risk-allocation matrix outlines the allocation of the risk to the party, which is best suited to handle and mitigate the risk. Risk allocation involves the analysis of identified risks and determining whether the risk may be transferred to ProjectCo or retained by the council. On the basis of the risk analysis, the important risk categories relevant to the Project have been allocated to the contractual party best able to manage the risks. Or alternatively, to reduce the likelihood of the risk occurring and / or to minimize the consequences of the risk.

Table 5-2: Risk allocation matrix

Risk	Description of risk	Risk assumed by
Site and approvals	Securing Project approvals on a timely basis or untimely handing over the landfill facility to the ProjectCo	LGA
Revenue	Not generating enough revenue due to unwillingness of waste generators to pay user charges.	ProjectCo
Performance	A sub-contractor engaged by the ProjectCo fails or delivers substandard work or maintenance costs are higher than expected because of poor design, operations and maintenance.	ProjectCo
Financial	Ability to secure financing for the Project	ProjectCo
Political	Risks related to the political aspects such as changes in laws or regulations reduces the ProjectCo revenue/ increase costs or new policies reduce the importance attached to the SWM services and government support.	LGA
Operational	Risk arising from Illegal dumping/burning of waste	ProjectCo
Social	Opposition from CBOs and casual labor	LGA
Force Majeure	Performance targets are not met or Project is terminated due to force majeure events	ProjectCo and LGA
Default	There can be default from either sides, government event of default or ProjectCo event of default.	ProjectCo and LGA

## 5.5 Risk mitigation

Risk mitigation involves developing strategies and options on how to mitigate allocated risks. Below, we present the main risks categories, their impact and mitigation measures.

Table 5-3: Risk mitigation matrix

Risk	Mitigation measures	Likelihood
Site and approvals	Council to proactively assist and facilitate the ProjectCo in obtaining approvals from all necessary agencies on various aspects of the	Medium



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Risk	Mitigation measures	Likelihood
	SWM value chain. The council should lease the landfill site and collection centers to the ProjectCo. on a timely basis	
Revenue	Council to enforce waste generators to pay user charges by establishing and implementing compliance policies, and enforcing penalty for late payment	High
Performance	ProjectCo should ensure providing the services as per the service specifications in the contract.	Medium
Financial	ProjectCo should assess the current market situation at which loans are being provided for commercial Projects. It should also endeavor arranging finances from multiple sources such as commercial banks, domestic financial institutions and multi-lateral agencies.	Low
Political	ACC should get appropriate legal advisors to validate the implications of the change in regulations on the Project and should compensate ProjectCo for changes in laws. ACC should assess the impact of the public policies and assess the loss which would be borne by the ProjectCo.	Low
Operational	Council to prevent waste from illegally burning or dumping their waste by establishing and implementing compliance policies, and enforcing penalty for such an action	High
Social	Casual labour to be integrated in the Project and CBOs to work/partner with the ProjectCo thus sustaining their livelihood.	Medium
Force Majeure	Obtain adequate insurance policies.	Low
Default	Both ProjectCo and LGA have to manage the Project with an eye to avoiding events of defaults triggering penalties and/or termination.	Low

## 5.6 Output specifications and performance standards

### Output specifications of the Project

This section covers the main output specifications of the project which defines what project objectives need to be attained. It has been divided into three parts namely a) Output specifications related to collection phase of the SWM lifecycle; b) Output specifications related to transportation phase; and c) Output specifications related to the landfill phase of the SWM lifecycle. The output specifications cover the major outputs that need to be attained for each of the phases of the SWM lifecycle as described above.




 <b>Output specifications for collection</b>
<ul style="list-style-type: none"> <li>All wards to be covered for waste collection</li> <li>100% coverage of households and other establishments for waste collection</li> </ul>



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 **Output specifications for collection**

- 100% waste collection rate to be achieved, excluding any special drives for waste collection from one-time activities.
- To ensure that littering of solid waste does not occur in the city
- Any infectious/hazardous waste not to be accepted in waste collection vehicles
- Recyclables to be segregated during collection, for further processing by processing plants
- To ensure that solid waste is transported through the value chain in a segregated manner
- Daily records of quantity of solid waste collected, origin of waste to be maintained
- Current year revenues collected, as a percentage of total operating revenues for the period to be 90%
- Total number of MSWM complaints redressed within 24 hours of receipt of complaint to be more than 80%

 <i>Collection coverage</i>	<ul style="list-style-type: none"> <li>• Door to door waste collection to be practiced</li> <li>• There shall be no illegal dumping/burning of waste</li> <li>• Collection to be carried out               <ul style="list-style-type: none"> <li>➢ Daily in urban wards</li> <li>➢ Once a week in rural wards</li> </ul> </li> </ul>
 <i>Collection vehicles/ equipment</i>	<ul style="list-style-type: none"> <li>• Adequate number of tricycles/pushcarts to be utilized for door to door collection</li> <li>• Adequate number of gunny bags/polythene bags/dustbins to be used for collection</li> <li>• Skip containers to be located at suitable locations in each ward</li> </ul>
 <i>Collection staff</i>	<ul style="list-style-type: none"> <li>• Adequate number of staff to be used for collection</li> <li>• Staff to use personal protective equipment while collecting waste</li> </ul>

 **Output specifications for transportation**

- Transportation of waste from collection centers to be undertaken every alternate day
- Daily records of quantity of solid waste transported to landfill to be maintained
- Adequate number of vehicles to be used for transportation of waste
- Adequate number of drivers and staff to be utilized for transportation
- Some percentage of drivers and other staff to be kept as buffer as a contingency plan



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### Output specifications for processing and landfilling

- Priority to be given to waste recycling, resource recovery and processing to reduce the amount of final disposal
- Extent of final disposal at the landfill site to be a maximum of 80% of the total waste collected
- To adopt suitable technology or combination of technologies to make use of wastes to minimize burden on landfill.
- While handling biodegradable waste, priority to be given to biological processing such as composting, anaerobic digestion and other biological processing for stabilization of waste
- Landfilling to be restricted to non-biodegradable, inert and other waste that is not suitable for recycling or biological processing
- Extent of recycling, reuse or biological processing to be a minimum of 20% of the total waste collected.
- Any infectious or hazardous waste not to be accepted at the landfill
- Waste to be disposed of in a scientific manner at a sanitary landfill
- Recyclables to be collected from landfill site by waste pickers for processing
- All waste at landfill to be compacted and reduced in volume after disposal
- Landfilled waste to be covered daily with soil to deter pests and prevent bad smells



*Materials recovery facility*

- Utilized for further separation and processing of wastes that have been separated at source
- Utilized for separation of co-mingled wastes
- Separation of bulky items, separation of ferrous metals using magnets
- Separation of waste components by size using screens, manual separation of waste
- Size reduction by shredding, volume reduction by compaction and combustion
- Facility to have planned areas for unloading, collection & processing of solid waste
- Facility to have on-site storage area for recyclables, non-process able wastes & residues
- Storage area for recyclables to accommodate at least thrice the daily peak volume of recyclables sorted out and processed








*Electronic waste processing*

- E-waste items after reaching the recycling plants to be sorted manually.
- Batteries to be removed for quality check.
- E-waste to be manually dismantled too retrieve all parts & categorized into core material and components
- Dismantled items to be separated into various categories into parts that can be reused
- Items that cannot be dismantled to be shredded to finer e-waste pieces.
- Finer e-waste to be further broken down through an automated shaking process
- Over-band magnet to remove all magnetic materials from e-waste debris
- Copper, aluminum & brass to be separated from debris to leave non-metallic material.
- Plastic material to be separated from glass by use of water



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 <b>Output specifications for processing and landfilling</b>	
	<ul style="list-style-type: none"> <li>Once separated, all material retrieved can be sold as raw material for reuse</li> </ul>
 <p><i>Landfill infrastructure</i></p>	<ul style="list-style-type: none"> <li>Adequate number of cells to be available so as to be used in phased manner in future</li> <li>Landfill to have proper waste screening, weighing and inspection facilities</li> <li>Availability of a non-permeable liner system at the base of waste disposal area</li> <li>Availability of a leachate collection, treatment and removal system in place</li> <li>Landfill site to have a storm water management system in place</li> <li>Landfill site to have a gas venting system in place</li> <li>Site to have a groundwater testing system in place</li> <li>Landfill site to have a landfill gas monitoring and management program</li> </ul>
 <p><i>Site facilities</i></p>	<ul style="list-style-type: none"> <li>Landfill site to have a 24x7 water supply system in place</li> <li>Landfill site to have electrical works in line with good industry practice</li> <li>Adequate equipment for fire prevention and control to be available at landfill facility</li> <li>Provision of toilets, first aid, electricity, drinking water and telephone</li> <li>Provision of parking facility to avoid queuing up of transfer trucks and other vehicles</li> <li>Provision of proper fencing to prevent unauthorized access to facility</li> </ul>
 <p><i>Vehicles and equipment at landfill site</i></p>	<ul style="list-style-type: none"> <li>Landfill to have adequate number of equipment and vehicles such as-               <ul style="list-style-type: none"> <li>➤ Bulldozers</li> <li>➤ Excavators</li> <li>➤ Compactors</li> <li>➤ Wheel loaders</li> <li>➤ Water tankers</li> <li>➤ Tipper trucks, etc.</li> </ul> </li> </ul>
 <p><i>Staff at landfill site</i></p>	<ul style="list-style-type: none"> <li>Adequate number of staff to be available at the landfill facility such as               <ul style="list-style-type: none"> <li>➤ Landfill operation manager</li> <li>➤ Landfill supervisor</li> <li>➤ Record management assistant</li> <li>➤ Operators for equipment and vehicles</li> <li>➤ Environment monitoring and testing officer</li> <li>➤ Attendants</li> <li>➤ Casual labor</li> <li>➤ Security staff etc.</li> </ul> </li> </ul>



 <b>Output specifications for processing and landfilling</b>	
	<ul style="list-style-type: none"> <li>All staff to use personal protective equipment</li> </ul>



### Performance standards of the Project

This section covers the performance standards of the project which defines benchmarks for performance of different phases of the SWM lifecycle. The section has been divided into three parts namely: a) Performance standards for collection phase of the SWM lifecycle; b) Performance standards for transportation phase of the SWM lifecycle; and c) Performance standards for processing and land filling phase of the SWM lifecycle. The performance standards define the service standards for collection, transportation and disposal and also sets the standards for services such as healthcare, security, hygiene, environmental considerations etc. which will ensure smooth operations of the SWM project.

 <b>Performance standards for collection</b>	
 <i>Compliance</i>	<ul style="list-style-type: none"> <li>All waste to be collected in accordance with Tanzanian standards</li> <li>Waste to be collected as per Good Industry Practice</li> </ul>
 <i>Collection centers</i>	<ul style="list-style-type: none"> <li>To ensure that no waste is unloaded on ground at any point of time</li> <li>Each skip container to be properly covered once full</li> <li>Skip containers should not be allowed to overflow</li> <li>Skip containers to be maintained that they do not create unhygienic conditions.</li> <li>Skip container to have adequate capacity and good strength</li> <li>Skip containers to have an 'easy to operate' design for easy handling</li> <li>Area around the skip container to be kept clean at all times</li> <li>Skip containers to be cleaned/disinfected regularly</li> <li>Skip containers to be properly inspected on a periodic basis and any damage to be repaired</li> <li>Skip containers to be maintained so that there are no breakages/leaks/cracks</li> <li>Waste handling to be carried out with proper precautions with due care for safety of workers</li> </ul>
 <i>Collection equipment and vehicles</i>	<ul style="list-style-type: none"> <li>All vehicles used for collection to be kept in good state of repair</li> <li>All equipment used for collection to be kept in good state of repair</li> </ul>









 <b>Performance standards for transportation</b>	
 <i>Transport route</i>	<ul style="list-style-type: none"> <li>• Transport network to be designed to achieve efficiency</li> <li>• Transportation route to avoid zigzag movement to save time and fuel</li> <li>• Transportation to be avoided at peak hours</li> </ul>
 <i>Transport vehicles</i>	<ul style="list-style-type: none"> <li>• Any infectious or hazardous waste not to be accepted in waste transportation trucks.</li> <li>• Transport vehicles to not overflow and to be covered while moving</li> <li>• To ensure that there is no spillage of waste while the vehicle is moving</li> <li>• Transport vehicles should be washed/cleaned and disinfected from time to time</li> <li>• Transport vehicles to be maintained so as to prevent frequent break downs</li> <li>• Fleet of vehicles to be maintained so that at least 90% are available at any time</li> <li>• Vehicles to be loaded with waste at their full capacity</li> <li>• These vehicles to be properly inspected on a periodic basis and any damage to be repaired</li> <li>• All vehicles to be safety and security compliant, compliant with fuel emission standards</li> <li>• All vehicles to be in compliance with applicable laws</li> </ul>
 <i>Transport staff</i>	<ul style="list-style-type: none"> <li>• All drivers to be in compliance with applicable laws</li> <li>• Drivers to carry driving license and registration certificate of vehicles at all times</li> <li>• Drivers to follow all safety procedures while driving</li> <li>• Drivers and staff to use uniform, gloves, masks and other safety gear while handling waste</li> </ul>
 <b>Performance standards for processing and landfill</b>	
 <i>Compliance</i>	<ul style="list-style-type: none"> <li>• Landfill and material recovery facility to comply with pollution standards, good industry practices.</li> <li>• To be operated and maintained as per standards laid down in prevailing laws</li> <li>• To ensure all pollution control operations are installed as per applicable standards</li> <li>• Effluents/leachate quality to be monitored &amp; treated so as to confirm to applicable standards</li> <li>• Quality of final compost to confirm to applicable standards</li> <li>• All operations to comply with health, safety and security measures</li> <li>• To ensure the facility is compliant with standards applicable to sanitary landfilling</li> <li>• Quality and calibration certification from independent certification agency</li> </ul>
	<ul style="list-style-type: none"> <li>• Availability of designated areas for unloading, sorting, storage &amp; processing of recyclables</li> </ul>








	<b>Performance standards for processing and landfill</b>
 <p><i>Landfill, material recovery facility and composting facility</i></p>	<ul style="list-style-type: none"> <li>• Instruments and devices to be installed for ventilation, controlling dust, litter and odour at material recovery facility.</li> <li>• Landfill site to be operational for 8 hours per day</li> <li>• Downtime of landfill facility to not exceed the maximum downtime limit</li> <li>• Periodic maintenance of landfill base, side liner and cover system</li> <li>• Landfill facility to be kept in a clean, tidy and orderly condition</li> <li>• Litter, insects, odour and vectors to be controlled to prevent sanitary nuisance</li> <li>• Access and internal roads to be kept in a good state of repair</li> <li>• Sufficient parking space to be available inside entrance gates</li> <li>• Facility to have an adequate lighting system</li> <li>• Landfill operations to take care of noise pollution, traffic and offensive odour</li> <li>• Quality assurance to be monitored from time to time</li> </ul>
 <p><i>Equipment, infrastructure and vehicles</i></p>	<ul style="list-style-type: none"> <li>• All equipment and vehicles to be properly inspected on a periodic basis</li> <li>• Prompt repair of all equipment, infrastructure and vehicles</li> <li>• Calibration test for weigh bridge to be carried out on a periodic basis</li> <li>• Storm water drains to be kept free from clogging</li> <li>• To ensure there is no stagnation of rain water on landfill facility</li> <li>• Cracks or leaks in the leachate collection and drainage system to be sealed immediately</li> <li>• All vehicles and equipment to comply with all applicable standards</li> <li>• A contingency plan to cover machine/vehicle breakdown or any operation interruptions</li> <li>• Operation manuals of machinery/equipment as well as operational safety guidelines shall be prepared and made available.</li> </ul>

<b>Service</b>	<b>Other performance standards applicable to collection, transportation and landfilling</b>
 <p><i>Cleanliness &amp; Hygiene</i></p>	<ul style="list-style-type: none"> <li>• Provision of daily cleaning of skip containers, equipment and vehicles</li> <li>• Periodic removal of waste material from skip containers</li> <li>• Skip containers to be fully unloaded to prevent leftovers from emanating foul smell</li> <li>• Provision for sweeping off waste fall from the collection vehicles</li> <li>• Pest control measures to be undertaken at collection centers and landfill site</li> <li>• Monitoring of waste collection and cleaning process all over the city</li> <li>• Hygiene needs to be complied as per Tanzanian standards</li> </ul>



Service	Other performance standards applicable to collection, transportation and landfilling
 <p><i>Health and safety</i></p>	<ul style="list-style-type: none"> <li>• Provision of personal protective equipment to protect from direct contact with waste</li> <li>• Health of workers to be checked on a routine basis</li> <li>• Management to comply with legislation relating to public health and safety</li> <li>• Provision of cleaning and proper salinization of equipment</li> <li>• Fire preventive and control equipment to be available at landfill site</li> <li>• Health and safety needs to be complied as per Tanzanian standards</li> </ul>
 <p><i>Environmental considerations</i></p>	<ul style="list-style-type: none"> <li>• To undertake adequate mitigation measures to minimize pollution of air, water and soil</li> <li>• Provision of hydrants to tackle fire emergency at landfill site</li> <li>• Landfill to conform to regulatory environment standards</li> <li>• Provision of rain water harvesting &amp; waste water recycling system</li> <li>• Adherence to social and environmental performance standards</li> <li>• Compliance with rules, regulations, guidelines and standards of Environmental Engineering and Pollution Control Organization (EEPCO)</li> <li>• Environmental considerations to be complied as per Tanzanian standards.</li> </ul>
 <p><i>Customer complaints</i></p>	<ul style="list-style-type: none"> <li>• All customer complaints to be redressed/resolved within 24 hours of receipt</li> <li>• To have effective systems to capture customer complaints/grievances</li> </ul>

### Compliance with Tanzanian Laws and Regulations

ProjectCo will have a general obligation to ensure that all works comply with relevant Tanzanian legislations and standards and good industry practices in Tanzania. All plans will need to be approved before works commence or equipment is purchased. Also, these standards must be met before the assets are reverted back to the council at the end of the contract period.

## 5.7 Recommended payment mechanism

We discern the following two options:

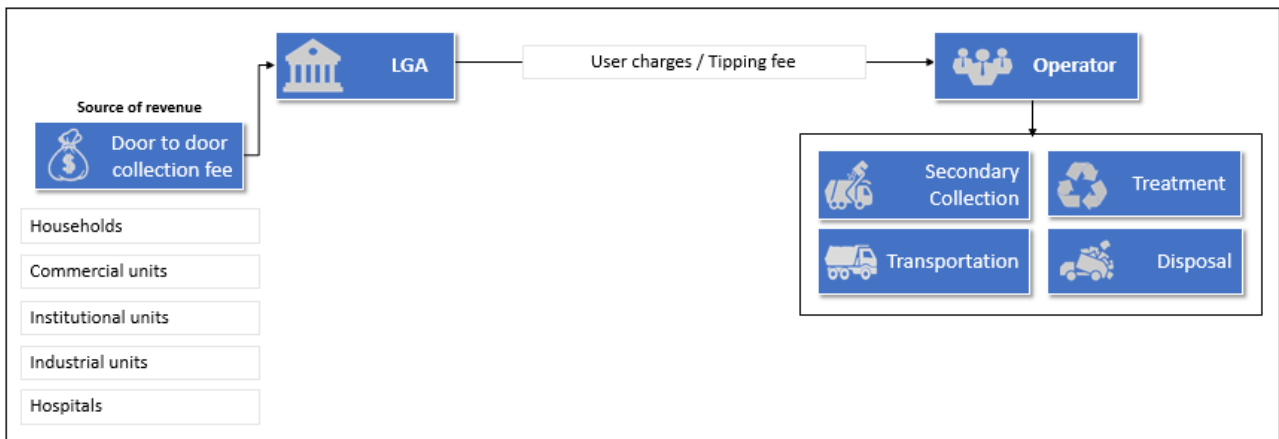
- *ACC collects user charges and pays ProjectCo* - In this case, the LGA collects the fees from households, commercial units, industrial units, institutional units, hospitals and other waste generators. Fees collected are then transferred to ProjectCo, as per the contract. However, the city council is not incentivized to maximize fees collection through enforcing each waste generator to pay the fees due. Further, this option might also be vulnerable to political pressure groups and lobbying aiming at fees exemptions. These would result in revenue leakage and might trigger contractual penalties.



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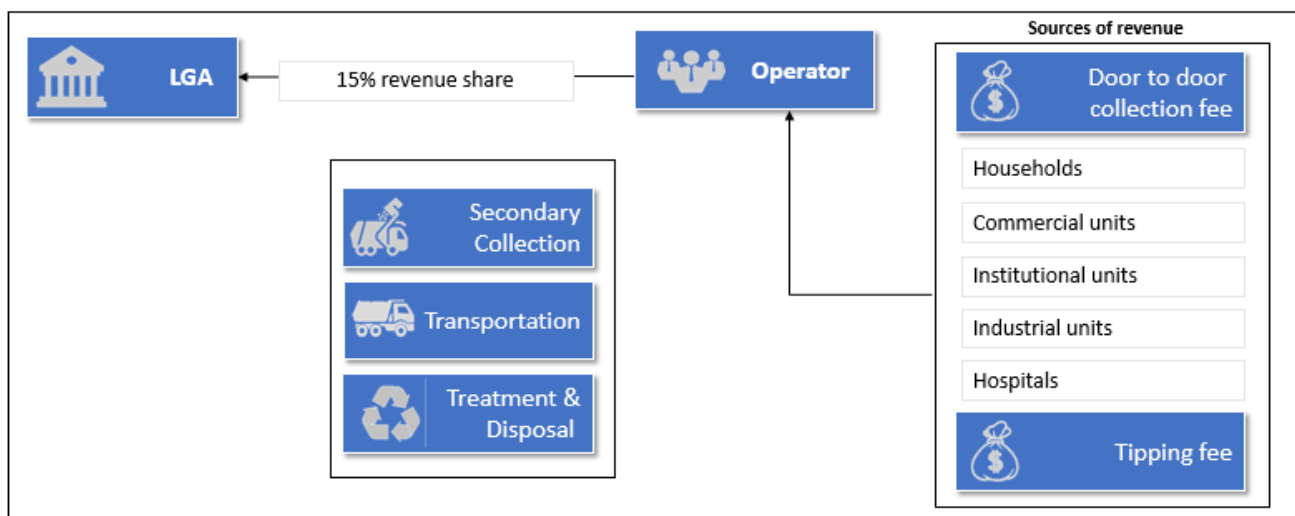
Figure 5-3: ACC collects user charges and pays ProjectCo



Source: Consultant

- ProjectCo collects user charges* - In this case, ProjectCo collects the waste collection fees (user charges) from all user groups (waste generators) as it is incentivized to maximize the collection of revenues as it's the only major source of income. The ProjectCo therefore collects the user fees which in turn offsets the costs of managing the entire system. In addition, some end users such as industries and institutes might bring their own waste collection trucks to dump the waste at the landfill site, thereby paying a tipping fee to the ProjectCo. Also, the current bill collection rate of the CBOs and the council is low, resulting in loss of revenue generated which will not be the case when ProjectCo will collect the fees. The ProjectCo also shares 15% of the total revenue collected through SWM services, with ACC.

Figure 5-4: ProjectCo collects user charges



Source: Consultant



### PPP contract term

The ACC operates under the PO-RALG, hence, the approving authority for the Project is the PPP Node. As per the current PPP regulations of Tanzania, since the estimated capex of the Project in the first year is TZS 5,446 million (USD 2.37 million) which is within the limit of USD 20 million, the project is categorized as a small scale PPP Project. Further, the maximum duration of the PPP agreement allowed under the current PPP regulation is capped at 15 years. However, in the proposed amendments to the PPP Regulations, there will be no cap on the duration of the PPP agreement. Ideally, the agreement period should preferably match the economic life of the underlying assets. Since, the useful life of the landfill site will not exceed 15 years, we have assumed a PPP agreement period of 15 years. Also under the PPP Project, the ProjectCo will be required to make investments. In order to recover the cost incurred and generate optimal returns the ProjectCo will be required to operate for a long duration (assumed 15 years as discussed above).

## **5.8 Accountancy treatment**

This section elaborates the accountancy treatment of the proposed PPP Project in terms of ownership and transfer of assets.

### Financial reporting and accounting for PPP Projects

Currently, there is no specific accounting guidance under the Tanzanian accounting standards for PPP arrangements. Generally, infrastructure companies could account for the infrastructure as a part of their fixed assets at the construction/upgrading cost and do not recognize any revenue during the construction/upgrading period. Revenue is normally recognized for the amount recoverable from the public sector and/or the amount recovered from the customers for use of the infrastructure only after the construction/upgrading is complete.

The International Accounting Standard Board (IASB) has issued an interpretation related to accounting treatment of Service Concession Arrangements under its IFRIC 12, such as the Design-Build-Finance-Operate-Maintain models being proposed for the Project. It can be effectively interpreted that even though the infrastructure assets are not recognized as the property, plant or equipment (PPE) of the operator, it can account for them in its books. Similarly, it can recognize the revenues as measured in accordance with IAS 11 (for construction or upgrade services) and/or IAS 18 (for operation services, where the operator operates and maintains the infrastructure).

Financial reporting by the public sector of risks and liabilities in PPP transactions is not mandatory in Tanzania. Globally best practices require governments to reflect most PPP assets and associated liabilities on the government's balance sheet. If they are not accounted for, then they are listed in the Notes to Account.

### Depreciation

Written Down Value (WDV) method has been used for depreciation of all classes of assets, including landfill, skip containers, tricycles, pushcarts, type 1 transfer trucks, type 2 transfer trucks, bulldozers, wheel loaders, excavators, compactors, water tanker and tipper trucks. The standard depreciation rate of 5% as given in the Finance Act has been assumed for the landfill site, whereas a standard depreciation rate of 25% has been assumed for equipment and machinery utilized both during collection and transportation as well as during the landfill component of the SWM value chain.



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## 6 Financial case



The main objective of a financial appraisal is to ascertain the Project's financial pre-feasibility. The financial analysis determines financial metrics such as the Project IRR and equity IRR and debt-service coverage ratio (DSCR). This chapter details the assumptions used to arrive at costs, revenues and other financial modelling assumptions related to opex, Project financing, depreciation and taxation. This chapter also analyzes the Project's VfM, both qualitative and quantitative.

### 6.1 Benchmarking study

This section provides the results of the benchmarking study undertaken with Arusha Travel agency and Neha Amca Ltd. dealing with waste collection in Arusha and also with Green Waste, a private company dealing with waste collection in Dar es Salaam, Dodoma and Mwanza. The benchmarking study targets the waste collection undertaken by Arusha Travel agency and Neha Amca in Arusha and Green waste in Dar es Salaam, understanding the waste composition, quantity of waste collected per day, the number of employees, number of pushcarts and trucks deployed, quantity of waste reaching the landfill site, quantity of waste recycled and estimates of per month income and expenditures. The details with regards to solid waste management by Arusha travel agency and Neha Amca in Arusha are provided below.

Arusha Travel Agency and Neha Amca Ltd.

Table 6-1: Waste management details for Arusha travel agency and Neha Amca

S/N	Items	Arusha travel agency	Neha Amca Ltd.								
1	Coverage	<p>The company serves 2 wards, within the Arusha city centre namely Sekei and Kati.</p> <p>The table below provide the population of the above mentioned wards as per the 2012 National Census:</p> <table border="1"> <thead> <tr> <th>Ward</th> <th>Population</th> </tr> </thead> <tbody> <tr> <td>Sekei</td> <td>9,213</td> </tr> <tr> <td>Kati</td> <td>3,114</td> </tr> <tr> <td>Total</td> <td>12,327</td> </tr> </tbody> </table>	Ward	Population	Sekei	9,213	Kati	3,114	Total	12,327	<p>The company serves one ward in Arusha City centre namely Unga Limited.</p> <p>According to the 2012 National Census the ward had a total of 17,342.</p>
Ward	Population										
Sekei	9,213										
Kati	3,114										
Total	12,327										
2	Quantity of waste collected	<p>The company collects 4 trucks full of waste daily and each truck contains about 10 tons of waste. Therefore in total they collect about 40 tons of waste per daily.</p>	<p>The company manages to collect 7 tons of solid waste daily.</p>								
3	Number of employees	<p>The company has about 34 employees which includes 23 sweepers, 5 truck drivers, 4 waste pickers, one health officer and a manager. According to the manager</p>	<p>The company does not have permanent employees. They only hire when needed. Normally they hire 13 workers including the driver, pickers, debt collectors and a sweeper.</p>								



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S/N	Items	Arusha travel agency	Neha Amca Ltd.									
		all of the above employees have employment contracts										
4	Number of trucks	They own 4 trucks in total.	The company owns no trucks therefore they hire one truck once every week.									
5	Amount of waste reaching landfill and amount remaining at skip container	The total amount of 40 tons of waste as mentioned above is the total waste taken to the landfill site. Their workers segregate the waste prior to filling the same in the trucks.	All waste collected is transferred to the landfill site.									
6	Waste composition	The waste comprises of : <ul style="list-style-type: none"> <li>Organic waste including- food left over and</li> <li>Non-organic waste – plastics, boxes, papers, glasses and iron.</li> </ul>	The waste comprises of : <ul style="list-style-type: none"> <li>Organic waste including- food left over and</li> <li>Non-organic waste – plastics, boxes, papers, glasses and iron.</li> </ul>									
7	Quantity of waste recycled	There is no formal segregation of recycled wastes and non- recycled wastes hence the interviewee was not able to mention quantity of recycled waste.	None									
8	Number of employees required at landfill	None, all landfill workers are municipal employees	None, all landfill workers are municipal employees									
9.	Number of trucks collecting waste from skip containers to landfill	They are 4 trucks to collect waste from the waste generator and to carry it to the landfill site	One truck									
10.	Estimate of income per month	NA	The income used to be TZS 2 million per month in the beginning of the year but it has dropped to TZS 500,000 per month									
11.	Operational cost	<p>They spend approximately TZS 450,000 per day which is about TZS 1.8 million per month. The amount covers fuel cost, food allowances and repair of equipment.</p> <p>The respondent was able to tell the total expenditure however in addition to the above he shared the salary rates for the workers as summarized in the table below:</p> <table border="1"> <thead> <tr> <th>S/N</th> <th>Employee</th> <th>Estimated monthly salary (TZS)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Managers</td> <td>400,000 plus</td> </tr> <tr> <td>2</td> <td>Health Officer</td> <td>200,000 – 400,00</td> </tr> </tbody> </table>	S/N	Employee	Estimated monthly salary (TZS)	1	Managers	400,000 plus	2	Health Officer	200,000 – 400,00	Below is the cost incurred by the firm as shared by the interviewee. The same is paid on a weekly and daily basis as summarized below:
S/N	Employee	Estimated monthly salary (TZS)										
1	Managers	400,000 plus										
2	Health Officer	200,000 – 400,00										



S/N		Items	Arusha travel agency		Neha Amca Ltd.		
			3	Waste pickers	150,000 200,000		
			4	Truck drivers	100,000 150,000 plus daily food allowance of TZS 1,500		
			5	Sweepers	100,000 150,000		
S/N	Employee	Estimated monthly salary (TZS)					
1	Fuel cost	40,000 per day					
2	Car (truck) hire	400,000 per week					
3	Waste pickers	30,000 per trip					
4	Truck driver	25,000 – 30,000 per day					
5	Debt collectors	15-20% of their collection					

Source: Consultant

The details with regards to solid waste management by Green Waste in Dar es Salaam are provided below.

### Green Waste

*Coverage:* Green Waste serves three wards in Dar es Salaam city center namely Mchafukoge, Kivukoni and Kisutu. It has also recently been awarded a contract to serve a ward outside the city center namely Gongolamboto.

*Quantity of waste collected:* The company collects about 80% of the waste generated, in the wards in the city center, but collects only 20% of the waste generated at Gongolamboto. In total, they collect about 120 ton – 150 ton pf waste per day.

*Number of employees:* The company has 320 employees of which 20 are management workers and the remaining 300 workers comprise of sweepers, loaders, pickers, technicians, drivers and guards.

*Number of trucks & pushcarts:* They own 15 trucks in total, including eight garbage compactor trucks and seven feeder trucks. The garbage compactor trucks are fed by the feeder trucks while collecting waste from skip containers and transferring it to the landfill site. There are four pushcarts which are used in the ward outside the city center.

*Waste collection:* All the waste collected, except recyclable waste, is taken to the landfill site, located at Pugu area.

*Waste composition:* The waste generated comprises of organic waste such as leftover food, non-organic waste such as plastics, boxes, paper, glasses, iron, etc.

*Waste recycling:* Last year, Green Waste started recycling, and with segregation of waste done at the primary collection points. To increase the motivation of waste segregation, Green Waste buys all segregated waste



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from the waste generators. The table below provides details on the type of recycled wastes, quantity collected per day and prices.

*Table 6-2: Waste recycling details*

S/N	Type of Waste	Quantity (Kg)	Price/Kg (TZS)
1	Plastic water bottles (PET)	250	200-250
2	Boxes and paper	500-1,000	800-1,000
3	Hard plastics (HDPI)	200	250-400
4	Plastic bags (LDPE)	30	200-400
5	Sulphate bags	100-200	150-200
6	Glasses	100-200	No buyers
7	Aluminium/irons	Negligible	1,500-1,800

Source: Green Waste

Other details: Green Waste does not have its own employees at the landfill site, as all landfill workers are the city council employees. Green Waste collects approximately TZS 200-300 million per month through user fees. The estimated monthly expenditure for Green Waste is TZS 80-90 million, details of which are provided in the table below.

*Table 6-3: Monthly expenditure details*

S/N	Item	Estimated costs (TZS)
1	Truck fuel	30,000,000
2	Equipment service and maintenance	10,000,000
3	Tipping fees	2,000,000
4	Salaries and allowances	40,000,000
5	Corporate social responsibility	4,000,000 – 6,000,000

Source: Green Waste

## 6.2 Willingness to pay

This section provides insight in the end-users' willingness to pay higher fees with the upgrading of the SWM services at Arusha.

The assessment undertaken by the market assessment team involved the waste generators such as households, shops, fruit and vegetable sellers, shops selling plastic items, restaurants, hotels, child day care, etc. The assessment also included the landfill operator, CBOs, private companies, waste pickers and recycling plants. Currently, ACC provides SWM services in 25 administrative wards in Arusha covering urban and rural areas. There are six private operators engaged in providing the SWM services in nine wards and there are 14



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CBOs engaged in providing SWM services in 15 wards in Arusha. The remaining one ward is covered by ACC for providing SWM services. In addition to private companies and CBOs, ACC also collects waste from highways, markets, and schools. In spite of all 25 wards being covered in Arusha city, the waste collection rate is still not 100%. The waste collection rate is ~81% as all the households and waste generators are not covered under SWM services. The remaining waste which is not collected is either burnt or buried illegally.

## Stakeholders consulted

- **Waste generators**
  - Households
  - Commercial units
  - Private companies
- Landfill operator
- CBOs
- Waste pickers
- Recycling plants

As per stakeholder consultations and willingness-to-pay survey assessment undertaken by the Consultant, majority of waste generators are not willing to pay higher user charges as they feel that current user charges are reasonable. However, for the proposed PPP Project, the user charges for all the waste generators have been set at cost recovery level (in base case) and are proposed to be increased to TZS 5,000 per month for urban households and are proposed to be increased by 30-60% for all other waste generators. User charges for rural households have been set at TZS 2,000 (currently no charges are levied).

Also, it appears that the byelaws currently do not provide any further actions or penalty for those violating the laws related to waste management, and payment of services related to waste collection. The 2018 byelaws for user charges provide for a range of user charges for each category of waste generator, for example households are stipulated to pay between TZS 2,000–10,000, restaurants and food vendors pay somewhere between TZS 5,000–100,000, shops pay anywhere between TZS 10,000–15,000, schools TZS 10,000–30,000 and industries pay somewhere between TZS 50,000–200,000. The user charges depend not only on the type of waste generator but also on the location indicating zoning of user charges. However, as per the willingness to pay survey conducted one of the butchers was paying TZS 20,000 per month and a hotel was paying as high as TZS 990,000 per month for waste collection which is almost 9 times of the current stipulated charges for hotels. This indicates no law regarding regulation and payment of user charges as per the rates stipulated by the byelaws. Additionally, regulations need to be set up to ensure that the waste generators use the waste collection services and pay for the same.

The willingness to pay and project acceptance survey shows that currently there are a number of challenges being faced by all the stakeholders. These include poor infrastructure, people not using the services, people not paying on time or not paying at all, current user charges for households (as per 2018 byelaws) appear high as compared to other towns and hence majority of the interviewees were not willing to pay the increased user charges. The CBOs wish to be integrated with the PPP Project and they expect an increment in income from the same. Also, they expect a modified arrangement on sharing the collected user charges. The private players also wish to be integrated with the PPP Project.



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Some concerns raised by the stakeholders were, that the collectors do not collect waste in time particularly hotels, where it is needed more frequently. The current fee is high as compared to the waste they produce. CBOs do not get their share from the LGAs on time, waste generators are not paying on time, some do not

pay at all, there is a lack of waste collection points, and there is no enforcement of byelaws. Also, during windy weather, waste gets spread over due to lack of cover at land fill site, workers do not adhere to safety measures at landfill, and landfill users do not adhere to timetable. Some of the facilities expected from PPP Project are as follows:



### Facilities expected from PPP

- Increase in frequency of waste collection
- Increase in waste collection points
- Strict enforcement of collection of user charges
- Better hygiene condition
- Better coverage
- Proper management of collection centres

- *Increase in frequency of waste collection:* Currently, collectors do not collect the waste on time especially in hotels where they are needed more frequently. Hence, there should be increase in frequency of collection, once PPP Project is deployed.
- *Increase in waste collection points:* Currently, there is a lack of waste collection points and infrastructure is poor especially internal roads during rainy season. The number of waste collection points to be increased and proper infrastructure to be in place once the PPP Project is deployed.
- *Strict enforcement for collection of user charges:* Currently, people do not pay user charges on time, some do not pay at all. Therefore, there should be some law, for the enforcement of the payment of user charges, as well as for the enforcement of byelaws. Byelaws to also provide further actions or penalty for those who violate the laws related to waste management and payment of services regarding waste collection. Also residents in the city are expected to cooperate, with private player once PPP Project is deployed.
- *Better hygiene conditions:* Waste piled by the road should be picked up by the ProjectCo within a short time span, to prevent inconvenience due to litter and stench. Public land should be regularly cleaned.
- *Better coverage:* Many households and other establishments are not currently covered by CBOs and private players for waste collection, thus forcing them to illegally burn/ dump their waste. All these households and establishments should be covered once the ProjectCo takes over SWM operations.
- *Proper management of collection centers:* Skip containers to be kept at a common point, and close to major establishments and households in the locality. Adequate number of skip centers to be kept at collection centers in the city, and the collection centers to be properly managed to avoid littering.

## 6.3 Assumptions and methodology of financial analysis

This section provides an overview of the assumptions of the financial model for upgradation of the SWM value chain for Arusha. The financial model has been designed in such a way, that the reader can select any



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combination of value chain components of the SWM lifecycle to be upgraded and operated by the ProjectCo. The three options for the ProjectCo are a) only collection and transportation, b) only landfill and c) integrated operations, combining all the phases. Depending on which option is selected, the capex, opex, revenue and other components will differ accordingly. Key financial assumptions of the model include depreciation rate, corporation tax rate, cost of capital and the inflation rate and are presented below.

### Depreciation

Written Down Value (WDV) method has been used for depreciation of all classes of assets, including landfill, skip containers, tricycles, pushcarts, type 1 transfer trucks, type 2 transfer trucks, bulldozers, wheel loaders, excavators, compactors, water tanker and tipper trucks. The standard depreciation rate of 5% as given in the Finance Act has been assumed for the landfill site, whereas a standard depreciation rate of 25% has been assumed for equipment and machinery utilized both during collection and transportation as well as that utilized during the landfill component of the SWM value chain.

It is noted that although the physical ownership of the asset remains with the ACC, the operation and management of the assets and economic activities are transferred to ProjectCo for the duration of the agreement period. Hence, its depreciation costs are allowed to be included in ProjectCo's financial statements.

### Corporate income tax

Current corporate income tax (CIT) in Tanzania stands at 30% and the same has been assumed in our financial model. Moreover, there is no limit on the carry-forward period for tax losses in Tanzania and the same has been used to setting off losses in the initial operating years.

### Carry forward of losses

In Tanzania, there is no limit on the carry forward period of tax losses and the same has been considered in the financial model for this Project.

### Cost of capital

For the interest rate on long-term loans, based on market assessment, the bank lending rate in Tanzania is in range of 14%-16% p.a. Hence, for the purpose of this financial model, an interest rate of 16% p.a. (inclusive of the processing charges) has been assumed as the standard interest rate on long-term loans. Moreover, the cost of equity for Tanzania is usually in the range of 19%-21% and we have assumed 20% for the calculation of cost of capital. Considering a debt to equity ratio to be 70:30, the post-tax weighted average cost of capital (WACC) is 13.8%.

$$\text{WACC (post-tax)} = g \times R_d \times (1 - t) + R_e (1 - g)$$

Where  $g$  is gearing;  $R_d$  is the cost of debt;  $R_e$  the post-tax cost of equity; and  $t$  is the corporation tax rate.

### Tariff indexation and cost revision

Regarding the tariff indexation, the Consultant has assumed that the tariffs/user charges can be increased every three years and a rate of 25% has been assumed for the same. The same will be presented to the stakeholders during the workshops and would be firmed up as per discussions.



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### Grace period and tenor

A grace period for the loan repayment for this Project has been considered to be of one year and the repayment period has been considered to be six years (making the total loan tenor of seven years). It should be noted that grace period on interest is generally not available and the same has therefore not been considered in the financial model.

*Table 6-4: Financial assumptions*

Variable	Value
Corporation income tax	30%
Post-tax WACC (70% debt, 30% equity)	13.8%
Tariff indexation	25% (every three years)
Opex revision rate	5.2% p.a.
Capex revision rate	5.2% p.a.
Principal grace period	1 year
Principal repayment period	6 years

Source: Consultant

## 6.4 Capital expenditure under TSCP

This section provides an overview of the capex involved in the upgradation of SWM services in Arusha city.

Works supported under TSCP in Arusha involved the construction and upgradation of Muriet Sanitary Landfill (previously used as an open dump site), construction of solid waste collection centers and purchase of equipment for waste collection, transportation and compacting at the landfill site. For the collection and transportation phase of the SWM value chain, the total capex incurred was the sum of capex incurred for purchasing machinery and equipment during phase 1 (TZS 813 million) and that purchased during phase 2 (TZS 642 million). For the landfill phase, the total capex incurred was the sum of construction cost of the sanitary landfill (TZS 12,862 million), as well as the cost for purchasing machinery and equipment for the landfill (TZS 1,842 million). TSCP was successfully completed and the facility including the equipment was handed over to ACC for operations. A summary of the capex incurred under the TSCP for Arusha city has been provided below. Further details have been provided in Section 9.

*Table 6-5: Capex under TSCP*

Components	TZS million
Cost of construction of Sanitary Landfills	12,862
Cost of machinery and equipment for Sanitary Landfills	1,842
Cost of machinery / equipment for collecting and transporting solid waste (Phase One)	813
Cost of machinery / equipment for collecting and transporting solid waste (Phase Two)	642



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Components	TZS million
<b>Total cost for council</b>	<b>16,159</b>

Source: Consultant

#### Indicative cost of land

It is proposed that the landfill site shall be upgraded and operated for SWM services in Arusha. Based on the discussions with the municipal valuers, it was estimated that the land price in the Muriyet ward area is around TZS 20,000- 40,000 per sqm. Thus, the total estimated value of landfill site is between TZS 5.8 billion- 11.6 billion.

### 6.5 Methodology of capex calculation for PPP Project

As discussed above, three technical options have been considered while preparing the financial model, depending upon the value chain component of the SWM lifecycle that would be developed and upgraded by the ProjectCo. The three technical options are: a) only collection and transportation, b) only landfill, and c) integrated. However, as discussed above the Consultant has recommended integrated operations as the preferred technical option for the proposed PPP Project. Therefore, capex calculation for integrated operations are discussed below. We have assumed a one-time capital expenditure in the first year for collection, transportation as well as landfill components of the SWM value chain.

It is to be noted that as the population increases over the years and the waste arising increases, additional equipment and machinery will be required to be purchased over the years. Also, older equipment and vehicles would need to be replaced after a certain replacement period, which would differ for each item. Therefore, taking into account the additional waste generated over the years as well as the replacement period for machinery and equipment, capex has been calculated for further years. A summary of the capex incurred for the first year as well as the capex incurred over the years has been provided for integrated technical option, as in the tables below. Further details are provided in Section 9.

### 6.6 Capital expenditure- Year 1 of PPP

*Capex for Collection and Transportation component:* We have assumed a one-time capital expenditure for the first year for the collection and transportation component of the SWM value chain. As per our financial model, a total of 70 skip bucket containers will be required per day for waste collection for the first year. However, currently ACC owns 16 skip bucket containers (in good condition) and hence can be utilized in the PPP. Therefore, capex of only additional 54 skip buckets has been considered in the first year of operations.

For the Project a total of 88 tricycles, 438 pushcarts and four transfer trucks of type 1 will be required during upgradation in the first year, as per our calculations. Capex has been considered for them accordingly. Additionally, as per our calculations, three transfer trucks of type 2 would be required for first year, however ACC currently owns five transfer trucks (all of them will be handed over to the ProjectCo). Therefore, capex has not been considered for the type 2 transfer trucks. The capex calculation also considers the cost of around 3,000 face masks, 3,000 hand gloves, 750 gum boots, 750 headwear and 1,500 uniform. The total of all the



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above mentioned capital costs, constitutes the capex for collection and transportation component of the value chain, for the first year.

*Capex for landfill:* The one-time upgrading cost for the landfill site has been assumed as 5% of the initial capex incurred for construction of landfill site under TSCP (initial capex has been assumed as 80% of the total landfill development cost under TSCP, considering 20% of capex was utilised in upgrading the then existing dump site<sup>7</sup>). Also, as per our calculations additional bulldozer, wheel loader, excavator, two water tankers and tipper truck, each will be required for the first year and therefore their capex has been considered accordingly. Hence, the upgrading cost for landfill as mentioned above constitutes the capex for the landfill component.

The total of the capex for collection and transportation component and the capex for landfill component constitutes the capex for the integrated operations (base case). A consulting fee of 10% and a contingency fee of 5% of capex has been added to the capex again to which a VAT of 18% of the capex has been added. The following table provides a snapshot of the capex incurred in first year. A more detailed version of the same is provided in Section 9.

*Table 6-6: Capex for first year*

Component	Capex (TZS million)
Collection & Transportation	2,534
Landfill	2,912
Integrated	5,446

Source: Consultant

## 6.7 Capital expenditure over contract duration of PPP

As the population grows and as the quantum of waste generated increases over the years, additional equipment and vehicles would need to be purchased and all these equipment and vehicles would also need to be replaced after a certain replacement period, replacement period would differ as per each equipment and vehicle. Accordingly, capex has been calculated for further years, taking into account the waste increment over the years and the replacement period for different equipment and vehicles. The following table provides a summary of the capex incurred over the years. A detailed version of the same is provided in Section 9.

*Table 6-7: Capex over the years (TZS million)*

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
C&T	2,534	335	440	508	617	1,173	1,428	370	1,352	555	2,078	1,098	2,853	1,120	1,773
Landfill	2,912	-	-	-	-	2,379	-	-	-	-	2,560	-	-	-	-
Integrated	5,446	335	440	508	617	3,552	1,428	370	1,352	555	4,638	1,098	2,853	1,120	1,773

Source: Consultant

<sup>7</sup> Muriet landfill site was previously being used as an open dump site since 2003 and was later upgraded to a sanitary landfill site under TSCP.



During the second workshop ACC officials agreed to the fact that they do not have the financial means for such an investment. It was further explained to them that if they do not proceed with PPP for the Project, it will aggravate the existing problems such as deficient SWM coverage, low collection rates, public health hazards, unhygienic conditions, stench and illegal burning/dumping of waste.

## 6.8 Operation and maintenance expenditure

This section provides an overview of the opex involved in improving and upgrading the SWM services in Arusha. O&M of the SWM value chain (as will be required and drafted in the PPP contract) is crucial to ensuring optimal operating conditions to all stakeholders of SWM operations in Arusha city. As discussed above, though the financial model has been prepared for three technical options, however the opex calculations for the base case that is integrated operations have been discussed below.

Fuel cost in Tanzania has been set at TZS 2,300 per litre. Also, it is noted that the opex calculation for further years takes into account two factors: a) the number of equipment, vehicles and staff required would increase over the years with the increase in the quantum of waste generated and b) all costs increase over the years by the inflation rate in Tanzania.

*Collection and transportation:* For the collection and transportation component of the SWM value chain, operational cost has been considered as the sum of three components namely a) fuel cost of equipment b) maintenance and lubrication cost of equipment and c) staff salary and expenses over the years as discussed below.

- Fuel cost of equipment: For the first year of operations, as per our calculations 88 tricycles, four transfer trucks of type 1 and three transfer trucks of type 2 will be required. Each tricycle will require fuel worth TZS 69,000 per month (as per calculations), and each transfer truck of type 1 & 2 will require 19 litres and 28 litres of fuel per day respectively (as per calculations). The number of tricycles and transfer trucks (both type 1 and 2) required will increase over the years and the per litre fuel cost will increase by the rate of inflation. Both these factors have been considered for calculating the increase in the overall fuel cost, over the years.



- Maintenance and lubrication cost: The second component is the maintenance and lubrication cost for skip containers, tricycles, push carts and transfer trucks. The annual repair and maintenance cost for skip buckets is the product of percentage of annual repair cost per skip bucket container (taken as 5%), unit price for each skip bucket container and cumulative number of skip containers operational (calculated). The annual repair and maintenance cost for tricycles and push carts has been calculated as the product of number of tricycles or pushcarts required for the first year of operations (calculated), percentage of annual repair and maintenance cost for either tricycles or push carts (taken as 5%), unit price for tricycles



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or pushcarts (current market price in Tanzania). The annual repair and maintenance cost for transfer trucks (both type 1 and 2) has also been calculated in the same way. The annual repair and maintenance cost for transfer trucks (both type 1 and 2) has also been calculated in the same way. The first year figure is escalated with the average inflation rate of the last few years. Additionally yearly maintenance and lubrication cost will increase due to additional equipment being required over the years, due to the increase in the quantum of waste generated.

- **Staff salary and expenses:** Salary and expenses for waste collection staff, transfer truck drivers and loaders is calculated as the product of total number of staff required for either of three staff categories (calculated) and monthly salary for either of the three categories of the staff (assumed). Yearly salary is calculated for the three categories of staff and the same is escalated by the percentage of inflation over the years. Additionally, yearly salary cost will increase due to additional staff being required over the years, due to the increase in the quantum of waste generated. However under the Project, the salaries of the SWM staff will be decided by the ProjectCo and will not be decided by the council.

*Landfill:* For the landfill phase of the SWM value chain, the opex has been calculated as the sum of four components that is a) fuel cost of equipment (considering fuel cost for bulldozer, wheel loader, excavator, compactor, water tanker and tipper trucks), b) maintenance and repair cost of all the equipment mentioned above, c) staff salary and expenses (considering staff salary for landfill operation manager, landfill supervisor, operators for excavator, tipper truck, bulldozers, wheel loader, compactor and water tanker, attendants, casual labor, environment monitoring and testing officer and landfill security guards) and d) landfill repair and maintenance cost (considering annual maintenance of landfill site, electricity cost and water services cost).

- *Fuel cost of equipment:* The fuel cost for each of the equipment has been considered as the product of the number of equipment required for the first year of operations, total fuel consumption per day (calculated), and fuel price in Tanzania (assumed TZS 2,300 per litre). Yearly cost is calculated and escalated by inflation rate over the years for each of the equipment. Additionally, yearly fuel cost will increase due to additional equipment being required over the years, due to the increase in the quantum of waste generated.



- *Maintenance and repair cost of equipment:* Maintenance and repair cost for the equipment has been calculated as the product of number of equipment required for first year of operations, annual repair and maintenance cost as a percentage of cost of each equipment (taken as 5%) and unit cost for each of the equipment (as per data provided by PPP Node and current market price in Tanzania). The first year figure is escalated by inflation rate over the years. Additionally, yearly maintenance and lubrication cost will increase due to additional equipment being required over the years, due to the increase in the quantum of waste generated.



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- *Staff salary and expenses:* The salary for various staff has been calculated as the product of number of staff required and monthly salary (current salary for ACC staff – escalated by two years). The yearly salary is calculated and is escalated by inflation rate over the years. Additionally, yearly salary cost will increase due to additional staff being required over the years, due to the increase in the quantum of waste generated. However under the Project, the salaries of the SWM staff will be decided by the ProjectCo and will not be decided by the council.
- *Landfill repair and maintenance cost:* Landfill repair and maintenance cost has been considered as product of annual repair and maintenance cost as % of capex (considered 3% for year 1 to 5, 4% for year 6 to 10 and 5% for year 11 to 20) and capex for construction of landfill site under TSCP (provided by PPP Node). The same is escalated by inflation rate over the years. The electricity cost and water services cost has been considered as the monthly electricity and water services cost (as per existing quantum of waste). Yearly value is calculated and is escalated by inflation rate over the years. It has to be noted that here the capex of landfill site has been assumed as 80% of total landfill development cost, considering 20% of capex was utilised in upgrading the then existing dump site.
- *Revenue shared with ACC:* This operational expenditure is 15% of the revenue earned by the ProjectCo.

The sum of the opex for the collection & transportation component as well as the landfill component of the SWM value chain and the revenue shared with ACC constitutes the total opex for the integrated operations (base case).

## 6.9 Revenue sources

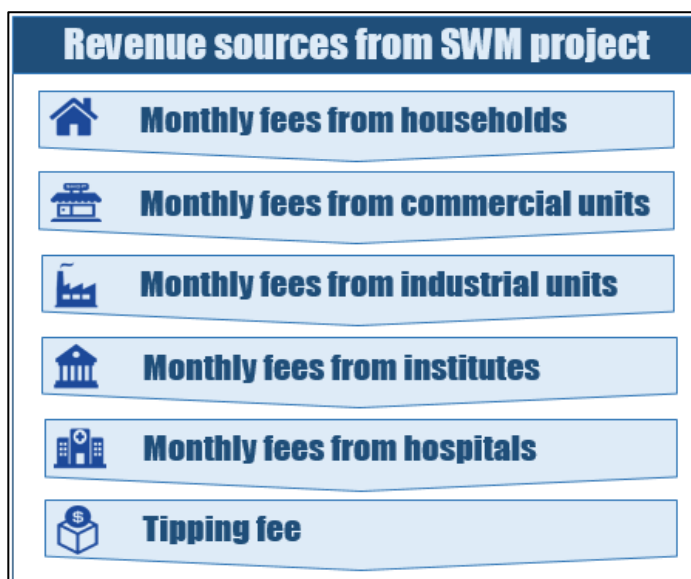
This section presents the identified revenue sources for SWM services in Arusha city. As explained in the subsequent sections, the user charges are set at different levels for urban and rural household categories as the quantum of waste generated differs for different households. Then there is also the issue of affordability wherein urban households can afford higher user charges as compared with rural households. Therefore under the proposed PPP Project the user charges for households have been levied on a differential basis (zoning) depending upon the type of wards. The revenue calculation for all revenue sources is discussed below for the integrated operations (base case).

*Monthly fee from households:* Fees will be charged from households which includes monthly charges for the collection of waste. Currently, individual households are charged TZS 2,000 each on a monthly basis (as per ACC), bill collections rates being just 60%. While, according to the latest bye-laws provided by ACC, monthly fee to be collected from households stands between TZS 2,000- 10,000. Also, as per stakeholder consultations conducted by the Consultant, the residential households are currently paying around TZS 2,000-5,000 per month for door to door waste collection. The willingness-to-pay survey assessment undertaken by the Consultant revealed that majority of households are not willing to pay higher user charges than what they are currently paying for waste collection.



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However, for the PPP Project the monthly user charges for urban households have been set at cost recovery level of TZS 5,000 (CBD and non CBD) and at TZS 2,000 for rural households, which seems feasible. The user charges are justified considering the fact that once the SWM services are upgraded, and the capacity is enhanced, all the households and other waste generators would be covered in the waste collection process. The Project would deploy sanitary procedures at all steps of the SWM value chain thus ensuring cleanliness and hygienic conditions, thus preventing the risk of contracting diseases for citizens at large. The monthly user charge per household will escalate by 25% after every three years.



*Monthly fee from commercial units:* The commercial units currently pay around TZS 12,500 on a monthly basis for the SWM services (as per ACC). However, as per the latest byelaws commercial units, currently pay, TZS 5,000- 15,000 on a monthly basis. Once the PPP Project is implemented it would provide the same benefits as mentioned for households above. As per willingness to pay survey conducted with various commercial establishments, it was observed that majority of the commercial units are not willing to pay higher user charges, as they feel that the current user charges are reasonable. However, for the PPP Project, the monthly user charges have been set at cost recovery level and will be increased to TZS 20,000, once the SWM lifecycle is upgraded with better services. The monthly user charge per commercial unit will escalate by 25% after every three years.

*Monthly fee from industrial units:* The industrial units currently pay around TZS 125,000 on a monthly basis for the SWM services (as per ACC). However, as per the latest byelaws, large industrial units currently pay, TZS 200,000 on a monthly basis, whereas small industrial units pay, TZS 50,000 per month for the SWM services. Once the PPP Project is implemented it would provide the same benefits as mentioned for households above. For the PPP Project, the monthly user charges have been set at cost recovery level and will be increased by ~32% to TZS 165,000 on a monthly basis for better and hygienic SWM facilities and services. The monthly user charge per industrial unit will escalate by 25% after every three years.

*Monthly fee from institutes:* Institutes include universities, educational institutes, academic institutes and others. Currently, a sum of TZS 75,000 is charged on a monthly basis from institutes in Arusha, for SWM services (as per ACC). However, according to the latest byelaws, the institutes pay around TZS 100,000 on a monthly basis. For the PPP Project, the monthly user charges have been set at cost recovery level and proposed to be increased to TZS 100,000 on a monthly basis for better and hygienic SWM facilities and services. The monthly user charge per institutional unit will escalate by 25% after every three years.

*Monthly fee from hospitals:* Hospitals in Arusha currently pay a sum of TZS 38,750 on a monthly basis for SWM services (as per ACC). However according to the latest byelaws, they pay around TZS 50,000 on a monthly basis for collection of non-hazardous waste. Hazardous waste generated from hospitals is incinerated



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by themselves and is not included in the SWM services provided by ACC in the city. This category of waste generators include big and small hospitals, dispensaries, etc. Once the PPP Project is implemented it would provide the same benefits as mentioned for households above. For the proposed PPP Project, the monthly user charges for hospitals have been set at cost recovery level at TZS 50,000. The monthly user charge per hospital will escalate by 25% after every three years.

A summary of the current user charges to be revised as per ACC and user charges proposed by the Consultant is provided in the table below.

*Table 6-8: User charges in TZS per month for SWM services*

Establishment	User charges as per ACC	Proposed user charges (TZS)	Percentage increase (approximate)
Urban households (CBD area)	3,000 <sup>8</sup>	5,000	66.67%
Urban households (Non CBD area)	3,000	5,000	66.67%
Rural households	-	2,000	-
Commercial units	12,500	20,000	60%
Industrial units	125,000	165,000	32%
Institutional units	75,000	100,000	33%
Hospitals	38,750	50,000	29%

Source: Consultant

*Tipping fee:* Currently, private companies and a few industries and institutes in Arusha transfer their waste directly to the landfill site, and are being charged a tipping fee of TZS 50,000 per ton of waste. Once the services are upgraded and disposal at landfill is streamlined, private companies, industries and institutes can pay a sum of TZS 50,000 per ton (that is to say they pay the current user charges, for the first three years, to make the Project viable). After every three years the tipping fee is escalated by 25%.

*Table 6-9: Annual revenue statement for proposed PPP Project*

Annual revenue statement	Number	Monthly fees (TZS)	Total first year revenue (TZS million)
Monthly fee from urban households	96,017	5,000	3,687
Monthly fee from rural households	4,001	2,000	46
Monthly fee from commercial units	3,837	20,000	589
Monthly fee from industrial units	6	165,000	8
Monthly fee from institutional units	311	100,000	239
Monthly fee from hospitals	8	50,000	3

<sup>8</sup> As per the data provided by ACC, the monthly user charges for urban households is TZS 2,000. While as per current municipal byelaws and willingness to pay survey, the user charges for urban households vary from TZS 2,000-10,000 and TZS 2,000-5,000, respectively. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered an average value of TZS 3,000 as current user charge for urban households.

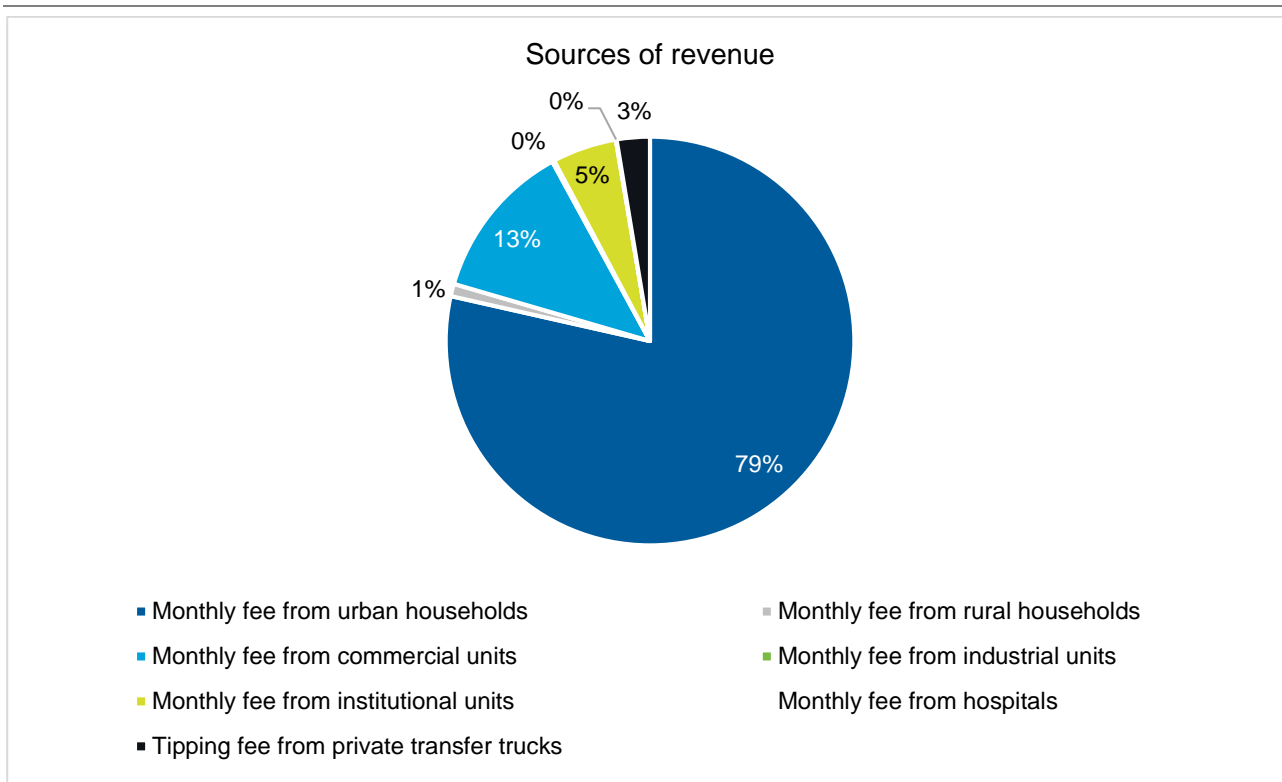


Annual revenue statement	Number	Monthly fees (TZS)	Total first year revenue (TZS million)
<b>Subtotal (1)</b>	-	-	<b>4,572</b>
Annual revenue statement	Tons transferred each day	Monthly fees per ton (TZS)	Total first year revenue (TZS million)
Tipping fee from private transfer trucks	6.8	50,000	123
<b>Total revenue</b>	-	-	<b>4,695</b>

Source: Consultant

From the above table, we can see that the revenue generated from households is the major revenue contributor for the SWM operations under the proposed PPP Project. It contributes ~80% of the total revenue generated from SWM operations, wherein ~79% is generated from urban households. Other major sources of revenue are user fees charged from commercial units (13%) and fee charged from institutional units (5%). The minor sources of revenue includes tipping fee from industries/institutes (~3%), monthly fee from industrial units (0.2%) and monthly fee from hospitals (~0.1%). The contribution from various sources of revenue can be depicted in the figure 6.1 below.

Figure 6-1: Contribution from various sources of revenue



Source: Consultant



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Currently, the ACC is incurring an annual expenditure of TZS 492 million on SWM services, while the total revenue of council through SWM services is TZS 133 million. Therefore, the council is currently incurring an operating loss by spending more than what they are earning. While under the PPP Project, the ACC will receive only 15% of the revenue earned by the ProjectCo through SWM services, they will also not be required to spend/invest any amount on SWM services as the same is now taken care of by the ProjectCo. Additionally, the integrated operations, technical option will generate enough revenue for the ProjectCo to offset the cost incurred for both landfill and collection & transportation components of the SWM value chain.

As explained above, the user charges and tipping fee are increased and revised periodically, thus making the Project viable. If the user charges are not increased to the proposed levels as discussed above, ACC will be required to provide a subsidy to the ProjectCo in order to make the Project viable. Thus, under the proposed PPP Project user charges and tipping fee will be increased to proposed levels and will be revised every three years by 25%, once the infrastructure is upgraded and the Project is implemented.

## 6.10 Financial metrics

This section presents the base-case equity and Project IRRs used for assessing the financial pre-feasibility of the Project. Our financial analysis shows that the Project is financially feasible and is expected to attract interest from private parties. The various financing assumptions considered in preparing this model include:

- *Interest rate on long-term loan of 16%,*
- *Principal repayment grace period of 1 year,*
- *Repayment period of 6 years,*
- *Equity contribution of 30% of the Project cost,*
- *CIT of 30%*

Feeding into our financial analysis, we present three options in the financial model, wherein the Council can select either one of the three options to be undertaken by the ProjectCo, i.e.

- a) Only collection and transportation,
- b) Only landfill management, and
- c) An integrated project.

The Consultant has proposed an integrated SWM operation in which collection, transportation, as well as landfill components of the SWM value chain will be upgraded and operated by the ProjectCo as a PPP Project. In the case of selecting either C&T or landfill, only the respective components would have to be upgraded and operated by the ProjectCo whereas the other component will need to be upgraded and operated either by ACC or by another ProjectCo under a separate PPP contract. The latter options are less favorable in comparison to the integrated option, as discussed in the economic case above.

The user charges and tipping fee are set at cost recovery level to make the integrated option viable along with a 15% revenue share to the ACC. We have calculated capex for year 1 as well as for the remaining years. For



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integrated operations, the total capex incurred in year 1 is TZS 5,446 million and over a 15 years period equals TZS 26,086 million. With a project IRR of 22.8% and equity IRR of 24.2% for integrated operations, the Project is financially viable with a high probability of attracting market interest.

As stand-alone, only C&T is financially viable (both with and without a 15% revenue share to the ACC) as we assume that the user charges and tipping fees are set at cost recovery level. However, only landfill option is financially viable without a 15% revenue share to the ACC, (the Consultant has not considered 15% revenue share to the ACC for the only landfill option). Therefore, we recommend the integrated operations from a viability, effectiveness and efficiency point of view as explained in the economic case above. The capex incurred for the first year, capex incurred over 15 years and equity IRR for the three options (with a 15% revenue share to ACC for integrated and only C&T options) have been provided in the table below.

*Table 6-10: Capex and equity IRR (TZS million and %)*

Scenario	Capex (first year) TZS million	Capex over 15 years TZS million	Equity IRR - %
Base case- Integrated	5,446	26,086	24.2
Option 1- Only C&T	2,534	18,234	28.7
Option 2- Only landfill	2,912	7,851	20.6

Source: Consultant

Our financial analysis builds on a rigorous market demand study and a willingness-to-pay survey. These exercises provide a high level of certainty of the Project's future demand and the proposed user charges to be charged from the waste generators. Both variables are key drivers in the Project's financial analysis. The willingness to pay survey and stakeholder consultations highlighted that a majority of waste generators in Arusha are not willing to pay for any further increase in user charges for waste collection services as they feel that current user charges are reasonable.

Considering cost recovery for the ProjectCo and 15% revenue to be shared with the ACC (for integrated operations and only C&T option), the user charges for urban households in both CBD and non CBD areas have been set at TZS 5,000 per month. The user charges for all other waste generators such as industries, institutions, etc. would need to be increased by 30-60%. In addition, all user charges would be revised by 25% every three years. The current and proposed user charges and tipping fee are summarised in the table below.

*Table 6-11: Revenue sources analysis (in TZS)*

User charges/ Tipping fee	Current (As per ACC)	Proposed user charges and tipping fees		
		Integrated	Only (C&T)	Only landfill
Urban households – CBD area (per month)	3,000 <sup>9</sup>	5,000	5,000	-

<sup>9</sup> As per the data provided by ACC, the monthly user charges for urban households is TZS 2,000. While as per current municipal byelaws and willingness to pay survey, the user charges for urban households vary from TZS 2,000-10,000 and TZS 2,000-5,000, respectively. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered an average value of TZS 3,000 as current user charge for urban households.



User charges/ Tipping fee	Current (As per ACC)	Proposed user charges and tipping fees		
		Integrated	Only (C&T)	Only landfill
Urban households – Non CBD area (per month)	3,000	5,000	5,000	
Rural households (per month)	-	2,000	2,000	-
Commercial units (per month)	12,500	20,000	20,000	-
Industrial units (per month)	125,000	165,000	165,000	-
Institutional units (per month)	75,000	100,000	100,000	-
Hospitals (per month)	38,750	50,000	50,000	-
Tipping fee per ton - private transfer trucks	50,000	50,000	-	50,000
Tipping fee per ton - ACC's transfer trucks <sup>10</sup>	-	-	-	18,000
Tipping fee per ton - ProjectCo's transfer trucks <sup>11</sup>	-	-	-18,000	-

Source: Consultant

Our calculations result in a post-tax project IRR of 22.8%, post-tax equity IRR of 24.2% with an average DSCR of 2.2 for integrated operations (base case). These returns are robust and should be acceptable to a ProjectCo as well as to financiers.

Table 6-12: Financial pre-feasibility assessment for integrated operations (base case)

Item	Metric outcome	Comparison with	Conclusion
Project IRR	22.8%	WACC of 13.8%	Project IRR higher than WACC suggests that Project is financially viable
Equity IRR	24.2%	ROE of 20%	Equity IRR higher than equity rate of return suggests that Project is likely to attract private players
Average DSCR	2.2	DSCR of 1.25	DSCR is higher than the minimum DSCR required in infrastructure Projects to secure bank finance. It shows that the Project will be able to service its debt obligation in time

Source: Consultant

## 6.11 Sensitivity analysis

As discussed earlier in Section 6.6, in our estimates of the capex of the Project, we have included a contingency of 5% as a buffer. However, in the case of an unforeseen event, if the capex and opex of the Project increases beyond this buffer or if the revenue generated or tariff revision rate have been overly

<sup>10</sup> This tipping fee is applicable in the case of only landfill, payable either by ACC or a C&T operator (private player) to the ProjectCo.

<sup>11</sup> In case of only C&T, tipping fee of TZS 18,000 per ton of waste has to be paid by the ProjectCo to ACC or to the landfill operator for disposing waste at the landfill site. Since it's an operational expenditure it is depicted by a negative sign.



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estimated or interest rate on debt has been considered too low, then the equity IRR of the Project could decrease.

We have undertaken a sensitivity analysis testing the resilience of equity IRR under adverse scenarios. Here, capex, opex, and revenue have been assumed to increase or decrease with 20%, while interest rate on debt has been checked at 18% p.a. and 14% p.a. and three-yearly tariff indexation has been tested with 20% and 30% and the ensuing effect on the equity IRR (vis-a-vis the base case) of the Project has been depicted in the table below:

*Table 6-13: Sensitivity Analysis*

S. No.	Case	Equity IRR	Average DSCR
1	Base Case	24.2%	2.2
2	20% increase in capex	20.9%	1.8
3	20% decrease in capex	28.6%	2.7
4	20% increase in opex	5.6%	0.4
5	20% decrease in opex	55.1%	4.0
6	20% increase in revenue	54.5%	4.1
7	20% decrease in revenue	1.7%	0.3
8	Debt Interest rate @ 18% instead of 16%	23.7%	2.1
9	Debt Interest rate @ 14% instead of 16%	24.8%	2.2
10	Three- yearly tariff revision rate @ 30%	30.5%	2.5
11	Three- yearly tariff revision rate @ 20%	16.2%	1.8

Source: Consultant

The above table shows that Project's revenue and capex are the most sensitive factor. Under the unforeseen event, the Project revenue may decrease by 20% or opex may increase by 20% compared with the base case, then the equity IRR of the Project falls to 1.7% and 5.6%, respectively. Additionally, three-yearly tariff indexation @20% results in an equity IRR of 16.2%. These rate of return might not be acceptable to the equity providers, as it is lower than the objective return on equity of 20%. Additionally, an increase of 20% in revenue and 20% decrease in opex leads to equity IRR of 54.5% and 55.1% respectively.

We infer that in the base case the Project is viable, but in certain cases, our assumed sensitivities may affect the equity IRR and various sweeteners or financial enhancers such as annual subsidy, upfront viability gap funding, etc. may be required rendering the Project financially viable.

## 6.12 Scenario analysis

As explained in Section 6.10, the Project is viable in the base case (integrated operations comprising of collection, transportation and landfill components of the SWM value chain) with an equity internal rate of return (IRR) of 24.2%, user charges set at cost recovery level, indexation of 25% for user charges and escalation period of 3 years for revising user charges. Additionally under the base case, the ProjectCo would be required



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to share 15% of the revenue earned with ACC. In addition to the base case the Consultant has evaluated two additional scenarios testing the impact of change in- a) user charges, b) user charges escalation period and c) percentage of revenue to be shared with ACC. The base case and additional scenarios have been provided in the table below.

*Table 6-14: Additional scenarios for the integrated option*

Particulars	Base case	Scenario-I	Scenario-II
User charges from waste generators	Cost recovery	No increment	Limited increment
Escalation period and % indexation in user charges	3 years, 25%	3 years, 25%	5 years, 25%
Revenue sharing by ProjectCo with LGA	Yes	No	No
Number of urban wards covered for waste collection	24	24	24
Number of rural wards covered for waste collection	1	1	1
Role of ProjectCo	Integrated	Integrated	Integrated
Monthly user charges - urban households CBD (TZS)	5,000	3,000	5,000
Monthly user charges - urban households- Non CBD (TZS)	5,000	3,000	5,000
Monthly user charges from rural households (TZS)	2,000	Not levied	2,000
Average increase in user charges for other waste generators	30%-60%	0%	30%-60%
User charges escalation period (in years)	3	3	5
User charges escalation rate (in %)	25%	25%	25%
% revenue share by ProjectCo with LGA (in %)	15%	0%	0%
Total Project capex over 15 years (in TZS mn)	26,086	26,086	26,086
Equity IRR (in %)	24.20%	19.80%	23.90%
Agreement period (in years)	15	15	15
TZS subsidy per ton per day to be provided by LGA	Not required	13,000	Not required
Annual increment in subsidy (in %)	Not required	5%	Not required
Subsidy in Year 1 (in TZS mn)	Not required	999	Not required
Subsidy in Year 5 (in TZS mn)	Not required	1,748	Not required
Subsidy in Year 10 (in TZS mn)	Not required	2,754	Not required

Source: Consultant

### Legend

	Scenarios		Tariff escalation & revenue share
	Ward coverage & role of ProjectCo		Project cost, duration and returns
	User charges per month		Subsidy from LGA to ProjectCo



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In the **base case**, as described above 15% of the revenue earned by ProjectCo will be shared with the ACC and no subsidy is required to be paid by the ACC to the ProjectCo. However, for it to be implemented, awareness will need to be created among waste generators, officials and political representatives through information, education and communication (IEC) to justify the increase in user charges at cost recovery level. They need to be made aware of the benefits of the proposed Project like higher SWM coverage (in terms of coverage of households and other waste generators), increase in waste and bill collection rates, segregation of waste, improved hygiene conditions at landfill site and sustainable landfill management, increase in employment opportunities etc. In addition, it is to be noted that under this case the level of user charges for waste collection is around 1% of household's income which seems reasonable.

Under **scenario-I**, the user charges for all the waste generators have been set at the current level and there will be no revenue sharing by ProjectCo with LGA. The current user charges for urban households vary from TZS 2,000-10,000. Since, ACC has not provided a detailed break-up as to which household provides what user charges, we have considered a value of TZS 3,000 for urban households taking a conservative approach. However, it is noted that the ACC would be required to pay a subsidy of TZS 13,000 per ton per day to the ProjectCo, which would increase by 5% per annum, to factor in the inflation in cost of service delivery. The subsidy would also increase per year with the increase in the quantum of waste generated. The total subsidy to be paid by ACC to ProjectCo in year 1 is TZS 999 million, in year 5 is TZS 1,748 million and in year 10 in TZS 2,754 million. This scenario would require significant expenditure by the LGA but the LGA's budgets are already stretched.

Under **scenario-II**, the user charges will be increased to levels as set under the base case for all waste generators. However, user charges will be revised by 25% every five years (as compared to three years in base case) and revenue earned by the ProjectCo will not be shared with the ACC in comparison to the base case. Under this scenario the ACC would not be required to pay any subsidy to the ProjectCo as compared to scenario-I. The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of ACC with their management and councilors.

## 6.13 Value for money

This section assesses the value for money (VfM) of the Project both on qualitative as well as quantitative perspectives. The quantitative aspects include ascertaining the net difference in costs for the government in implementing the Project using public procurement versus PPP procurement. The qualitative aspects deal with public sector capability, time and cost take for Project implementation and demand for Project.

### Quantitative assessment

Quantifying VfM hinges on comparing the total costs associated with a PPP procurement approach as compared to the conventional Public-Sector Comparator (PSC) procurement approach. The former is calculated as the NPV of total amount invested by the public sector in the form of upfront VGF and/or annual payments made to ProjectCo over the entire agreement period plus the portion of retained risk by public sector, i.e., total Project risk less risk transferred to the special purpose vehicle (SPV)/ private entity.



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The PSC procurement total Project cost is calculated as the sum of the present value (PV) of total costs – i.e., capex and opex, plus the risk retained by public sector. Since the PSC approach is assumed to entail no SPV, the entire proportion of risk is borne by the government. As a means of quantifying the Project risks, the following categories of risk have been assessed:



- *Construction risks* – These are the risks that have a direct impact on the capex. These include cost and time overrun risks as well as design risk, i.e., the possibility that post rollout infrastructure and technical specifications are misaligned to the functional requirements for the services offered.
- *Operational risks* – It includes the factors that directly influence the opex of the Project. This includes, inter alia, direct opex-overruns. Moreover, under a PPP procurement approach, an independent Project management office (PMO) might be required to manage the contract and ensure that the Project is executed effectively and efficiently - as per the PPP agreement. This will generate additional opex.
- *Financial risks* – It covers the parameters that impact both, capital and operational components of the Project. Specifically, interest rates and inflation rates that are higher than historical norms will result in higher cumulative costs over the Project agreement period. Similarly, foreign-currency denominated costs will be negatively impacted by devaluations/depreciation of the Tanzanian Shilling relative to the USD.
- *Revenue risks* – It covers the demand risk related to the Project, which includes the possibility of potential revenue leakage. It also covers the aspect of marketing and administrative capability of the operator to attract more customers and traders that will lead to higher revenue.
- The table below presents a high-level risk matrix, encompassing the above mentioned risks. Four different scenarios, such as worst case, pessimistic, most-likely and optimistic, have been considered and the allocation of risk probabilities and impacts have been considered in each case to arrive at a weighted-average risk factor. The quantification of the impact of each risk on the present value (PV) of opex, capex and Project revenues is predicated on probabilistically weighted averages, as per the following formula:

$$\text{Impact on PV} = \text{weighted average risk factor} \times \text{PV}$$

Table 6-15: Weighted impact on PV

Risk category	Specific risk	Probabilistically weighted loss (%)	Weighted impact on PV (TZS million)
Construction risk	Capex over-run	9%	1,098
	Time over-run	34%	4,168
	Design risk	9%	1,098
Operational risk	Opex over-run	16%	9,538



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Risk category	Specific risk	Probabilistically weighted loss (%)	Weighted impact on PV (TZS million)
	PMO cost over-run	16%	9,538
Financial risk	Interest rate risk	12%	8,153
	Exchange rate risk	12%	8,153
	Inflation risk	12%	8,153
Revenue risk	Revenue risk	35%	28,584

Source: Consultant (based on past experience in PPP projects)

Given that the main driver of PPP procurement approach is premised on an effective transfer of risk to the ProjectCo, 90% of the total probabilistically weighted PV of risk is transferred while 10%, i.e., TZS 7,848 million, is retained by the Government. This 10% risk accounts for the risks that have been assigned to the public sector and that ProjectCo might exercise during the course of the Project and this includes: (a) site risk, (b) construction risks beyond ProjectCo's control (c) events of default of the public sector; (d) compensation on termination due to public sector default; (e) political risks; (f) force majeure risk.

The net cost under the PPP procurement approach is thus the portion of retained risk minus the PV of the tax revenue to be collected from the ProjectCo on the profits that they generate from the Project. The net costs for the PPP procurement approach for 15 year agreement period comes out to be TZS 3,564 million.

On the other hand, under the conventional public-sector procurement framework, the total value of risk i.e. TZS 68,944 million is borne entirely by the government. The net costs for the public-sector procurement has been obtained by adding the total PV of capex and opex and the entire retained risk and subtracting from it the PV of the Project revenues. The net costs for this approach comes out to be TZS 58,747 million. This is summarized in the table below.

An assessment period equal to the agreement period of 15 years has been considered. Also, as per the monthly economic review, March 2018 by Bank of Tanzania, 10-year Treasury bond rate in February 2018 stood at 15%, Similarly, Treasury bond rates for 7-year, 5-year and 2-year stood at 13%, 12% and 9% respectively. So, we can see that the discount rate applicable will also depend on the tenor of loan that the government will avail. Thus, considering these factors we have assumed an average discount rate (for public procurement) of 12% for the calculation of VfM.

Table 6-16: Value for money calculation

Variable	PSC procurement – net costs (TZS million)	PPP procurement – net costs (TZS million)
PV of capital costs	12,199	-
PV of operating costs	58,694	-
PV of total costs	70,893	-
PV of retained risks	68,944	7,848
Project Revenue	81,089	-
PV of tax revenue from ProjectCo	-	4,285



Variable	PSC procurement – net costs (TZS million)	PPP procurement – net costs (TZS million)
<b>Total PV of net costs</b>	<b>58,747</b>	<b>3,564</b>
<b>Value for money</b>	<b>TZS 55,184 million</b>	

Source: Consultant

The table above suggests that from a public sector perspective, Project revenues in case of public procurement accrues to the government whereas in PPP procurement, the public sector will only be entitled to the revenue collected in the form of tax on profits. Also, in case of public procurement, the entire capex as well as the opex are borne by the government. Whereas in PPP procurement, these costs are borne by ProjectCo and hence the costs to the government is nil.

The VfM has been obtained by comparing the net costs for both PPP and public-sector procurement approaches. The risk-adjusted net cost for PPP approach (TZS 3,564 million) is significantly lower than that of the public-sector procurement approach (TZS 58,747 million). In other words, it is TZS 55,184 million cheaper to the Government to carry out the Project as a PPP.

#### Qualitative assessment

The VfM aims at comparing deciding between a conventional public procurement and the PPP strategy. The below pointers provide additional understanding to this VfM from a qualitative standpoint:

- *Public sector capability and experience* – The ACC has limited experience in upgrading the SWM value chain as proposed. ProjectCo with experience in this sector can use its expertise and modern technologies to upgrade the value chain and can include features that the public sector might not have envisaged.
- *Time taken for Project implementation* – Involving the private sector in various stages of Project development including design, construction, operation and maintenance will ensure that the time-delays are minimized. As the private sector is better incentivized, and hence, more equipped for timely completion of Projects as it will otherwise it would affect their profit margins.
- *Demand for Project* – The private sector with its assumed high level of marketing skills and know how can use this opportunity to not only attract more staff/workers but also more waste generators to use this SWM service. Ultimately generating higher revenues than a public entity could – all other things equal.

Based on the above assessment of both quantitative and qualitative perspectives, we recommend undertaking this Project using the PPP mode as it offers significant advantages as compared to public procurement. Summarizing, we recommend doing the Project on a PPP basis, particularly, through the DBFOMT mode.



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## 7 Management case



This chapter sets out the institutional, legal and regulatory aspects as well as the social and environmental aspects, which are applicable to the proposed SWM project in Arusha.

### 7.1 Institutional review

The Consultant had shared the checklist with ACC during kick-off meeting to provide the details for institutional review, but the same has not been provided by ACC, even after multiple follow ups. Hence, the details of the same have not been included in the final pre-feasibility study report.

### 7.2 Regulatory and legal due diligence

The main findings of our legal due diligence are presented below:



#### Assets (fixed assets and land)

- *Land title deed* – ACC has not yet submitted the land title deed for the proposed site for our legal due diligence. The same would be required before the launch of bid process management.
- *Right to acquire land* – Generally, LGAs have the right to acquire land or a right to use any land within or outside its jurisdiction for the purpose of any of its functions (Section 60 of the LGUA Act). Specifically in relation to PPPs, Section 12 of the PPP Act 2010 provides that where a PPP Project requires acquisition of land for its implementation, it shall be carried out in accordance with the Land Act, Village Land Act, Land Use Planning Act, the Land Acquisition Act, and any other relevant laws.
- *Lease of land* – A foreigner or a company in which Tanzanians are minority shareholder(s) (foreign company) cannot own land in Tanzania under a Granted Right of Occupancy (GRO) which is the highest form of title. However, it can hold land through the Tanzania Investment Centre (TIC) which will grant the foreigner or the foreign company a Derivative Right for investment purposes. However, a foreign company can rent out general land directly from the land holder without holding title for a specified period in a lease/sub-lease agreement. It is noted that a foreigner cannot own or rent a village land unless that village land is converted into general land. According to Section 61(a) of the LGUA Act, LGAs may sell, exchange,



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let, mortgage or charge any land or premises in its ownership or disposition, with the approval of the minister in the PO-RALG.

With this mandate, the LGA, as the contracting authority for the purpose of a PPP, may sell or lease any land or premises it owns to a private party in order to carry out a PPP Project. However the process of transferring title in Tanzania may be cumbersome i.e. as this is government property, any disposition must adhere to the procurement laws under the Public Procurement Act and costly, i.e., payment of capital gains tax by the buyer which is 10% of the purchase price for a resident and 20% of the purchase price for a non-resident person. It would be advisable for ACC to lease the land to the ProjectCo for a specified period rather than to transfer the ACC title to the latter. The provisions of the lease will be provided for under the PPP Agreement or a separate lease agreement and should include ProjectCo's obligations to upgrade, operate and maintain the ACC SWM Project for a specific period. There is no minimum required value for the lease, the parties will have to decide on this during the negotiations. On the expiry of this lease period, and in the absence of an extension, ACC will resume the operation and management of the ACC SWM project. Thus, the ownership of the ACC title remains with the ACC, while the operation and management of the assets and economic activities are transferred to the ProjectCo for the duration of the Project.

- *Land as security* – Land owned by the LGA can be used as security for a loan. According to Section 119(a) of the LGDA Act, with the approval of the Minister in the President's Office-Regional Administration and Local Government, LGAs may sell, exchange, let, mortgage or charge any land or premises in its ownership or disposition. Thus with this mandate, ACC as the holder of the ACC title may use the land on which collection centers and landfill sites rest upon, to secure a loan from lenders for the ACC SWM project. As ProjectCo will only lease out the land from ACC and will not have the ACC title, ProjectCo cannot use the title as security. Moreover, Section 8(2)(b) of the PPP Act 2010 (as amended) provides that the private party is responsible for mobilizing resources, thus ProjectCo will be required to secure the funding without relying on the ACC title.

Moreover, Regulation 74 of the PPP Regulations 2015 provides that the contracting authority and the Ministry of Finance must approve any proposed refinancing of debt extended by lenders to the Project. If the ProjectCo requires securing a loan by using the land owned by ACC in order to carry out the ACC SWM project, the ProjectCo must seek the approval of the ACC and the Ministry of Finance. The consequence of this is that in case of ProjectCo's default of its obligation to its lenders, these lenders can exercise their rights and takeover ownership of the land. Any liabilities on ACC and ProjectCo must be clearly provided for in the PPP agreement in order to ensure ACC does not lose the land in case of default. Additionally, the duration of the loan provided should not exceed the duration of the Project. The loan can only be for a maximum of 20 years (in the event the PPP agreement has been extended).

However, in practice, ACC would be reluctant to allow the ACC title to be used as security for a loan. ACC would expect ProjectCo to finance the Project without relying on the ACC title as security for a mortgage. We recommend that ACC should not exercise the right to use land as security for the ACC SWM project. This is to ensure that in case of any default, ACC does not lose the ACC title to lenders.



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### PPP implementation

- *Eligibility for PPP* – Section 4(4) of the PPP Act 2010 (as amended) provides a non-exhaustive list of project which can be carried out under a PPP regime including: agriculture, infrastructure, industry and manufacturing, exploration and mining, education, health, environment and waste management, information and communication technology, trade and marketing, sports, entertainment and recreation, natural resources and tourism and energy. The ACC SWM Project falls under the environmental and waste management category, and thus qualifies to be conducted under a PPP arrangement. Further, the maximum limit for small scale PPP Projects to be carried out by an LGA is USD 20 million (PPP Regulations). Thus, the Project cost of USD 2.37 million, in the first year, falls within the scope for an LGA, in this case the ACC, carrying a PPP Project.
- *Transfer of User rights/ assets* – According to Section 11(3) of the PPP Act 2010, a contracting authority and the ProjectCo may enter into an agreement which among other things provide that the ProjectCo would return any assets belonging to the contracting authority at the end of the agreement. Further section 11(4) of the PPP Act (2010) provides additional conditions to be included in the PPP agreement to ensure that the ProjectCo undertakes to perform the functions of a contracting authority on the latter's behalf for a specified period and will be liable for any risks arising from the performance of its functions, any government facilities, equipment or any other state resources required for the Project are transferred or made available to the ProjectCo in a timely manner; and public and private assets are clearly specified.

Pursuant to the provisions mentioned above, ProjectCo can perform functions of ACC on ACC's behalf for a specified period of time which shall not exceed 15 years being the duration for small-scale PPP projects as provided for under Regulation 76(2) (b) of the PPP Regulations. However, in the proposed amendments to the PPP Regulations, there will be no cap on the duration of the PPP agreement. As per the PPP Regulations, the duration may be extended for a maximum of five years in case of delay or interruptions unforeseen by both parties, project suspension not caused by the private party or an unforeseen increase of costs arising from the contracting authority (Regulation 84 of the PPP Regulations). Thus ACC can transfer its assets and user rights to ProjectCo (with whom they will sign a PPP agreement) to carry out the ACC SWM Project.

At the end of the PPP agreement, the ProjectCo will be required to hand back the assets to ACC. The procedure and requirements for handing back assets has been provided under Regulation 97 of the PPP Regulations 2015 to include the description of assets to be handed over, maintenance requirements and the right of the contracting authority to inspect the assets before hand-back. Additional details are provided in Section 12.

*Right to collect user charges* - Generally, LGAs have a mandate to charge rent or fees in respect to the occupation use or hire of land or premises (Section 11(b) of the LGDA Act). Further, section 133 of the LGDA Act provides that LGAs may charge fees for any service or facility provided by it or for any license or permit issued by the LGA. Accordingly, Rule 4(3)(d) of the ACC Fees Regulations authorizes the ACC to collect fees for solid waste management and levies within its jurisdiction.

Further, Rule 8 of the ACC Fees Regulations provides for the responsibility of an agent appointed by ACC to include: collection of the relevant fees; complying with the terms and conditions of the agreement



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between the agent and ACC including the split of revenues; and submitting a security deposit equivalent to one-month's revenue (this will be refunded at the end of the agreement period).

Accordingly the PPP agreement between ACC and the ProjectCo may provide (among other things), to lease and collect fees from the users of collection sites and landfill sites. The scope of the rights of the ProjectCo will be stipulated in the PPP agreement, however the extent of the rights transferred to the ProjectCo will not exceed the maximum duration of the PPP agreement.

In terms of revenue derived from the user rights, the PPP agreement should indicate how the revenue will be split between the LGA and ProjectCo. As ProjectCo is able to charge any user charges such as collection fees and landfill tipping, ProjectCo may set up an account where such funds will be deposited. However, applicable taxes chargeable to the users will be paid to the Tanzania Revenue Authority (TRA) and these will not be remitted to ProjectCo. It is important to get a separate tax advice regarding the taxes applicable to such a project and means of payment. Additional details are provided in Section 12.

#### Institutional structure of ACC

*Capacity of ACC* - The institutional framework in relation to LGAs and PPPs has been provided for both in the PPP Act 2010 (as amended) and PPP Regulations 2015. Section 8(1) of the PPP Act 2010 (as amended) identifies the role of the public sector in PPPs to include identifying projects, carrying out feasibility studies, monitoring and evaluation, risk sharing and putting in place an enabling environment such as favourable policies, strategies and legal and institutional framework. For the purpose of PPPs, the public sector has been defined to include LGAs or persons acting on behalf of the LGAs (Section 3 of the PPP Act 2010 (as amended)).

In the current case, ACC which is an LGA which can perform the functions identified under Section 8(1) of the PPP Act 2010 (as amended). Further, Section 9 of the PPP Act 2010 (as amended) provides for the responsibilities of contracting authorities including identifying, appraising, developing, managing and monitoring a project to be implemented under the PPP Act 2010 (as amended) as well as undertaking or causing for feasibility studies to be undertaken and submitted to the PPP Node and PPP Centre for consideration. For the purpose of the PPP Act 2010 (as amended), a contracting authority means any ministry, government department or agency, LGA public or statutory corporation. In the current case, the ACC will be the contracting authority for the ACC SWM Project. Further details are provided in Section 12.

#### SWM laws, regulations and compliance

The EMA is the main legislation governing SWM in Tanzania. Additionally in relation to ACC, the ACC Fees Regulations also provide a guideline as to the SWM in that jurisdiction. Section 190 of the EMA provides that it is an offence for any person to litter. On conviction the penalty for individuals is a fine not exceeding TZS 1,000,000 and for a body corporate, not exceeding TZS 5,000,000. In addition to the above the courts may also order the offender to: clear up the litter within a certain period whilst under the supervision of an officer appointed under the court; pay an additional fine of TZS 500,000 for failure to comply with the above order; or in addition to the order and penalty, the court may order the offender to pay compensation to the public authority or private owner of the place which was littered. This compensation will be in relation to the removal of waste and will be considered a civil debt to be paid by the offender.



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Additionally, any person who contravenes the ACC Fees Regulations either by refusal to pay collection fees or permit an authorized officer or agent of ACC from carrying out their functions commits an offence (Rule 11 of the ACC Fees Regulations). The offender will be liable to pay a fine of not less than TZS 200,000 and not more than TZS 1,000,000 or imprisonment for a term not less than 12 months and not exceeding two years or both fine and imprisonment (Rule 12 of the ACC Fees Regulations). An offender maybe liable for a lesser penalty if they admit to the offence by way of a prescribed form provided under Schedule II of the ACC Fees Regulations (Rule 13 of the ACC Fees Regulations). According to Rule 9 of the ACC Fees Regulations, ACC, through the courts, will be responsible for imposing the appropriate penalties where any person contravenes the ACC Fees Regulations. This power includes confiscation of items and auctioning them off to recoup the relevant fees.

### Community based Organizations

As previously noted. Rule 7 of the ACC Fees Regulations provides that ACC may appoint a company or CBO to carry out the function of collection and transportation of waste on its behalf. Therefore with this mandate, CBOs can charge the requisite user fees from households and businesses. However, from our site visit we noted that CBOS currently are involved with collection of waste directly from residential users to the specified collection centres and collection of monthly fees from the relevant homesteads, however the role of transportation from the specified collection centres and management of the landfill is left to ACC. CBOs are regulated by the NGO Act as well as the NGO regulations. As per the functions of the NGOs, the CBOs in ACC are promoting environmental protection through collecting solid waste and ensuring safe disposal of solid waste. CBOs registered under the ACC, are a body corporate, hence can enter into a contract with ACC in order to carry out the function of collecting solid waste from households and businesses and dumping it at collection centres (Rule 8 of the ACC Fees Regulations). CBOs have a Chairman, Vice Chairman, Secretary, Treasurer and all together 15 members. Most of the members are youth and women. Further details are provided in Section 12.

### Labor

There is no specific provision in relation to transfer of employees of ACC to ProjectCo under the PPP Act. However, as ACC employees are public servants, their contracts should remain with ACC for the duration of the PPP agreement. Such employees may be requested to provide services to ProjectCo as and when required. Tanzanian law does not provide for temporary employees or casual laborers. According to Section 14 of the ELR Act, the types of employment contracts that exist are: a contract for an unspecified period of time (also known as permanent contract); a contract for a specified period of time for professionals and management employees (for minimum of 12 months); and a contract for a specific task-the focus is on the task and not the duration.

### Permits and licenses

There are no separate permits issued for collection, transportation or dumping of solid waste. Once a ProjectCo has been awarded a contract by the LGAs, the entity can carry out its activities as long as it has been duly registered and has the relevant registration certificates and its incorporation documents allow ProjectCo to undertake this type of business. Rule 11(1)(a) of the ACC Fees Regulations provides that it shall be an offence for any agent to carry out the functions of ACC without a written agreement between ACC and the agent.



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Therefore, ProjectCo or CBO must have a written agreement to perform ACC's functions of collections, transportation and management of solid waste.

In conclusion, the ACC SWM Project can be carried as a PPP. Once the tendering process has been carried out ACC and the ProjectCo will enter into a PPP agreement stipulating the terms for carrying out the Project. The duration of the PPP agreement should not exceed 15 years (in the proposed amendments to the PPP Regulations, there will be no cap on the duration of the PPP agreement), unless an extension, which shall not exceed five years, has been granted.

With regards to the land title, the ACC has to ensure that they obtain the ACC title prior to initiating the SWM Project. Failure to obtain the land title in time may cause a delay in the commencement of the Project. The PPP agreement between ACC and ProjectCo will provide, among other things, for ACC to lease out the land and its assets to ProjectCo.

Therefore, there will be no need for a separate lease agreement as this will be sufficiently provided for under the PPP agreement. We also recommend that ACC should not permit the ACC title to be used as security for the ProjectCo to obtain funding.

### 7.3 Social and environment aspects

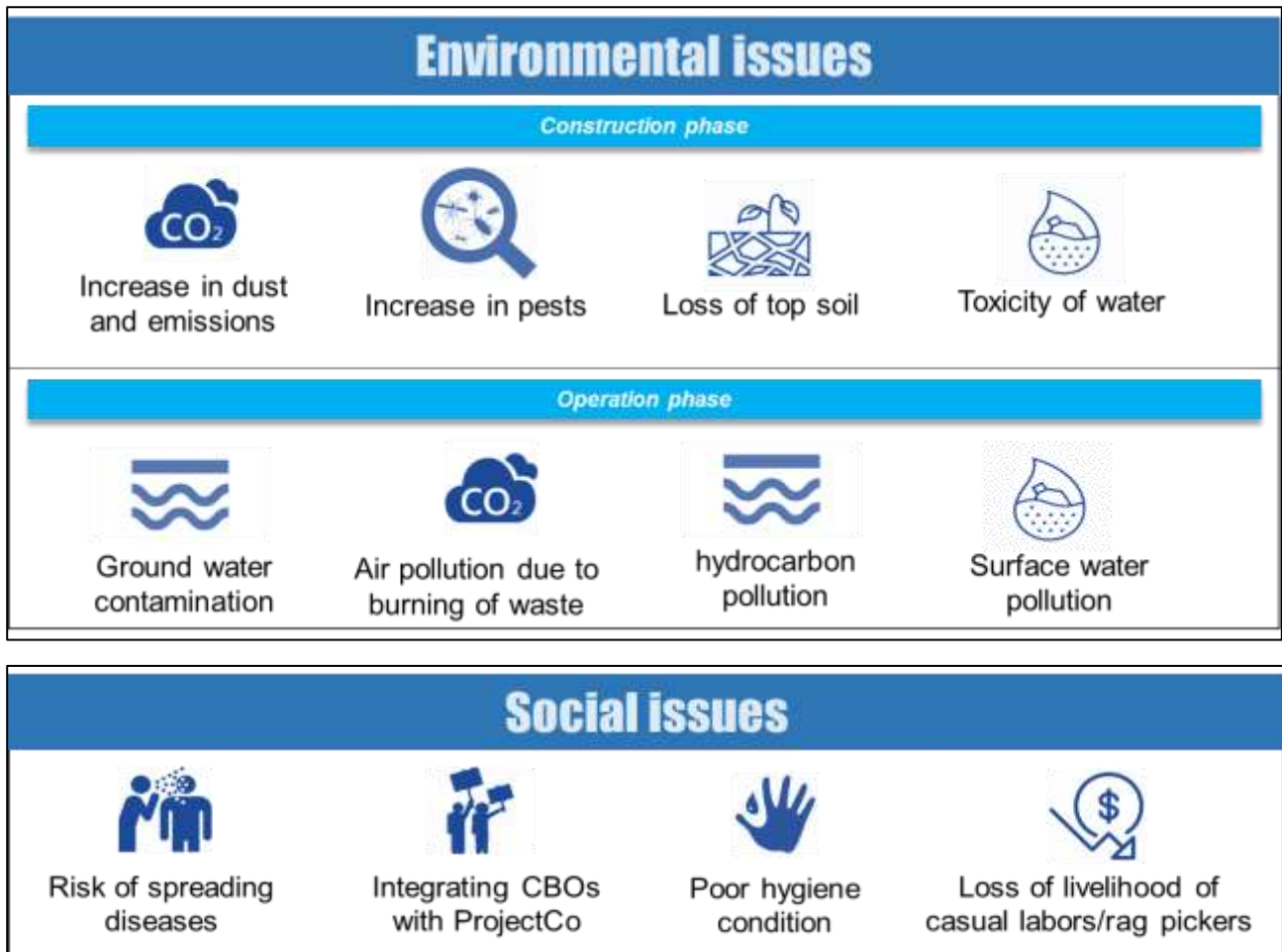
#### Social and environmental challenges

The proposed PPP Project is anticipated to address environmental issues such as air pollution through illegal burning of waste, problem of stench, water pollution, and unhygienic conditions due to indiscriminate dumping of waste at illegal dumpsites. The Project once implemented would result in increase in waste collection rate, better transportation facilities, upgradation of the landfill site, resulting in clean and hygienic environmental conditions, in turn resulting in improvement in health of the inhabitants of the city.

However, the Project might face challenges related to both social and environmental aspects. Potential environmental challenges might involve issues such as loss of top soil, and loss of natural vegetation, crops and landscape in areas surrounding landfill, increase in toxicity of water, ground water contamination, increase in pests, flies and rodents in areas around the landfill, increase in dust and emissions during upgradation work, hydrocarbon pollution due to upgradation of landfill site, equipment and vehicles and solid waste pollution whereas social challenges might include the challenge of ProjectCo working/partnering with CBOs, loss of livelihood of casual labor and waste pickers, risk of spreading diseases, poor hygiene conditions, risk of accidents during upgradation, potential damage to utilities during upgradation, etc. The magnitude, extent and duration of these risks have been assessed and appropriate mitigation measures have been provided under Section 13.1.



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Tanzania Public-Private Partnership Project (TPPP) program

The World Bank's Tanzania PPP Support Program (TPSP) funded by the UK's Department for International Development is helping Tanzania relaunch its public-private partnership (PPP) program. The proposed Tanzania PPP Project (TPPP), a recipient-executed trust fund within TPSP, will fund community engagement, feasibility studies, environmental and social assessments and support procurement of the private partner to the PPP.

The TPPP program has been assigned Environmental Assessment Risk Category–B and triggers the following World Bank safeguard policies: (a) Environmental Assessment Policy (OP/BP 4.01), which requires screening and undertaking environmental and social impact assessment for each Project under the program; and (b) Involuntary Resettlement Policy (OP/BP 4.12), which would be triggered in situations involving involuntary taking of land, impacts on or loss of assets, loss of income, sources or means of livelihood etc. (details of World Bank's safeguard policies and guidelines have been detailed under Section 13.2).



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## Environmental and Social Impact Assessment (ESIA)

TPPP will support the procurement of the private partner to PPP when an ESIA has been prepared and the National Environmental Management Council (NEMC) has issued an Environmental Impact Assessment (EIA) certificate for the PPP. The ESIA must meet the requirements of the Environmental Impact Assessment and Environmental Audit Regulations (2005) and World Bank safeguard policies and guidelines. The various steps under the ESIA process include (a) screening and scoping of projects to assign the risk category and identify the applicable World Bank safeguard policies, (b) develop the ESIA and Environmental and Social Management Plan (ESMP), (c) transfer of obligations to implement the ESMP and comply with national legislations and standards of World Bank to the ProjectCo and finally (d) monitoring, evaluation and audit.

- *Screening and scoping:* Screening and scoping of the Project will be the basis to determine Project categorization under World Bank Environmental Assessment Policy (OP/BP 4.01) and compliance with the national environmental and social requirements of the United Republic of Tanzania (details are provided under Section 13.3). TPPP supports only those PPPs that have been rated Category–B or C under World Bank policies. PPPs in locations that are ecologically sensitive, such as forests, wetlands, and other unique or protected habitats, and Category–A PPPs as defined under OP/BP 4.01 are not eligible for support. PPPs requiring land acquisition or having impact on physical cultural resources will also be excluded from TPPP support. According to OP/BP 4.01, the proposed SWM Project, falls under Category–B, having potential adverse environmental impacts which are less adverse than those of Category–A. The classification of Projects into various categories (A, B, C or FI) as per the World Bank safeguard policy 4.01 has been detailed under Section 13.2.
- *Development of ESIA and ESMP:* For PPPs yet to undertake an ESIA, the implementing agency will be responsible for ensuring development of an ESIA, inclusive of an ESMP. For PPPs that have undertaken an ESIA and secured an EIA Certificate separately to TPPP, the World Bank will review the ESIA to verify alignment with the World Bank’s safeguards policies and guidelines and requirements of the Environment and Social Management Framework (ESMF). Under TSCP an ESIA was undertaken for the solid waste management in Arusha. The existing ESIA covers environmental and social aspects of road improvements, drainage channels, street lights and construction of landfill infrastructure. Under the proposed PPP Project, an additional ESIA would be required to be conducted including collection and transportation components of the SWM value chain.
- *Method of development of ESIA and ESMP:* Experts registered with the National Environment Management Council (NEMC) will be engaged by the implementing agency to conduct the ESIA. Development of the ESIA and ESMP will follow the process set out in the Environment and Social management framework (ESMF), which incorporates requirements of the Environmental Impact Assessment and Environmental Audit Regulations (2005) as amended in 2018 and World Bank safeguard policies and guidelines. Further details regarding ESMF are provided under Section 13.4.
- *Transfer to the ProjectCo:* Obligations to implement the ESMP and comply with national legislation and standards and World Bank safeguard policies and guidelines will, as relevant, be transferred to the ProjectCo through the PPP agreement.
- *Monitoring, evaluation and audit:* The ESIA and/or ESMPs will be subject to in-house and external audit. PPP performance will be monitored by the PPP units and the implementing agency.



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### Resettlement Action Plan (RAP)/ Abbreviated Resettlement Action Plan (ARAP)

PPPs supported by TPPP will prepare either a RAP or an ARAP. The PPPs will be screened in accordance with World Bank's OP/BP 4.12 (Involuntary Resettlement Policy) to identify the potential for involuntary resettlement and/or restrictions of access to resources and livelihoods. The PPP's implementing agency will prepare a RAP/ARAP to explain requirements to resettle and compensate the affected people before Project implementation. The various steps under preparation of a RAP/ARAP have been described below.

- *Social screening:* This step would require consultation with area community members and project affected persons (PAPs). The Project would be screened in accordance with World Bank's OP/BP 4.12 (Involuntary Resettlement Policy) to identify the need for the preparation of a RAP or ARAP. An ARAP is a simplified RAP that may be prepared, where the impacts of the PPP on the entire displaced population are minor, or fewer than 200 people are displaced. Impacts are considered minor if the affected people are not physically displaced and less than 10 percent of their productive assets are lost. The Project shall also need to comply with relevant national environmental and social management requirements in Tanzania as detailed under Section 13.3.
- *Development of RAP/ARAP:* For the proposed Project, the ProjectCo shall take over the assets (landfill site, equipment and vehicles) from the implementing agency, install new SWM equipment at the landfill site and 'skips' at select waste collection sites spread across the city limits. Therefore, the SWM PPP Project will not require extensive land acquisition (it will utilize the existing sites and acquire the right to use of small land parcels for stationing the skips at new secondary transfer stations). The land is expected to be provided by ACC and/or other relevant government agency from the present right of way or government owned land). Therefore, the Project is not anticipated to involve any involuntary resettlement. The impacts of the SWM Project on the project affected persons (PAPs) will be minor and therefore an ARAP would be required to be carried out for the Project.
- *Method of development of RAP/ARAP:* The Project will follow the provisions set out in the Resettlement Policy Framework (RPF) in the preparation of a RAP or ARAP which will be approved prior to Project activities impacting the identified assets. The RPF establishes the resettlement and compensation principles and implementation arrangements, describes the process for the preparation, implementation, monitoring and evaluation (M&E) of RAPs and (ARAPs), and provides procedures for filing grievances and resolving disputes.

### Grievance Redressal Mechanism (GRM)

As described above, the RPF sets out a Grievance Redress Mechanism (GRM) that provides a means to address and resolve all potential grievances with a PPP supported by TPPP. For LGA PPPs, the LGA Community Development and Welfare Department or the Public Relations Unit will be responsible for establishing and implementing the GRM whereas for national PPPs, a Project specific Grievance Committee will be established by the PPP's implementing agency. Being responsible for the implementation of the GRM includes responsibility for: disclosure, reception, management and monitoring of complaints, providing feedback to local communities and persons with complaints, and coordination of complaints analysis. These steps will assist the development of recommendations for continued improvement of TPPP processes related to community relations.



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## 8 Next steps



*This chapter ties together the conclusions from the previous chapters. It also explains the project implementation and project procurement plan, including the recommended bidding variables and procurement strategy. It deepens our understanding on how the Project's milestones can be achieved within the given timeframe.*



### 8.1 Conclusions

Based on our current findings, it can be concluded that the proposed PPP is economically, commercially and financially viable, besides providing VfM to ACC. The proposed Project meets all the requirements set out in local laws and regulations and, in particular, the PPP law.

 <p><b>Strategic case</b></p>	<p>We observe strong demand for the Project's service, both from the perspective of end users as well as casual labor/workers/other staff. We confirm that the Project is strategically aligned with various national development plans of Tanzania and will help in improving the economic conditions, environmental conditions and will contribute to social welfare.</p> <p>While there are risks associated with the Project, once the Project is implemented, the upgraded SWM value chain would provide improved quality and coverage of SWM services, safe and hygienic services, local employment opportunities, among other benefits.</p>
 <p><b>Economic case</b></p>	<p>The Project results in an economic rate of return of 42.1% and an economic NPV of TZS 13,495 million. Even in the worst scenario (Project capital cost increases by 20%), the Project results in an ERR of 37.7% and an ENPV of TZS 12,861 million over 15 years. We conclude the Project is unequivocally economically viable.</p> <p>Though we have given the option of ProjectCo being deployed for either only collection and transportation or only landfill components of the SWM value chain, however, we propose an integrated model wherein the ProjectCo looks after collection transportation and disposal at the landfill site.</p>
 <p><b>Commercial case</b></p>	<p>We recommend a DBFOMT model with an agreement period of 15 years. Based on the PPP structure, the various risks involved in the Project have been allocated to each contract party. Under this case, we have also analyzed the roles and responsibilities of both ACC and the ProjectCo under the proposed PPP Project.</p> <p>Our recommended payment mechanism clearly points to the ProjectCo collecting the fees and sharing 15% of the revenue with ACC, as this ensures the incentive structures are set right. This section also covers the details of the procurement procedure and its accountancy treatment.</p>



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 <p><b>Financial case</b></p>	<p>Based on the financial model prepared, we found the Project is financially viable, when user charges are set at cost recovery level, with a project IRR of 22.8% and an equity IRR of 24.2% for integrated operations for an agreement period of 15 years. A base case and two additional scenarios for integrated operations have been discussed in detail under Section 6.12.</p> <p>Our Project estimates can be revisited in following phases of Project development. Under unforeseen conditions, if the project capex, opex or debt interest rate increases or the Project revenue or user charge indexation rate decreases, then the Project's prefeasibility is further affected. Then, an upfront VGF/ annual subsidy will be required to make the Project viable.</p>
 <p><b>Management case</b></p>	<p>Capex for the first year is estimated at TZS 5,446 million (USD 2.37 million) under the Integrated case, which is within the maximum limit of USD 20 million, which renders the Project eligible for the PPP mode. The PPP agreement will be of a maximum of 15 years. The ownership of land for landfill and collection centers remains with the ACC and it would lease out the land to the ProjectCo during the agreement period. ACC should not allow the land title to be used as a security for the ProjectCo to obtain financing. From social and environmental perspectives, the Project can be classified under Category B of the World Bank Environmental Assessment Policy (OP/BP 4.01).</p>

## 8.2 Procurement strategy and plan

This section covers the Project's procurement strategy including type of procurement process to be used and bidding criteria for evaluation of bids, along with a detailed plan to be used to execute this procurement strategy and select the preferred bidder.

### Procurement strategy

The proposed procurement strategy aims at an international competitive bidding process in accordance with the Tanzanian PPP policy, PPP law and PPP Regulations 2015. It would be a two-phase procurement process, comprising prequalification and proposal stages. We propose a two-envelope system with separate technical and financial proposals. We recommend pass/fail evaluation system for the technical proposal and scoring system for the financial proposal.

As financial bidding variables, we list the proposed end-user fees (lower the better), required viability gap funding/ annual subsidy (lower the better) or a revenue-sharing percentage (higher the better). These variables should be finalized in the feasibility phase.

Finally, in the procurement process, we recommend to pay attention to the structure of a consortium combining for example, a developer, EPC contractor, and O&M contractor. It is crucial the ProjectCo has adequate past experience in all PPP components, i.e., DBFOMT components in addition to a sound financial position. Any domestic or international firm which is competent enough to execute the Project can bid for the same. Also



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domestic firms can join forced with an international partner to form a consortium and bid for the Project. Though a domestic firm is preferable over an international one, however it is important that the best and most competent private party is selected to execute the Project. Bid bonds or similar arrangements requiring bidders to commit to the terms of their bids should be considered. Also, template financial models and draft PPP agreement will be shared with the bidders. An online data room will be established to provide background information to potential bidders.

### Project procurement plan

The plan consists of the following main stages:

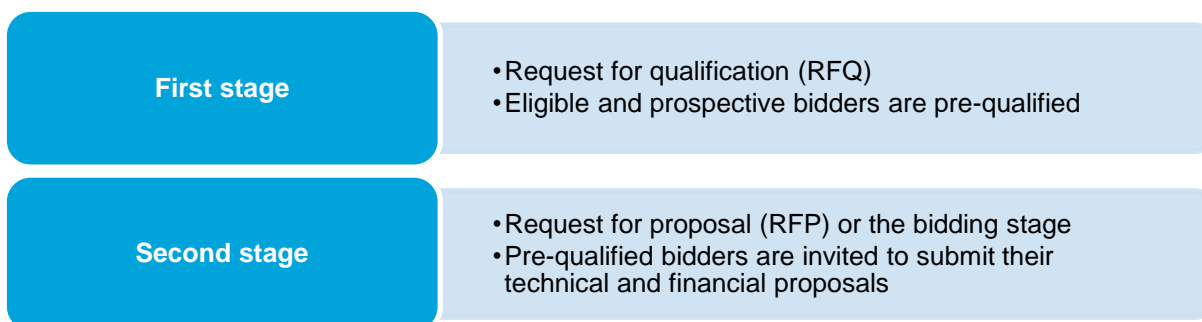
- *Stage 1 - Appointment of transaction advisor* - Post submission and approval of the final pre-feasibility assessment report prepared by technical and financial consultants, the PPP node will float a request for qualification (RFQ). RFQs submitted will be evaluated and then request for proposal (RFP) would be floated to select the most suitable transaction advisor on quality cost-based selection (QCBS) basis. In the QCBS method, a transaction advisor is selected based on its technical and financial qualifications to deliver transaction advisory services for the Project.
- *Stage 2 - Feasibility study and final procurement plan* - The transaction advisor selected would be responsible for carrying out a detailed feasibility study including social and environmental study. Post approval of the LGA and PPP node, the transaction advisor, in conjunction with the Project procurement team of Arusha City Council, would select the ProjectCo for upgrading and operating the SWM value chain.
- *Stage 3 - Prequalification stage* - The bidding documents, including the RFQ, RFP and draft PPP agreement, will be prepared in this phase. The procurement will be conducted in accordance with the PPP Policy, 2009, PPP Act 2010 and PPP Regulations 2011. According to the PPP Act 2010, a two-stage open tender process needs to be adopted. In line with the PPP Policy 2009 and the PPP Act 2010, an RFQ will be issued as an advertisement for the pre-qualification stage and shortlisting qualified bidders.
- *Stage 4 - Bidding phase* - The shortlisted bidders will be issued RFPs which shall mention bidding details and presentation of the financial and technical bid. Preferably, a draft PPP agreement will also be issued



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in the bidding phase and bidders asked to seek clarifications on the same so that the PPP agreement can be finalized and final negotiations with the preferred bidder are minimal.

- A bidders' conference should preferably be organized in which shortlisted bidders can raise questions. We recommend a two-envelope system separating financial and technical bids. The technical proposals should preferably be assessed on pass/fail basis. Only the technical proposals that pass will proceed to having their financial proposals opened.



- *Stage 5 - Signing of PPP agreement* – Arusha City Council will be the implementing agency. ProjectCo and Arusha City Council (ACC) will be the signatories to the PPP agreement. ACC is responsible for: a) Measuring outputs of the PPP agreement, b) Monitoring implementation of PPP agreement and performance of the ProjectCo c) Overseeing day-to-day management of the PPP agreement; and d) Reporting on the PPP agreement in the implementing agency's annual report. For any material amendments in the PPP agreement, approval of the PPP Node under President's office-regional administration and local government (PO-RALG) is required. The PPP Node shall provide a variation only if it is satisfied that the PPP agreement, after the amendments, will continue to provide VfM, affordability, and substantial technical, operational and financial risk transfer to the ProjectCo. Strict handover conditions will be set in the PPP agreement to ensure the asset is handed over in a well maintained, workable condition.
- *Stage 6 - Monitoring during the upgradation period* - During the upgradation period (Year 1), the ACC may appoint an engineer with the required experience to review the designs prepared by the ProjectCo, provide recommendations for approval of the design, and supervise the upgradation works to ensure the development of facilities meets the standards and specifications provided for in the PPP agreement. The engineer shall provide periodic reports and updates to the city council regarding progress of the upgradation till the commissioning of the facilities.

#### Preliminary procurement schedule

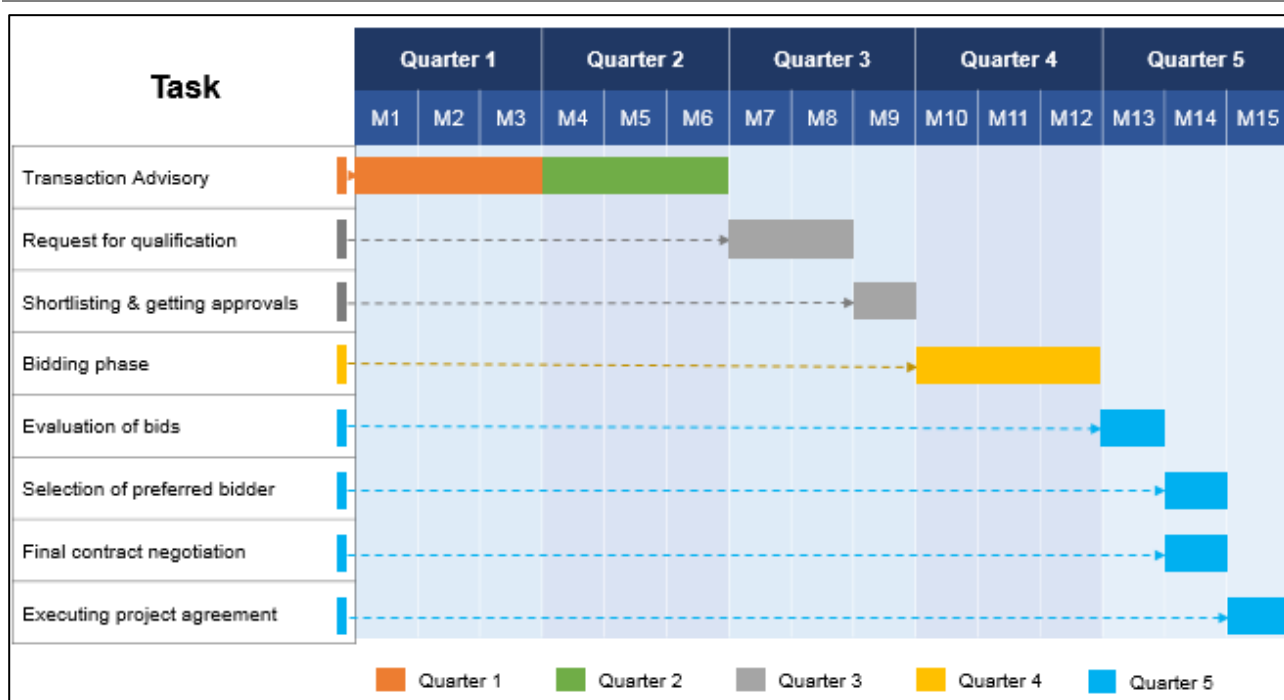
The tentative procurement schedule presents the main tasks of procuring a transaction advisor, issuing request for qualifications, shortlisting potential applicants, and getting approval from higher authority in bidding phase during which the request for quote is issued to potential applicants. The bids are then evaluated and the preferred bidder is selected and notified. After this, the preferred bidder is invited for final contract negotiation and the project agreement can be executed. The tentative procurement milestones are depicted in the figure below.



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Figure 8-1: Procurement strategy



Source: Consultant

### 8.3 Feasibility study

#### Activities required for feasibility study

The following data points must be addressed in the feasibility study as this information feeds into the Project's tendering.

- **Baseline study:** Latest data related to waste generation and composition will be required. Therefore the existing base line study needs to be updated to address the following data points:
  - Waste composition study for each category of waste generator dissecting the various waste streams including but not limited to bio-degradable waste, glass, metal, paper and others.
  - Waste generated per day for each waste generator category including but not limited to households, institutional, traders and factories.
  - Number of waste generators in each category including urban households (CBD and Non CBD), rural households and other waste generators.
- **Design of SWM system:** This comprises detailed design of the SWM system, a flow-diagram and waste balance which are also required for the ESIA. We recommend adding, a central transfer station to the system allowing storing waste prior to its disposal.



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- *Costs and operator permits*: Detailed information on costs and the application process for obtaining waste operator permits issued by the NEMC. This permit is a prerequisite for all waste management entities and, by extension, also for the CBOs.

We suggest the following two approaches to address the above activities as listed below:

- ACC can drive the above activities, by undertaking a follow-on feasibility study and this information is then available to prospective bidders in the tendering phase. This approach aligns with the World Bank's position, as it has agreed to fund these activities as captured in the Projects' financing guidelines.
- An alternative approach could be that the above information requirements are not available to prospective bidders and their bid preparation then builds on the information available in the current prefeasibility study. These activities are then folded into the PPP agreement as a condition precedent and executed by the selected private party.

We suggest Option 1 as it aligns with the World Bank's financing guidelines.

## 8.4 Project implementation plan

Clear definitions and procedures of the various tasks and administrative approvals from competent authorities at different stages of Project implementation process are necessary in running a successful PPP programme. Presented below are the main steps to be undertaken by the city council:

### Proof of land ownership

The Consultant has not yet received a copy of the certificate of title for the collection centres and Muriet sanitary landfill (ACC Title) which is required to conduct a land search to verify the ownership of the properties. The same would be required before the launch of bid process management.

### Revision of fees

For establishing the Project's prefeasibility, it is essential to increase the fees charged currently for providing SWM services to waste generators such as households, commercial units, industrial units, institutional units and hospitals. As per the current municipal byelaws, households are charged TZS 2,000-10,000, commercial units TZS 5,000-15,000, small industrial units TZS 50,000, large industrial units TZS 200,000, institutional units TZS 100,000 and hospitals TZS 50,000. Once the SWM value chain is upgraded and better facilities are provided, the user charges will need to be set at cost recovery level of TZS 5,000 for urban households (CBD and Non CBD), TZS 2,000 for rural households (currently no charges are levied), TZS 20,000 for commercial units, TZS 165,000 for industrial units, TZS 100,000 for institutes and TZS 50,000 for hospitals. Currently, a few industries and institutes in Arusha transfer their waste directly to the landfill site, which is charged a tipping fee of TZS 50,000 per ton. Once the services are upgraded, such industries and institutes can continue to pay a sum of TZS 50,000 per ton for the first three years and thereafter, it would be increased by 25% after every third year of operation.



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Future increment in fees

In the financial model we have assumed that the end-user fees are increased every three years by 25%. The city council will need to amend the byelaws to reflect future increment in rates and disseminate the same information among waste generators.

Penalties on illegal dumping of solid waste

Once the SWM services are upgraded and the Project is operational, the city council should take strict measures to ensure that each and every waste generator gets the waste collected and pays for the services, rather than resorting to practices such as illegal burning/dumping of waste. The council should discourage waste generators from illegally burning/dumping waste as well as not paying for the SWM services by imposing strict penalties on them, , in addition to stepping up enforcement and controls.

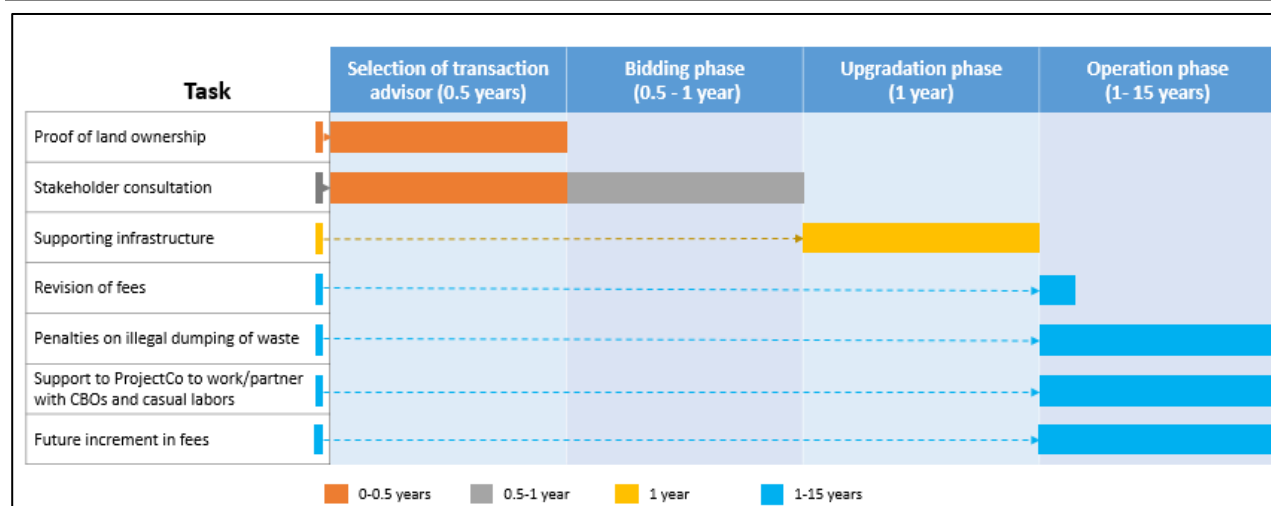
Support to ProjectCo in working/partnering with CBOs and integration of casual labor

Engagement of a new private player (ProjectCo) to upgrade the existing processes for collection, transportation, processing and disposal might generate opposition from CBOs and casual labor as their source of livelihood and earning potential would be jeopardized. Therefore the ProjectCo needs to amalgamate CBOs by working/partnering/sub-contracting with them, and needs to integrate casual labor in the PPP Project thus ensuring they do not lose their livelihood.

Stakeholder consultations

The city council would be required to conduct stakeholder consultations with the waste generators and take their views on proposed upgradation and operations of the SWM value chain till the services and facilities are completely upgraded. The council should also consult waste generators about facilities they would require related to collection, transportation and disposal and also seek their consensus on the same.

Figure 8-2: Project implementation plan



Source: Consultant

## 9 Annexure A: Cost estimates



The cost estimates for the Project has been prepared wherein a detailed breakdown of the capex for various components of the SWM value chain is provided. Initially, we have provided a detailed breakdown for the capex under the collection, transportation and landfill components of the SWM project that was taken up under TSCP. Then we have provided the detailed breakdown for the capex for three technical options under the proposed PPP Project namely a) collection & transportation b) only landfill and c) integrated. The detailed breakdown for the capex has been provided both for the first year (one time upgradation) as well as for further years (taking into account the increase in quantum of waste generated over the years as well as the replacement period required for vehicles and equipment). Consultancy fees and contingencies share 10% and 5% of the gross capex respectively. Below is a table presenting the estimated capex to be incurred for the proposed Project.

Figure 9-1: Capex of the TSCP Project

S/No.	Equipment	Number	Amount (in TZS Million)
<b>Machinery / equipment for collecting and transporting solid waste (Phase One)</b>			
1	Tipper Truck	1	100
2	Side loader	2	253
3	Skip loader	3	341
4	Skip Buckets	16	117
5	Tractors	0	-
6	Trailers	0	-
7	<b>Total cost</b>	-	<b>813</b>
<b>Machinery / equipment for collecting and transporting solid waste (Phase Two)</b>			
1	Skip Pads	2	12
2	Skip Buckets	4	55
3	Skip Loaders	0	-
4	Tipper	0	-
5	Wheel Loader	1	575
6	<b>Total cost</b>	-	<b>642</b>
<b>Machinery and equipment for sanitary landfill</b>			
1	Bulldozer	1	489
2	Landfill Compactor	1	263
3	Wheel loader	1	535
4	Excavator	1	366
5	Weigh bridge	1	60
6	Washing Machine	1	13



S/No.	Equipment	Number	Amount (in TZS Million)
7	Environmental Monitoring Equipment	2 sets	117
<b>8</b>	<b>Total cost</b>		<b>1,842</b>
9	Construction cost for sanitary landfill		12,863
<b>10</b>	<b>Total cost for C&amp;T (Phase 1&amp;2) &amp; landfill</b>		<b>16,159</b>

Source: Consultant

Figure 9-2: Capex of the Project for only integrated operations for year 1

S/No.	Particular of the work	Amount (in TZS Million)	Percentage share of total Project cost
1	Skip bucket containers	371	7%
2	Tri-cycles	389	7%
3	Push-carts	170	3%
4	Transfer trucks (Type 1)	796	15%
5	Transfer trucks (Type 2)	-	0%
6	Face masks	17	0.3%
7	Gum boots	17	0.3%
8	Hand gloves	17	0.3%
9	Uniform	75	1%
10	Headwear	17	0.3%
11	Bulldozers	449	8%
12	Wheel loaders	490	9%
13	Excavators	335	6%
14	Compactors	-	0%
15	Water tanker	183	3%
16	Tipper trucks	92	2%
17	Upgradation of landfill site	598	11%
18	<b>Gross capex</b>	<b>4,013</b>	<b>74%</b>
19	Consulting fee @10% of gross capex	401	7%
20	Contingency @5% of gross capex	201	4%
21	<b>Subtotal (1)</b>	<b>4,616</b>	<b>85%</b>
22	VAT @18% of subtotal (1)	831	15%
23	<b>Total capex</b>	<b>5,446</b>	<b>100%</b>

Source: Consultant



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Figure 9-3: Capex (year 1-15, TZS million) for Integrated

Integrated	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
<b>Collection &amp; Transportation: Procurement cost of equipment (including replacements) (TZS million)</b>															
Cost of skip-bucket containers	503	22	190	72	84	35	548	78	308	151	170	107	816	172	500
Cost of tri-cycles	528	19	49	62	65	34	562	57	112	125	132	100	817	136	215
Cost of push-carts	230	8	23	26	237	24	43	48	307	48	74	81	400	86	117
Cost of transfer trucks Type 1	1,080	209	-	231	-	256	-	-	298	-	1,317	346	364	383	403
Cost of transfer trucks Type 2	-	-	-	-	-	671	-	-	-	-	-	181	-	-	-
<b>Subtotal (1)</b>	<b>2,342</b>	<b>258</b>	<b>261</b>	<b>391</b>	<b>386</b>	<b>1,020</b>	<b>1,153</b>	<b>183</b>	<b>1,026</b>	<b>324</b>	<b>1,692</b>	<b>816</b>	<b>2,397</b>	<b>776</b>	<b>1,235</b>
<b>Collection &amp; Transportation: Personal protective equipment and gear (TZS million)</b>															
Face mask	22	18.3	21.3	25.1	29.1	32.1	35.2	38.5	42.3	46.3	50.7	55.5	60.8	66.4	72.6
Gum boots	22	18.3	21.3	25.1	29.1	32.1	35.2	38.5	42.3	46.3	50.7	55.5	60.8	66.4	72.6
Hand gloves	22	18.3	21.3	25.1	29.1	32.1	35.2	38.5	42.3	46.3	50.7	55.5	60.8	66.4	72.6
Uniform	102	3.9	92.9	16.3	115.1	24.7	134.2	33.8	157.0	45.4	182.5	60.4	213.0	78.3	248.0
Headwear	22	18.3	21.3	25.1	29.1	32.1	35.2	38.5	42.3	46.3	50.7	55.5	60.8	66.4	72.6
<b>Subtotal (2)</b>	<b>192</b>	<b>77</b>	<b>178</b>	<b>117</b>	<b>232</b>	<b>153</b>	<b>275</b>	<b>188</b>	<b>326</b>	<b>231</b>	<b>385</b>	<b>282</b>	<b>456</b>	<b>344</b>	<b>538</b>
<b>Total capex for C&amp;T</b>	<b>2,534</b>	<b>335</b>	<b>440</b>	<b>508</b>	<b>617</b>	<b>1,173</b>	<b>1,428</b>	<b>370</b>	<b>1,352</b>	<b>555</b>	<b>2,078</b>	<b>1,098</b>	<b>2,853</b>	<b>1,120</b>	<b>1,773</b>
<b>Landfill: Procurement cost of equipment (including replacements) (TZS million)</b>															
Cost of bulldozers	609	-	-	-	-	577	-	-	-	-	742	-	-	-	-
Cost of wheel loaders	665	-	-	-	-	630	-	-	-	-	810	-	-	-	-



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Integrated	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
Cost of excavators	455	-	-	-	-	431	-	-	-	-	554	-	-	-	-
Cost of compactors	-	-	-	-	-	624	-	-	-	-	-	-	-	-	-
Cost of water tankers	248	-	-	-	-	-	-	-	-	-	303	-	-	-	-
Cost of tipper trucks	124	-	-	-	-	118	-	-	-	-	151	-	-	-	-
<b>Total capex for landfill</b>	<b>2,912</b>	-	-	-	-	<b>2,379</b>	-	-	-	-	<b>2,560</b>	-	-	-	-
<b>Total capex for Integrated</b>	<b>5,446</b>	<b>335</b>	<b>440</b>	<b>508</b>	<b>617</b>	<b>3,552</b>	<b>1,428</b>	<b>370</b>	<b>1,352</b>	<b>555</b>	<b>4,638</b>	<b>1,098</b>	<b>2,853</b>	<b>1,120</b>	<b>1,773</b>

Source: Consultant



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Figure 9-4: Opex for Integrated

Parameter	Calculation (for 1 <sup>st</sup> year of operations)
<b>Collection &amp; Transportation component</b>	
Fuel cost of equipment	88 tricycles - TZS 69,000 per month fuel cost 4 transfer trucks type 1 – TZS 121,900 per day fuel cost 3 transfer trucks type 2 – TZS 184,000 per day fuel cost
Maintenance and lubrication cost of equipment	Skip bucket container – 5% annual repair cost – TZS 7 mn unit price – 70 operational Push-carts – 5% annual repair cost - - TZS 0.4 mn unit price – 438 operational Tricycles – 5% annual repair cost – TZS 4.4 mn unit price – 88 operational Transfer trucks type 1 - 5% annual repair cost – TZS 199 mn unit price – 4 operational Transfer trucks type 2 – 5% annual repair cost – TZS 104 mn unit price – 3 operational
Staff salary and expenses	Waste collection staff – 737 required – TZS 200,000 monthly salary per staff Transfer truck drivers – 8 required – TZS 400,000 monthly salary per driver Transfer truck loaders – 12 required – TZS 200,000 monthly salary per loader
<b>Landfill component</b>	
Fuel cost of equipment	Bulldozer -1 required – 120 litres of fuel consumed per day Wheel loader – 1 required – 80 litres of fuel consumed per day Excavator – 1 required – 100 litres of fuel consumed per day Compactor – 1 required – 60 litres of fuel consumed per day Water tankers – 1 required – 13 litres of fuel consumed per day Tipper trucks – 1 required – 7 litres of fuel consumed per day
Maintenance and repair cost of equipment	Bulldozer – 1 required- 5% annual repair cost – TZS 449 mn unit price Wheel loader- 1 required – 5% annual repair cost – TZS 490 mn unit price Excavator - 1 required – 5% annual repair cost – TZS 335 mn unit price Compactor – 1 required – 5% annual repair cost – TZS 243 mn unit price Water tankers – 1 required – 5% annual repair cost – TZS 92 mn unit price Tipper trucks – 1 required – 5% annual repair cost – TZS 92 mn unit price
Staff salary and expenses	Landfill operation manager - 1 required – TZS 1,200,000 monthly salary Landfill supervisor – 1 required – TZS 800,000 monthly salary Record management assistant – 2 required – TZS 500,000 monthly salary Excavator operator – 1 required – TZS 400,000 monthly salary Tipper truck operator– 1 required– TZS 400,000 monthly salary Bulldozer operator– 1 required– TZS 400,000 monthly salary Wheel loader operator– 1 required– TZS 400,000 monthly salary Compactor operator– 1 required– TZS 400,000 monthly salary Water tanker operator– 1 required– TZS 400,000 monthly salary Attendants – 4 required – TZS 500,000 monthly salary Casual labor – 10 required – TZS 200,000 monthly salary Environment monitoring and testing officer – 1 required – TZS 1,000,000 monthly salary Landfill security guards – 1 required – TZS 250,000 monthly salary







Parameter	Calculation (for 1 <sup>st</sup> year of operations)
Landfill maintenance and repairs	Annual maintenance of landfill site 3% of TZS 11,966 mn (80% of landfill construction cost) Electricity cost – TZS 100,000 per month Water services cost – TZS 100,000 per month
<b>Revenue to be shared with ACC</b>	
Revenue to be shared with ACC	15% of revenue earned by ProjectCo

Source: Consultant



## 10 Annexure B: Willingness to Pay



*This is a summary of the findings of the market assessment team with regards to the willingness of paying higher waste fees in Arusha.*

### Participants of the survey

The assessment involved the waste generators such as households, shops, fruit and vegetable sellers, shops selling plastic items, restaurants, hotels, child day care etc. The assessment also included landfill operator, CBOs, private companies, waste pickers and recycling plants. Currently, 15 wards in Arusha are served by locally registered CBOs, whereas 9 wards are served by private players. In addition to private companies and CBOs, ACC also collects waste from highways, markets, and schools.

### Services expected

*Increase in frequency of waste collection:* Currently, collectors do not collect the waste on time especially in hotels where they are needed more frequently. Hence, there should be increase in frequency of collection, once PPP Project is deployed.

*Increase in waste collection points:* Currently, there is a lack of waste collection points and infrastructure is poor especially internal roads during rainy season. The number of waste collection points to be increased and proper infrastructure to be in place once the PPP Project is deployed.

*Strict enforcement for collection of user charges:* Currently, people do not pay user charges on time, some do not pay at all. Therefore, there should be some law, for the enforcement of the payment of user charges, as well as for the enforcement of byelaws. Byelaws to also provide further actions or penalty for those who violate the laws related to waste management and payment of services regarding waste collection. Also residents in the city are expected to cooperate, with private player once PPP Project is deployed.

*Better hygiene conditions:* Waste piled by the road should be picked up by the ProjectCo within a short time span, to prevent inconvenience due to litter and stench. Public land should be regularly cleaned.

*Better coverage:* Many households and other establishments are not currently covered by CBOs and private players for waste collection, thus forcing them to illegally burn/ dump their waste. All these households and establishments should be covered once the ProjectCo takes over SWM operations.

*Proper management of collection centers:* Skip containers to be kept at a common point, and close to major establishments and households in the locality. Adequate number of skip centers to be kept at collection centers in the city, and the collection centers to be properly managed to avoid littering.

### Willingness to pay survey

The key findings of the willingness to pay survey undertaken at Arusha are given below:

*Table 10-1: Landfill details as per the Landfill Operator*

S/N	Item	Comments/ Views
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i.	Name of the landfill operator	<ul style="list-style-type: none"> <li>Mr. Eng. Chacha</li> </ul>
ii.	Waste details	<ul style="list-style-type: none"> <li>Waste generated per day – 271 tons</li> <li>Waste collected per day – 220 tons</li> <li>Waste collection rate - ~81%</li> <li>Waste taken for recycling – 15-20 ton per day</li> </ul>
iii.	Current tipping costs	<ul style="list-style-type: none"> <li>TZS 35,000 per ton for the first ton of waste</li> <li>TZS 50,000 per ton for additional tons of waste</li> </ul>
iv.	Challenges faced	<ul style="list-style-type: none"> <li>Poor infrastructure</li> <li>No cover material leading to spread of waste during windy weather</li> <li>Workers do not adhere to safety measures</li> <li>Landfill users do not adhere to timetable</li> </ul>

Source: Consultant

Table 10-2: SWM details as per CBOs

S/N	Item	Comments/ Views
i.	Name of the CBOs	<ul style="list-style-type: none"> <li>Sombetini Youth Group</li> <li>Mtarakwa Kikundi Group</li> </ul>
ii.	Employees	<ul style="list-style-type: none"> <li>Sombetini – 34 workers including 4 drivers, 5 sweepers, 12 pickers, 8 debt collectors and 5 in administration</li> <li>Mtarakwa – Drivers, sweepers, pickers, debt collectors and some in administration</li> </ul>
iii.	Waste coverage	<ul style="list-style-type: none"> <li>Sombetini – 1 ward with 5 streets</li> <li>Mtarakwa – 1 ward</li> </ul>
iv.	Waste details	<ul style="list-style-type: none"> <li>Sombetini – 40 tons collected per day</li> <li>Mtarakwa – 8-12 tons collected per day</li> </ul> <p>At the moment they are not recycling any waste. All the waste collected is taken to the landfill side. However there is a small amount which includes plastic bottles, and boxes that are segregated by the workers.</p>
v.	User charges	<p>The charges are as per bye-laws (2018) and they differ from one type of waste generator to another. Each waste generator pays user charges monthly. However, in practice they do not pay user charges in a timely manner hence the CBOs have to collect user charges throughout the month while the bye-laws require the user fees to be collected at the beginning of the month.</p> <p>The CBOs do not pay any tipping fee at the landfill</p>
vi.	Income and operational cost	<ul style="list-style-type: none"> <li>Sombetini – Can collect maximum of 4.5 million &amp; minimum of TZS 2.8 million</li> <li>Mtarakwa – Collect TZS 8-9 million per month. Their operational cost is TZS 4.5 million per month.</li> </ul>
vii.	Challenges	<ul style="list-style-type: none"> <li>CBOs do not get their portions from LGAs in time</li> <li>People are not paying on time, some do not pay at all</li> <li>Lack of waste collection points</li> <li>Poor infrastructure, especially internal roads during rain seasons</li> <li>No enforcement of byelaws</li> </ul>



S/N	Item	Comments/ Views																				
viii.	Provision of personal protective equipment	<ul style="list-style-type: none"> <li>The CBOs provide safety equipment to their workers including mask, gum boots, hand gloves and uniform</li> </ul> <table border="1"> <thead> <tr> <th>S/N</th> <th>Item</th> <th>Prices (TZS)</th> <th>Replacement time</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Face mask</td> <td>1.5k – 8k</td> <td>1 month</td> </tr> <tr> <td>2.</td> <td>Boots</td> <td>15k – 23k</td> <td>6 months</td> </tr> <tr> <td>3.</td> <td>Gloves</td> <td>5k – 6k</td> <td>1 month</td> </tr> <tr> <td>4.</td> <td>Uniforms</td> <td>9k – 10k</td> <td>6 months – 1 year</td> </tr> </tbody> </table>	S/N	Item	Prices (TZS)	Replacement time	1.	Face mask	1.5k – 8k	1 month	2.	Boots	15k – 23k	6 months	3.	Gloves	5k – 6k	1 month	4.	Uniforms	9k – 10k	6 months – 1 year
S/N	Item	Prices (TZS)	Replacement time																			
1.	Face mask	1.5k – 8k	1 month																			
2.	Boots	15k – 23k	6 months																			
3.	Gloves	5k – 6k	1 month																			
4.	Uniforms	9k – 10k	6 months – 1 year																			
ix.	Expected facilities from Project	<ul style="list-style-type: none"> <li>They expect modified arrangement on sharing of user charges</li> </ul>																				
x.	Expected threats from Project	<ul style="list-style-type: none"> <li>They do not expect any threats, if they remain part of system</li> </ul>																				
xi.	Integration with Project	<ul style="list-style-type: none"> <li>They want to be integrated with the PPP Project</li> <li>They expect an increment in income</li> </ul>																				

Source: Consultant

Table 10-3: SWM details as per households

S/N	Item	Comments/ Views
i.	Participants	<ul style="list-style-type: none"> <li>9 people from residential households</li> </ul>
ii.	Number of members per household	<ul style="list-style-type: none"> <li>2 to 5 members</li> </ul>
iii.	Contact details	<ul style="list-style-type: none"> <li>Haikaeli Makundi- 0759 037 078</li> <li>Asha- 0712 158557</li> <li>Halima- 0767295636</li> <li>Mage Kanje- 0716 316 675</li> <li>Jane Lissah-0755 455 579</li> <li>Rehema- 0754 299 711</li> <li>Martha Masuwe- 0786 065664</li> <li>Daudi -0755 385 301</li> </ul>
iv.	Quantity of waste generated per day	<ul style="list-style-type: none"> <li>0.5 kg – 5 kg</li> </ul>
v.	Frequency of waste collection	<ul style="list-style-type: none"> <li>Once a week (no specific day)</li> </ul>
vi.	Collection and segregation of waste	<ul style="list-style-type: none"> <li>Collect waste using dustbins, plastic bags, and plastic buckets of 10-20 litres</li> <li>They do not segregate the waste</li> </ul>
vii.	Disposal of waste	<ul style="list-style-type: none"> <li>Households are provided with door to door services (either CBO or private companies trucks)</li> <li>Few minority either bury the waste in a pit in their own compound or burn it</li> </ul>
viii.	User charges	<ul style="list-style-type: none"> <li>Monthly charges – TZS 2,000 or 5,000</li> </ul>
ix.	Concerns and issues	<ul style="list-style-type: none"> <li>Delay in transfer of waste from skip containers to landfill site</li> <li>No proper management of the collection point</li> <li>Collector does not collect waste from households</li> <li>They do not always pay, because they are not offered any proper services but just pay to avoid quarrels with the ward office</li> </ul>



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S/N	Item	Comments/ Views
		<ul style="list-style-type: none"> <li>Trucks are overloaded thus spilling waste on roads.</li> <li>Waste is piled in open space and not removed on time leading to stench</li> <li>Some waste usually grass in burnt</li> <li>There is a delay in collecting fees</li> <li>The skip container is always full leading to air pollution</li> <li>Poor infrastructure, few door to door collectors, few skip containers</li> <li>No proper debt collector, no receipt upon payment</li> </ul>
x.	Willingness to pay	<ul style="list-style-type: none"> <li>Only three out nine households interviewed are willing to pay more (from TZS 2,000 to TZS 3,000) for better services.</li> <li>While majority of households are already paying higher (TZS 5,000) and they are not willing to pay higher than the current user charges</li> </ul>
xi.	Areas of improvement (need immediate attention)	<ul style="list-style-type: none"> <li>Addition of more skip containers and trucks</li> <li>Waste from skip containers to be collected in a timely manner</li> </ul>
xii.	Expected facilities	<ul style="list-style-type: none"> <li>More skip containers and trucks to be added</li> <li>Effective door to door collection of waste</li> <li>Skip container keeper to assure that people throw wastes in the container</li> </ul>

Source: Consultant

Table 10-4: SWM details as per other waste generators

S/N	Item	Comments/ Views
i.	Participants	<ul style="list-style-type: none"> <li>11 people from Lemala, Sekei, Ngarenaro, Soko Kuu wards including</li> <li>Hotels</li> <li>Shops &amp; super market</li> <li>Butchers</li> <li>Restaurant</li> </ul>
ii.	Quantity of waste generated	<ul style="list-style-type: none"> <li>Shops, super markets &amp; butchers – 10 kg per week</li> <li>Food vendor – 5 kg per week</li> <li>Vegetable seller – up to 5 kg per day</li> <li>Shops selling plastic items – 0.5-1 kg per day</li> <li>NHC Houses in Arusha – 45-60 kg per week</li> <li>Day care for children – 10 kg per week</li> <li>Hotels – 10-250 kg per day</li> </ul> <p>Quantity of waste generated depends upon the type of activities conducted in a specific property. From the sample interviewed, hotels tend to generate a lot of waste as compared to other waste generators. The waste type also depends upon the type of occupation and includes food remains, boxes, plastic bottles, bags and tree leaves amongst others</p>
iii.	Frequency of waste collection	<ul style="list-style-type: none"> <li>Once or twice a week except for hotels where waste is collected up to 3 times a week</li> </ul>
iv.	Collection and segregation of waste	<ul style="list-style-type: none"> <li>Collection of waste using dustbins, plastic bags and plastic buckets of 10-20 litres. The establishments do not segregate the waste</li> </ul>



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S/N	Item	Comments/ Views
		except for hotels, which tend to have more than one waste collection bin and they segregate the waste from the generation level itself
v.	Disposal of waste	<ul style="list-style-type: none"> <li>55% interviewees dispose their waste in bins which are collected by CBOs and private firms to be transferred to landfill sites.</li> </ul>
vi.	User charges	<p>Currently charges are as per bye-laws and depend not only on the type of premises but also the location and the nature of the business or activities of the occupier.</p> <ul style="list-style-type: none"> <li>Shops including butchers &amp; restaurants – TZS 5,000 – 20,000 per month</li> <li>Hotels – TZS 50,000 to 990,000 per month</li> <li>Shops &amp; fruits &amp; vegetable stalls in Soko Kuu – TZS 2,000 – 3,000</li> </ul>
vii.	Concerns regarding collection of waste	<ul style="list-style-type: none"> <li>Collectors do not collect waste on time, especially in hotels where they are needed more frequently.</li> <li>Current fee is high, compared to the waste produced</li> <li>More time is required between, announcements for taking out the waste and the car passing by to actually pick it up</li> </ul>
viii.	Willingness to pay	<ul style="list-style-type: none"> <li>27% interviewees were ready to pay for better services</li> <li>73% were not prepared to pay more, as the new charges as per the 2018 byelaw appear to be higher than the waste they produce.</li> </ul>

Source: Consultant

Table 10-5: SWM details as per waste pickers at landfill site

S/N	Item	Comments/ Views
i.	Type of materials they pick	<ul style="list-style-type: none"> <li>Plastic bags and bottles</li> </ul>
ii.	Quantity of waste collected	<ul style="list-style-type: none"> <li>50-70 kg after 2-3 weeks</li> </ul>
iii.	Price per kg of each material	<ul style="list-style-type: none"> <li>Plastic bottles – TZS 300</li> <li>Plastic bags – TZS 200</li> </ul>
iv.	Personal protective equipment	<ul style="list-style-type: none"> <li>Not provided with any such equipment</li> </ul>
v.	Concerns	<ul style="list-style-type: none"> <li>None</li> </ul>

Source: Consultant

Table 10-6: SWM details as per private players

S/N	Item	Comments/ Views
i.	Name of the player	<ul style="list-style-type: none"> <li>Arusha travel</li> <li>NEHA AMCA Ltd</li> </ul>
ii.	Quantity of waste collected per day	<ul style="list-style-type: none"> <li>Arusha travel – 40 tons</li> <li>NEHA AMCA – 28 tons</li> </ul>
iii.	Wards covered	<ul style="list-style-type: none"> <li>Arusha travel – Sekei and city center</li> <li>NEHA AMCA – One ward called Unga Ltd. With 6 streets</li> </ul>



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S/N	Item	Comments/ Views
iv.	User charges and frequency of collection	<ul style="list-style-type: none"> <li>User charges as per byelaws</li> <li>Frequency of collection is at the end of the month for Arusha Travel</li> <li>Collection is once per month for NEHA AMCA, supposed to be at beginning of month, but they collect throughout the month as people do not pay in a timely manner.</li> </ul>
v.	Recycling, processing and disposal	<ul style="list-style-type: none"> <li>Arusha Travel - recycling and processing not amongst their activities, workers segregate the plastic bottles, bags and sell them</li> <li>Disposal of waste at landfill – 40 tons per day</li> </ul>
vi.	Personal protective equipment	<ul style="list-style-type: none"> <li>Not provided with any equipment</li> </ul>
vii.	Challenges faced	<ul style="list-style-type: none"> <li>Arusha Travel – They do not get their portion from LGAs on time, people are not paying on time, some do not pay at all</li> <li>NEHA AMCA – Political interference, no enforcement of byelaws</li> </ul>
viii.	They wish to be integrated with the PPP Project and expect an increase in income, once integrated.	

Source: Consultant

Table 10-7: SWM details as per recycling centers

S/N	Item	Comments/ Views
i.	Name of the recycling center	<ul style="list-style-type: none"> <li>Maendeleo used plastic</li> </ul>
ii.	Type of waste	<ul style="list-style-type: none"> <li>Plastic bags, plastic bottles, hard plastic and boxes</li> </ul>
iii.	Quantity of waste collected	<ul style="list-style-type: none"> <li>Plastic – 1-2 ton per day</li> <li>Boxes – 1-2 ton per day</li> </ul>
iv.	Buying price per Kg	<ul style="list-style-type: none"> <li>Plastic bags – TZS 100-200</li> <li>Plastic bottles – TZS 250</li> <li>Hard plastic – TZS 500</li> <li>Boxes – TZS 50</li> </ul>
v.	Selling price per Kg	<ul style="list-style-type: none"> <li>Plastic bags – TZS 500</li> <li>Plastic bottles – TZS 500</li> <li>Hard plastic – TZS 900</li> <li>Boxes – TZS 1,500 – 1,700</li> </ul>

Source: Consultant



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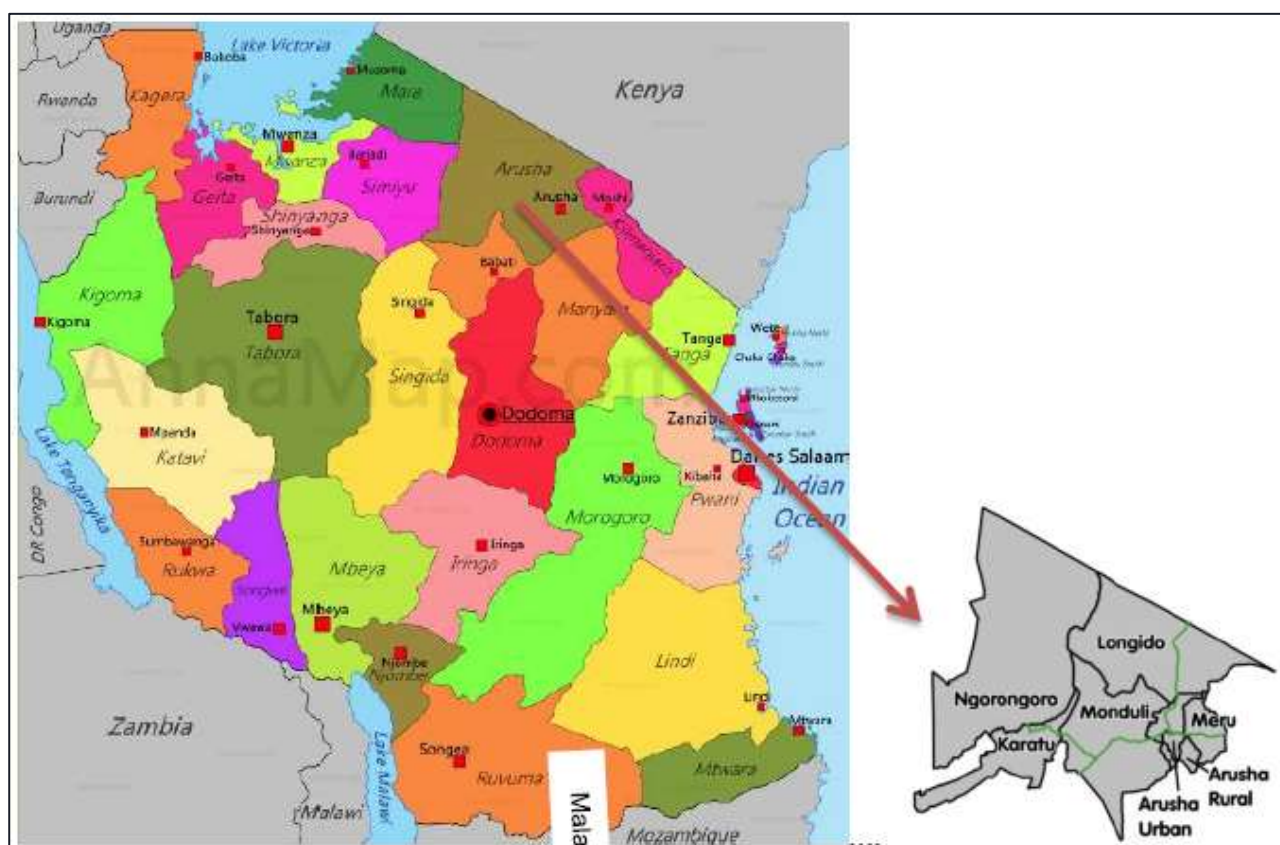
## 11 Annexure C: Demand Study



This section provides a background of the SWM value chain and the solid waste management practices in Arusha.

**Arusha Region:** Arusha Region is one of Tanzania's 31 administrative regions. The region is bordered by Kenya to the north, the Kilimanjaro Region to the east, the Manyara and Singida regions to the south, and the Mara and Simiyu regions to the west as shown on the map below.

Figure 11-1: Map of Arusha region



**Region size:** Administratively, as per 2012 census the region is divided into 7 districts namely: Arusha City, Arusha Rural, Karatu, Longido, Meru, Monduli and Ngorongoro. It is further sub divided into 142 wards.

**Population:** According to 2012 census, the total population of Arusha Region was 1, 694,310 of which 873,028 were females (52%) and 821,282 were males (48%). The regional population growth rate is 2.9% per annum.

**Household size:** According to 2012 population census the region had a total of 376,513 households and household size of 4.5. Arusha region like most of other regions in Tanzania has more population living in rural areas than those living in urban area.



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Table 11-1: Region details

Council	Area Sq. Kms	Population	Ward
Arusha City	93	416,442	19 <sup>12</sup>
Arusha Rural	1,547.60	323,198	21
Karatu	3,300	230,166	13
Longido	7,782	123,153	18
Meru	1,268.20	268,144	37
Monduli	6,419	158,929	20
Ngorongoro	14,036	174,278	14
<b>Total</b>	<b>34,526</b>	<b>1,694,310</b>	<b>142</b>

Source: Consultant

*Economic activities:* Arusha Region is a tourist destination and is the centre of the northern Tanzania safari circuit. The region comprises of national parks and reserves as well as old remains. Other economy activities in the region are based on agriculture of commercial and food crops, livestock keeping, mining, natural resources, manufacturing, commercial activities and employment in the public and private sectors.

*Areas covered for SWM:* Arusha city has 25 wards in total and all of them are covered in solid waste collection. Out of the 25 wards, 15 wards are served with the CBOs, the other 9 wards are served with the private firm and the remaining one ward is served by the municipal itself.

*Waste generated:* Arusha is estimated to generate about 271 tons of waste per day. Out of the 271 tons generated per day 220 tons is transferred to the landfill site which is located around 7 km from the Central Business District (CBD). The majority of the waste is organic in nature. The remaining 20% of the waste, which is not collected, is either burnt or buried.

*Waste recycling:* There is currently no formal recycling being undertaken. However there are private players which buy the recyclable waste i.e. plastic bottles and bags as well as boxes and paper from individual pickers who then resell the same to some companies based in Dar es Salaam and Nairobi. During the inception meeting, the Consultant conducted stakeholder consultation with some recyclable waste dealers. They are called Maendeleo Used Plastics and the findings from our consultations with them are provided in Table 10-7.

*Key players in the waste collection process:* During the inception meeting held with the Arusha City Council (ACC) team the Consultant was informed that both CBOs and private firms are engaged in waste collection process. There are 6 private players which cover a total of 9 wards as summarized below:

Table 11-2: Private players in waste collection process

S/N	Company name	Wards served
1	Khadija Co. Ltd.	Sakina

<sup>12</sup> After some changes done in recent years, Arusha City Council has a total of 25 wards



S/N	Company name	Wards served
2	Arusha Travel Agency	Sekei and Kati
3	Lemali Investment	Levolosi and Kaloleni
4	Atjodam Investment	Kimandolu
5	Azania Agency	Lemera and Engutoto
6	Neha Amca Ltd	UNGA Ltd

Source: Consultant

Apart from the private players as mentioned above, there are 14 CBO's and each CBO serves one ward each except for one which serves two wards. Thus in total 15 wards are currently being served by 14 CBOs. The remaining one ward called Daraja II is currently being served by the city council as the awarded CBO did not show up to serve the ward. When compared to other regions, the private companies and the CBOs in Arusha City council appear more active and most of them have their own workers and equipment including trucks for waste collection. They serve almost all type of waste generators including households, commercial and industrial properties and hotels. The city council has set up a total of 5 skip containers near big markets, schools and some health centers to collect waste from the above mentioned waste generators. Also the landfill site is operated by the city council. The estimated lifespan of the landfill site used for dumping waste is usually between 23 to 25 years depending on how much waste is being recycled to prolong its lifespan. Currently only a small percentage of waste is being recycled namely plastics, water bottles, sulphate bags, nylon and metals. On an average about 250 kg of waste leaves the landfill every day to be sold to private players who buy the waste and resell the same to waste recyclers outside Arusha.

*Current User charges:* The city's 2018 bylaws provide guidelines on the user fees to be charged to the waste generators and the CBOs and the private companies. The rates not only depend on the type of the waste generator but also the location. The people in the CBD are paying more than those staying on the outskirts and elsewhere. The bylaw stipulates the following charges per month:

Table 11-3: User charges

S/N	Waste Generator	Charges (TZS/ month)
1	Households	2,000 – 10,000
2	Restaurants and food vendors	5,000 – 15,000
3	Lodges and hotels	10,000 - 100,000
4	Butchers	10,000 – 15,000
5	Shops	10,000 – 15,000
6	Schools	10,000 – 30,000
7	Industries	50,000 – 200,000
8	Institutions	100,000
9	Others	2,000 – 50,000

Source: Consultant



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Apart from the user charges as mentioned above, the byelaws also provide rates for renting municipal equipment and trucks, waste water collection charges and fumigation rates.

*Income from solid waste management collection:* During inception meeting with the city council, the city council's officials mentioned that they collect a total of TZS 30 million to TZS 45 million per month. The above mentioned amount is the result of 15% of the total collection received from private firms, the CBOs and the fees received from waste generators collected directly by the city council. One of the CBOs we explained that they collect TZS 8-9 million per month of which 15% of the collections go to the city council.



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## 12 Annexure D: Legal due diligence



*This section outlines the regulatory and legal due diligence in detail which would be applicable for implementation of the proposed Project.*

### Transfer of user rights/assets

Section 114(1) of the Environmental Management Act, 2004 (EMA) mandates LGAs to manage and minimize solid waste by determining the appropriate methods of sorting, storing and disposing such wastes within their jurisdiction. Further, LGAs are to provide mechanisms to involve private entities and Non-Governmental Organizations (NGOs) in raising awareness on the proper management of solid waste. Section 114(2) of the EMA further provides that LGAs are to ensure an Environmental Impact Assessment is conducted for all new major activities in order to properly manage any solid waste and that sorting is conducted at the source. However, in practice as was seen during our site visit no sorting is done at the source as the LGAs have not provided different types of garbage collection bins for the various types of solid waste. Rule 7 of the ACC Fees Regulations provides that ACC may appoint an agent who may either be a company or community based organisation (CBO) to carry out the function of collection and transportation of waste on ACC's behalf.

Generally, LGAs have a mandate to charge rent or fees in respect to the occupation use or hire of land or premises (Section 11(b) of the LGDA Act). Further, section 133 of the LGDA Act provides that LGAs may charge fees for any service or facility provided by it or for any licence or permit issued by the LGA. Accordingly, Rule 4(3)(d) of the ACC Fees Regulations authorises the ACC to collect fees for solid waste management and levies within its jurisdiction. Further, Rule 8 of the ACC Fees Regulations provides for the responsibility of an agent appointed by ACC to include: collection of the relevant fees; complying with the terms and conditions of the agreement between the agent and ACC including the split of revenues; and submitting a security deposit equivalent to one-month's revenue (this will be refunded at the end of the agreement period).

According to Section 11(3) of the PPP Act 2010, a contracting authority and the ProjectCo may enter into an agreement which among other things provides that the ProjectCo would return any assets belonging to the contracting authority at the end of the agreement, that the contracting authority will pay the ProjectCo. by way of compensation from a revenue fund of charges of fees collected by the private party from users or customers of the service provided by it; for the conditions for the provision of services where necessary; the required payments to be made by the ProjectCo.to the contracting authority; and the financial management duties on the part of the ProjectCo including procedures relating to internal financial control, budgeting, transparency, accountability and reporting.

According to the above provisions, the PPP agreement authorizes ACC to enter into an agreement with the ProjectCo. The agreement between ACC and the ProjectCo may provide for the transfer of assets owned by ACC to ProjectCo for the duration of the project and/or the transfer of ACC's right, among other things, to lease and collect fees from the users of collection sites and landfill sites. The scope of the rights of the ProjectCo will be stipulated in the PPP agreement, however the extent of the rights transferred to the ProjectCo will not exceed the maximum duration of the PPP agreement.



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Additionally, Section 11(4) of the PPP Act provides for further conditions to be included in the PPP agreement to ensure that: the ProjectCo undertakes to perform the functions of the contracting authority on the latter's behalf for a specified period; the ProjectCo will be liable for any risks arising from the performance of its functions; any government facilities, equipment or any other state resources required for the Project are transferred or made available to the ProjectCo in a timely manner; and public and private assets are clearly specified.

Pursuant to the provisions mentioned above, ProjectCo can perform functions of ACC on ACC's behalf for a specified period of time which shall not exceed 15 years being the duration for small-scale PPP projects as provided for under Regulation 76(2) (b) of the PPP Regulations. However, in the proposed amendments to the PPP Regulations there will be no cap on the duration of the PPP agreement. The duration may be extended for a maximum of five years in case of delay or interruptions unforeseen by both parties, project suspension not caused by the private party or an unforeseen increase of costs arising from the contracting authority (Regulation 84 of the PPP Regulations). Thus ACC can transfer its assets and user rights to ProjectCo (with whom they will sign a PPP agreement) to carry out the ACC SWM Project.

The transfer of these rights will be for the stated period in the PPP agreement however the PPP regulations are being amended and among other things will remove the limitation on duration of the agreement. In terms of revenue derived from the user rights, the PPP agreement should indicate how the revenue will be split between the LGA and ProjectCo. As ProjectCo is able to charge any user charges such as collection fees and landfill tipping, ProjectCo may set up an account where such funds will be deposited. However, applicable taxes chargeable to the users will be paid to the Tanzania Revenue Authority (TRA) and these will not be remitted to ProjectCo. It is important to get a separate tax advice regarding the taxes applicable to such a project and means of payment.

At the end of the PPP agreement, the ProjectCo will be required to hand back the assets to ACC. The procedure and requirements for handing back assets has been provided under Regulation 97 of the PPP Regulations 2015 to include the description of assets to be handed over, maintenance requirements and the right of the contracting authority to inspect the assets before hand-back.

#### Capacity of ACC

The institutional framework in relation to LGAs and PPPs has been provided for both in the PPP Act 2010 (as amended) and PPP Regulations 2015. Section 8(1) of the PPP Act 2010 (as amended) identifies the role of the public sector in PPPs to include identifying projects, carrying out feasibility studies, monitoring and evaluation, risk sharing and putting in place an enabling environment such as favorable policies, strategies and legal and institutional framework. For the purpose of PPPs, the public sector has been defined to include LGAs or persons acting on behalf of the LGAs (Section 3 of the PPP Act 2010 (as amended)).

In the current case, ACC which is an LGA which can perform the functions identified under Section 8(1) of the PPP Act 2010 (as amended). Further, Section 9 of the PPP Act 2010 (as amended) provides for the responsibilities of contracting authorities including identifying, appraising, developing, managing and monitoring a project to be implemented under the PPP Act 2010 (as amended) as well as undertaking or causing for feasibility studies to be undertaken and submitted to the PPP Node and PPP Centre for consideration. For the purpose of the PPP Act 2010 (as amended), a contracting authority means any ministry,



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government department or agency, LGA public or statutory corporation. In the current case, the ACC will be the contracting authority for the ACC SWM Project.

Section 3 of the PPP Act 2010 (as amended) defines a small-scale PPP project as one in which the total project value does not exceed US \$20 million which is within the mandate of an LGA. Further, Regulation 76 of the PPP Regulations 2015 provides that the PPP agreement should not exceed 15 years (in the proposed amendments to the PPP Regulations there will be no cap on the duration of the PPP agreement). However, the threshold and duration may be extended subject to approval. Therefore in relation to the ACC SWM Project, ACC have the mandate to undertake the projects under the PPP regime as ACC falls under the definition of a contracting authority in the PPP Act 2010 (as amended).

Notably, Regulation 16 of the PPP Regulations 2015 provides that although a PPP agreement grants a private party the mandate to carry out the contracting authority's institutional functions, the latter does not divest its right to efficiently and effectively ensure the performance of the public interest or service. Thus, ACC will ensure that ProjectCo carries out its functions effectively and efficiently whilst maintaining the public service element. Although ACC has the mandate to carry out a PPP project, as far as we are informed, ACC have previously not carried out any PPP project and thus may not have the required experience in implementing such projects.

#### PPP team

In terms of structure, Regulation 86(1) of the PPP Regulations 2015 provides that a contracting authority may form a PPP team tasked with conducting procurement process for the respective PPP, leading negotiations with preferred bidder, signing and executing the agreement with private party and monitoring the PPP during execution. The PPP team shall consist of (Regulation 86(2) of the PPP Regulations 2015):

- executive representative from the LGA responsible for finance and planning;
- executive representative from the LGA responsible for infrastructure and public works;
- executive representative from the LGA responsible for land management;
- executive representative from the LGA responsible for legal affairs; and
- three persons not being public officers with expertise in matters relating to commercial investment, infrastructure finance and PPP appointed by head of the LGA for a term of three years in the manner prescribed in the PPP guidelines issued by the PPP Node.

During inception meeting with ACC officials on 8th April 2019, the Consultant met some of the members of the PPP team including the ACC land and planning officers, environmental officer, Director of ACC and economist.

#### Community Based Organizations

##### *Legal capacity of CBOs*

CBOs are regulated by the NGO Act as well as the NGO Regulations. According to Section 2 of the NGO Act (which has recently been amended, an NGO, which includes CBOs, means a voluntary grouping of individuals or organizations which is non-partisan or non-profit sharing: (a) established and operates for the benefit or



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welfare of the community or public, organized at the local, national or international levels for the purpose of enhancing or promoting economic, environmental, social or cultural development or protecting environment, good governance, law and order, human rights and lobbying or advocating on such issues; and (b) does not include companies, trusts, trade unions, political parties, sports associations, societies and cooperative societies among others.

#### *Legal institutional framework and formation of CBOs*

As previously mentioned, CBOs are currently registered as NGOs. Section 18 of the NGO Act defines an NGO as a body corporate which is capable of (a) suing and being sued; (b) acquiring, purchasing, or otherwise disposing of any property (movable or immovable); (c) entering into contracts; and (d) performing all acts which can be done by a body corporate and which are necessary for the proper performance of its duties and functions. Therefore the CBOs registered under the ACC, are a body corporate, hence can enter into a contract with ACC in order to carry out the function of collecting solid waste from households and businesses and dumping it at collection centres (Rule 8 of the ACC fees regulations). CBOs have a Chairman, Vice-Chairman, Secretary, Treasurer, and all together 15 members. Most of the members are youth and women.

NGOs may register either at local, national or international level. For the sake of CBOs, these are registered at local level. Further, registration at local level is sub-divided into district and regional level. In relation to the Arusha CBOs, these are registered at district level. Section 22(1) of the NGO Act empowers the Registrar of NGOs (the Registrar) to appoint public officers within the region or district for the purpose of facilitating registration in such levels. For the sake of ACC, the public officers as referred in the NGO Act are referred to as Community Development Officers (CDO) of Arusha City. Subject to the provision of Section 12(1) of the NGO Act, every application shall be made to the Registrar by a group of persons, in a prescribed NGO Form 1. Regulation 3 of the NGO Regulations refers "group of persons" to be not less than five members.

Section 12(2) of the NGO Act provides that every application shall be accompanied by the following documents: (a) three bound copies of the constitution of the NGO; (b) minutes containing full names and signatures of founder members (the form provides for a minimum of two); (c) personal particulars of office bearers including Chairperson, Secretary and Treasurer (CVs, and two passport-size photographs of each); (d) address and physical location of the NGO; (e) application fee (currently TZS 80,000); (f) a filled NGO A Form No.1 attached with 3 Stamp Duty worth TZS 1500; and (g) any other particulars that may be required by the Registrar.

The CBO founding members should first present their application at the Street Chairman of the area they wish to form the CBOs. Once the Street Chairman has reviewed their application, he/she writes a recommendation letter to the Ward Executive Officer (WEO). The application form plus the accompanying documents and the letter from the Street Chairman will then be reviewed by the WEO. Once the WEO is satisfied with the application, he/she will write a recommendation letter to the CDO. The CDO will then register the CBO once they are satisfied that the CBO has complied with the requirements of the NGO Act.

#### *Whether a CBO can be stopped from carrying out its activities in SWM and the legal expectations*

- CBOs carry out the function of collecting solid waste from households and businesses and charge the users for this service. CBOs obtained this mandate following qualification under a tendering process conducted by the LGAs. The CBOs entered into an agreement with the LGAs to carry out the functions of



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collecting said solid waste for the duration of the contract. Therefore in order to terminate the services of the CBOs, the LGA will either have to wait until the agreement expires or cause for an early termination depending on the terms of the agreement. As previously mentioned, CBOs in the context of SWM are a group of individuals with a common goal of environmental protection, consisting of mainly youth and women. Therefore, subject to our review of each CBO contract, although legally the LGAs can terminate a contract with a CBO for the collection of solid waste, there may be a residual risk from civil society advocates, other government agencies and the CBOs themselves who may view this move as curtailing the livelihood of these women and youth.

- From a legal perspective, section 73 of the LCA provides for remedy in case of breach of contract. Where a party fails to perform his/her obligations under a contract, the aggrieved party has a right to sue for general and special damages. Therefore, the CBO may institute legal proceedings against ACC where the latter breaches the terms of their contract.
- However, in order to reduce the pushback from civil society organizations and other stakeholders, ProjectCo may incorporate the CBOs as partners in order for the CBOs to continue with their function of collecting from households and business but with the provision of better equipment from ProjectCo. The CBOs will continue to charge user fees and the percentage which they would remit to LGAs for the transportation and dumping costs will now be remitted to the ProjectCo. Under this arrangement, ProjectCo will be responsible for providing the CBOs with the relevant equipment and will not be responsible for the paying of salaries to the CBO members as the latter will distribute their earnings from the waste collection among themselves after remitting, the relevant fees to ProjectCo for the transportation and dumping costs. This is a commercial decision that will have to be made.
- Alternatively, the CBOs, may be dissolved on condition that ProjectCo agrees to take on the CBO members as employees in ProjectCo. However, note that if ProjectCo takes on the CBO members as employees, ProjectCo will be liable for providing the employees with employment contracts, social security contributions, payment of PAYE and will have to adhere to the Employment and Labour Laws of Tanzania which are very employee-friendly. If an employment contract is terminated without due procedure being adhered to, this could be termed as unfair termination by the Commission for Mediation and Arbitration (CMA). Among other things, the CMA may award an aggrieved employee with a minimum of 12 months' salary as compensation for unfair termination or may order the employer to re-instate the employee with no loss of wages from the time the employment contract was terminated. This is a commercial decision that will have to be made.
- Alternatively, the CBOs, may be dissolved on condition that ProjectCo agrees to take on the CBO members as employees in ProjectCo. However, note that if ProjectCo takes on the CBO members as employees, ProjectCo will be liable for providing the employees with employment contracts, social security contributions, payment of PAYE and will have to adhere to the Employment and Labour Laws of Tanzania which are very employee-friendly. If an employment contract is terminated without due procedure being adhered to, this could be termed as unfair termination by the Commission for Mediation and Arbitration (CMA). Among other things, the CMA may award an aggrieved employee with a minimum of 12 months' salary as compensation for unfair termination or may order the employer to re-instate the employee with



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no loss of wages from the time the employment contract was terminated. This is a commercial decision that will have to be made.

*This section outlines the additional laws which would be applicable for implementation of the proposed Project.*

#### User and User rights

The main use of the ACC SWM Project will be collection, transportation and management of the Muriet landfill site. The relevant user rights include the collection fees for solid waste, transportation of waste and management of landfill site. ProjectCo may set up an account where such funds will be deposited. However, applicable taxes chargeable to the users will be paid to the TRA and will not be remitted to ProjectCo. Section 11(4) of the PPP Act 2010 (as amended) provides additional conditions to be included in the PPP agreement to ensure that the private party undertakes to perform the functions of the contracting authority on the latter's behalf for a specified period and will be liable for any risks arising from the performance of its functions. Whereas the government facilities, equipment or any other state resources required for the project are transferred or made available to the private party in a timely manner and that the public and private assets are clearly specified. The PPP agreement between the ACC and ProjectCo may provide (among other things) for ACC to transfer the collection centres, transportation trucks, and the management of the Muriet landfill to ProjectCo. ProjectCo will then charge users the collection, transportation and disposal fees accordingly.

#### Relevant Environmental Law and Heritage Rights if applicable

Section 114 of the EMA mandates the LGAs to manage and minimize solid waste by determining the appropriate methods of sorting, storing and disposing such waste within their jurisdiction. Each LGA has an obligation to enact byelaws that govern waste management within their municipality. For ACC such byelaws are the ACC Fees Regulations.

The Consultant was informed by ACC that the relevant project land is not part of the conservation areas under the game reserves, wildlife conservation or the forestry legislation. Therefore, as the landfill and collection centres have not been built under such reserve lands, the heritage laws in relation to conservation will not be applicable.

#### Tax legislations

- *Main tax / revenue laws in Tanzania* - These include the East African Community Customs Management Act, 2004, Income Tax Act, 2004, Stamp Duty Act, Cap. 189, Tax Administration Act, 2015, and Value-Added Tax Act, 2014. These are administered by TRA.
- *Main tax / revenue law administered by local government authorities (LGA)* - Local Government Finance Act (LGFA) imposes obligations on how LGAs charge fees on various services within their jurisdiction.
- *TRA tax legislation imposes following taxes / charges on all types of businesses* - Corporate tax of 30%, withholding tax on service fees of 5%, and value-added tax of 18%.
- A noteworthy fee payable to the LGA is the city service levy which is imposed on any business with a business licence at a rate of 0.3% of the turnover net of the Value Added Tax and the Excise Duty (Section 6(1) (u) of the LGFA): However, the Minister in charge of LGAs may, by order in the Gazette, exempt any



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category of persons from payment of any rate chargeable under the LFGA. Therefore, ProjectCo as a business entity may apply for an exemption to pay the city service levy (Section 16(4) LFGA).

### Labor legislations

#### *Employment matters*

- The main labour legislation that govern employees and labour matters in Tanzania are the ELR Act, ELR Rules made their under, Labour Institutions legislation and the Wage Order. The ELR Act and ELR Rules provide for the rights and obligations of employees and employers, the employment contract, wages, types of leave, holiday, probation, trade unions and termination procedure among others.
- It is important to offer employees contracts which comply with the provisions of the ELR Act such as employee particulars, place of recruitment, job description, duration of the contract, probation, annual leave, notice of termination, employee benefits i.e. social security contributions among others.
- Notably, there are two types of employment contracts in Tanzania, namely a contractual employment i.e. a traditional 'employee' and an employment for service as an independent contractor. In the former, the employee enters into an employment contract with the employer and works solely for the employer and the employer does not become a client of the employee. Whereas in the latter, the employer becomes a customer of the employee and the employee/contractor persons services not only to the employer but to others as well. The former is governed under ELR Act whereas the latter is outside the typical employment regime.
- With regard to the Wage Order, it provides for the minimum wages (hourly, daily, weekly, fortnightly and monthly) to be paid to employees working in various sectors such as domestic workers, small scale contractors, drivers, trade, industry and commerce as well as other sectors not mentions.
- ProjectCo will be required to adhere to the relevant employment legislation in relation to the employees it may intend to hire to carry out the operation and management of the ACC SWM Project.

#### *Limitation of employment of foreigners*

- It worth noting that if ProjectCo intends to hire foreigners for the construction, operation and management of the ACC SWM Project, such foreign workers must obtain the relevant Work and Resident Permits from the Ministry of Labour and Immigration Department respectively.
- Any engineers and contractors must be registered with the Engineers Registration Board (ERB) and Contractors Registration Board (CRB) respectively. Please note that foreign architects and surveyors will also be required to register with the Architects and Quantity Surveyors Registration Board.
- A recent change under the PPP Act provides that the Minister of Finance should make regulations which promote the empowerment of Tanzanian citizens including the provision of goods and services by Tanzanian entrepreneurs, training and technology transfer, employment of Tanzanians and taking part in corporate social responsibility. Exceptions may be made where the level of expertise of the technology required cannot be sourced locally.



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### Foreign exchange legislation

Payment in foreign currencies for goods and services in Tanzania is quite unclear. On one hand, Section 26 of the BOT Act provides that the legal tender in Tanzania is Tanzania Shillings (TZS) in the form of bank notes and/or coins. On the other hand, Section 5(b) of the Foreign Exchange Act provides that any person whether resident or non-resident in Tanzania may hold any amount of foreign currency in Tanzania. Further, Section 5(d) of the Foreign exchange Act authorizes a person whether resident or non-resident to open a Foreign Currency Account with any authorized bank. Thus a wide interpretation of Sections 5(b) and 5(d) of the Foreign Exchange Act may be read as allowing for foreign currency to be used in Tanzania. However, in December 2017, the Finance Minister, Philip Mpango stated that the law needs to be amended to the effect that Tanzanian residents should not have to pay in foreign currencies for goods and services in-country. The Ministry of Finance also issued a public statement on their website declaring that it is not prohibited to make price quotations using foreign currencies, as stated under Section 5 of the Foreign Exchange Act. Nonetheless, these applications should mainly target clients that are foreigners. Conversely, what may be prohibited is refusing to accept payment in TZS which is the legal tender in Tanzania as provided under section 26 of the BOT Act. Thus although one can request for payment in foreign currency such as the US\$, refusal to accept the equivalent payment in TZS could be construed as contravening section 26 of the BOT Act.

### Competition legislation

The Fair Competition Act 2003 prohibits for anticompetitive agreements which are unenforceable if the object, effect or likely effect of the agreement is to appreciably prevent, restrict or distort competition. The Fair Competition Act covers markets as well if the underlying agreements could be deemed to be anticompetitive.

### Building and fire codes, as applicable

For ProjectCo to conduct its business in Tanzania, it would require the following licences and permits:

- *Certificate of Incorporation issues by the Business Registration and Licensing Agency (BRELA);*
- *Business Licence from the Ministry of Trade and Industry;*
- *Tax Identification Number (TIN) Certificate issued by TRA;*
- *Value added tax (VAT) Certificate issued by TRA;*
- *Workers Compensation Fund Certificate by Workers Compensation Fund;*
- *Social Security Registration;*
- *Workplace Registration Certificate- Occupational Safety and Health Authority (OSHA);*
- *Compliance Certificate issued by OSHA;*
- *Fire Safety Certificate issued by Tanzania Fire and Rescue Force;*
- *Building Permit from ACC;*
- *CRB Registration; and*



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- *ERB Registration.*

#### Zoning rights and land use regulations

Section 38 of the LGUA Act provides that each planning authority shall determine planning space standards, density of buildings on land, height, design and appearance and sitting of buildings, manner of access to land and buildings in its area of jurisdiction in accordance with set of national standards. Further, Section 118 of the EMA provides that the LGA may designate special areas to be used as transfer stations or collection centres for solid waste. Prior to designating an area as a collection centre, the LGA must observe the following: (a) carry out social, health and environmental impact assessment; (b) ensure that the selected area is adequate in size and situated away from residential area; (c) ensure regular removal of solid waste to avoid any possible nuisance; and (d) ensure the area is fenced off and secured to prevent unauthorized persons from entering.

In addition to the collection centers, LGAs also have a mandate to determine the final disposal site after considering the following matters (Section 119 of the EMA): climatic conditions; economic ability; interest of the community; environmental, hygienic and social benefits; and availability of tipping sites.

#### Dispute settlement mechanism and legal jurisdiction

Section 22 of the PPP Act provides that any dispute arising during the course of the PPP agreement shall be adjudicated either through mediation or arbitration by judicial bodies or other organs established in Tanzania and in accordance with its laws. Therefore no international arbitration will be permitted in PPP Agreements.



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## 13 Annexure E: Social and environmental aspects



*This section outlines various social and environmental challenges that the Project is expected to face during various phases of its implementation and how the ProjectCo could mitigate them. It covers the World Bank's safeguard policies and guidelines, as applicable to the TPPP and also covers national environmental and social management requirements as applicable to PPP Projects under TPPP. Environment and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) have been discussed in detail. Additionally, Annexure D of the environmental and social screening form of the ESMF, prepared in August 2019, has been included for the Arusha SWM Project.*

### 13.1 Environmental and social challenges

#### Environmental challenges

- *Loss of natural vegetation, crops, landscape and wildlife:* As the waste collection rate would improve, it would lead to an increase in the quantity of waste received at the landfill. This would require development of more cells at the landfill site, which would require soil from outside the landfill site. Additionally soil would be required for covering cells, once full with waste. This would result in loss of natural vegetation, agricultural crops and landscape, and maybe a potential reason for soil erosion. Upgradation of drainage works might lead to the loss of trees, crops or live (planted) fence. Mitigation measures could include a) storage of soil to be undertaken in accordance with best practice including stockpiling in a way so as to limit compaction and avoiding mixing of different qualities, b) minimization of soil and landscape disturbance during upgradation and operations of drainage and landfill works, c) measures to prevent soil erosion and river sedimentation, d) careful upgradation to minimize disturbance and minimize impact on planted trees and permanent crops, e) need for a restoration plan with regards to vegetation once upgradation is complete
- *Pollution of ground water by waste water and leachate:* With the increase in the quantity of waste accepted at the landfill on a daily basis, which would lead to an increment in the number of cells being operational at the landfill site, it would lead to an increase in the toxicity of water, leachate, organic and microbial pollution of ground water if the disposal and treatment methods and equipment are not upgraded simultaneously. This will lead to an impact on soil, surface and ground water. The impact from the effect of leachate and waste water is high and might lead to long term irreversible effects beyond the boundaries of the landfill site. Mitigation measures could include a) proper disposal and treatment methods for waste water and leachate, accompanied by upgradation and regular maintenance, b) Enhancement of the capacity of leachate collection system/pipes, leachate pond and liners to intercept leachate.
- *Pollution by solid and liquid waste:* Poor management of the collection centers, landfill and transportation trucks would result in solid waste pollution along routes and neighborhood. Scavengers and animal/birds can scatter waste leading to pollution. Additionally, light waste can become airborne quickly and can spread to areas outside the landfill leading to pollution. However, the effect of these impacts can be



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considered low. Also, during upgradation of roads, drains and landfill, equipment and trucks may lead to hydrocarbon pollution as a result of operation of vehicles and equipment or servicing at workshops. This may also be accompanied by soil and water pollution that might result from the spillage of oil and fuel. The effect of these impacts can also be considered as low. Mitigation measures could include a) chalk out a management plan for collection centers, landfill and transportation trucks to prevent pollution by solid waste, b) service and maintenance of equipment and machines should take place away from the project site to avoid oil spillage and other types of pollution c) upgradation works to ensure that appropriate structures for safe disposal of solid and liquid waste is included in the upgradation plan and that such facilities are maintained on a regular basis, d) care to be taken to prevent spillage on haul routes, and any such spillage to be removed immediately and the area to be cleaned, e) cleaning, maintenance and refueling of equipment to be undertaken in separate designated areas f) traps and collection pits to be used to prevent the escape of pollutants g) application of good environmental practices to reduce contamination of soil

- *Dust and emissions:* The clearing of vegetation for the removal of soil, movement of vehicles and operation of heavy machinery during upgradation works at the landfill site will increase the level of dust and emissions in the areas surrounding the landfill site. The upgradation works at road, landfill, drainage, storm water system, leachate collection etc, will involve earth works or excavations and transportation of material. Air pollution occurs due to dust, together with exhaust emissions from excavations, crushing, transportation, as well as emission of exhaust fumes from trucks, machinery and upgradation equipment. Hauling of aggregates from long distances may cause dust pollution. Mitigation measures include a) covering of stockpiled soil/aggregates during the rainy season b) spraying of access road and landfill site with water c) usage of high efficiency vehicles for transportation of waste taking measures against dust pollution and emissions.
- *Noise pollution:* Movement of trucks near collection centers, for unloading skip containers, creates noise pollution for the citizens living in the nearby residential areas. Movement of vehicles and the usage of heavy machinery at landfill site both during upgradation and operations will increase the levels of noise and vibration in the local environment near the landfill site. The effect will cause health problems such as respiratory diseases for the inhabitants near the landfill site. Mitigation measures include a) working at day in compliance with legal requirements of noise pollution, working at night to be avoided altogether b) creating iron fencing around landfill site for screening out noise c) liason with local community for suitable timings of noisy activities d) observe noise limits during upgradation works and operations using standard levels from OSHA or Tanzania Bureau of Standards (TBS)
- *Odour:* The waste if not removed regularly from skip containers, will lead to offensive and repulsive odour which will be a nuisance for the residents of the locality. Similarly odour nuisance will occur during the operational phase of the landfill unless appropriate measures are undertaken. The impact is low and is confined to the areas around skip containers and landfill site. Odour is not life threatening and can be reversed by proper management of waste at landfill. Mitigation measures would include a) choose working hours and use larger vehicles to reduce odour nuisance b) application of daily cover soil to prevent odour emission and airborne waste c) sorting of waste at source to remove/identify easy decomposing waste that can be turned into compost manure d) covering skip containers and transfer trucks while they contain waste.



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## Social Challenges

- *Opposition by CBOs:* Currently, 15 wards in Arusha are covered by local CBOs wherein waste collection is managed by them. Once the ProjectCo takes over, collection will be managed by the ProjectCo, which would result in a loss of livelihood for the employees engaged with the CBOs. Thus, the ProjectCo might face opposition from CBOs as their earning potential would be jeopardized. Therefore as a strategy to mitigate this risk, it is proposed that CBOs can work/partner with the ProjectCo under the Project. This may affect the livelihood of CBO employees.
- *Opposition by casual labor:* The casual labor employed with the council on a contract basis will lose their livelihood once the ProjectCo takes over SWM operations, as the ProjectCo would deploy their own labor. However, as a strategy to mitigate this risk, the casual contractual labor of the council can be integrated within the Project and can be employed by the ProjectCo. Additionally, they can take up jobs such as street sweeping and primary collection of waste which would not be within the purview of the ProjectCo as a part of the project. This would provide them employment and hence not affect their livelihood.
- *Opposition by waste pickers:* Currently, waste pickers work throughout the city in search of recyclable materials. They collect recyclables and sell it to processing plants, earning their livelihood. As part of the proposed PPP Project, there might be a situation wherein most of the recyclables would be segregated upstream in the SWM lifecycle at primary and secondary collection points and these recyclables could be sold by the ProjectCo to the recycling plants. This could potentially affect the earning potential for waste pickers. As a strategy to mitigate this risk, the waste pickers need to be explained that the proposed PPP Project would not affect their livelihood, as they would be allowed to visit the collection centers as well the landfill site to collect recyclables. Thus, the waste pickers would continue to function in the same way, as they would have, without the PPP Project.
- *Occupational health and safety:* This is the challenge of occupational health and safety risks to workers due to exposure to dust emissions and the risk of accidents during operation of heavy equipment and labor intensive works during upgradation works and day to day operations. Accidental contact with corrosive material, piercing or sharp objects, contact with contaminated waste and exposure to smoke and emission during landfill may pose a danger to the health and safety of the Project workers. However, once the Project becomes operational, it is expected to improve health and hygiene conditions amongst local communities as a result of improved management of dust and air pollution. Mitigations measures would include a) compliance with OSHA requirement/regulation b) Provision of personal protective equipment (PPE), c) installation of adequate road signs and street lights d) coverage of drains in congested areas, etc.
- *Spread of social diseases (HIV/Aids):* The influx of new workers during the upgradation phase of the Project will result in interaction amongst the workers and consequently the risk of spreading social and communicable diseases amongst workers and the community at large. The risk of spreading of diseases is confined during the upgradation phase at the landfill site when involvement of manpower is high. Mitigation measures could include a) ProjectCo to employ locally available labor to reduce the risk of spreading social or communicable diseases b) conduct education and awareness campaigns.



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- *Traffic accidents:* During upgradation phase, frequent movement of trucks carrying material to the landfill site might lead to congestion and accidents. Mitigation measures would include a) ProjectCo to place warning signs /posters around the landfill site and at roads leading to the landfill site during upgradation works c) speed bumps to be made to control the speed of vehicles d) awareness creation about possible accidents for both drivers and project workers.
- *Damage to utilities:* There is a potential risk of disruption of public services and utilities such as water, communication and power during improvement and upgradation works for roads and drains. The potential for damage during upgradation works are high if careful planning and management is not undertaken. Mitigation measures could include a) proper design to safeguard utilities of TANESCO, oil, water supply pipes and other utilities b) prompt repair and replacement of severed services.

## 13.2 World Bank safeguard policies and guidelines

The prefeasibility study of the Project has been prepared under the Tanzania Public Private Partnership Project (TPPP), project id: P159192. The World Bank safeguard policies are operational policies (OP) and bank procedures (BP) approved by the board for addressing environmental and social issues within the development projects supported by banks. TPPP has been assigned Environmental Risk Assessment Category B and triggers the following World Bank Safeguard Polices: (i) Environmental Assessment (OP/BP 4.01); and (ii) Involuntary Resettlement Policy (OP/BP 4.12). The World Bank Group – Environment, Health and Safety (WBG EHS) guidelines containing quantitative limits and good international management practices for different types of industry and sectors, are also applicable to the various PPPs. The applicable sectoral guidelines include, but are not limited to:

- WBG EHS guideline on waste management facilities;
- WBG EHS guideline on construction material extraction; and
- WBG general EHS guideline.

The relevant requirements from these guidelines will apply to TPPP. Where there is also coverage by national regulations, the more stringent of the two apply.

- *OP 4.01 (Environmental Assessment):* The World Bank’s safeguard policy OP 4.01 Environmental Assessment (EA) requires all bank-financed operations are screened for potential environmental and social impacts (a view shared by the Tanzania EIA procedures and processes) to determine the extent and type of the EA process and thus help ensure that they are environmentally sound and sustainable and thus improve decision making. Thus, OP 4.01 safeguard policy is triggered if a PPP to be supported by TPPP is screened and found likely to have potential (adverse) social and environmental risks and impacts. The EA process covers impacts on the natural environment (air, water and land); human health and safety; physical cultural resources; and trans-boundary and global environmental aspects. OP 4.01 emphasizes that the required environmental and social assessment be carried out on the basis of the screening results. If the screening of PPP Projects under TPPP finds that an ESIA is necessary, the implementing agency will carry out an ESIA to ensure that activities related to the direct and indirect areas of influence of the intervention are clearly identified and that all direct and indirect, as well as cumulative and potential residual impacts, are addressed. The implementing agency will also ensure that an ESMP is prepared and



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implemented according to the type and scope of identified impacts. World Bank safeguard policy 4.01 states:

- A proposed Project is classified as Category-A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
  - A proposed Project is classified as Category-B if its potential adverse environmental impacts on human populations or environmentally important areas--including wetlands, forests, grasslands, and other natural habitats--are less adverse than those of Category-A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category-A projects.
  - A proposed Project is classified as Category-C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category-C project.
  - A proposed Project is classified as Category-FI if it involves investment of bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.
- *OP 4.12 (Involuntary Resettlement)*: World Bank's operational policy on Involuntary Resettlement (OP/BP 4.12) is triggered in situations involving involuntary taking of land (includes anything growing on or permanently affixed to land, such as buildings and crops), impacts on or loss of assets, loss of income sources or means of livelihood (whether or not the affected person must relocate), and involuntary restrictions of access to legally designated parks. The policy covers direct economic and social impacts caused by the involuntary taking of land resulting in relocation, loss of shelter, loss of assets or access to assets, or loss of income sources or means of livelihood. The policy aims to avoid involuntary resettlement to the extent feasible, or to minimize and mitigate its adverse social and economic impacts. World Bank OP 4.12 prescribes compensation and other resettlement measures to achieve its objectives and requires that borrowers prepare adequate resettlement planning instruments. An RPF is prepared where the Project impacts are unknown at the time of Project preparation. The RPF guides preparation of RAP or other appropriate instruments when Project locations are known and World Bank OP 4.12 is triggered. PPPs supported by TPPP will take place on land owned by the implementing agency, such as the redevelopment of an existing infrastructure facility, boundaries, and therefore there is no need for land acquisition. TPPP will not support PPPs requiring land acquisition. If, however, there is temporary or permanent economic impact, the Project will follow the provisions set out in the RPF in the preparation of a RAP or ARAP which will be approved prior to Project activities impacting the identified assets. TPPP will support voluntary resettlement as an exceptional measure where consent of affected communities has been obtained and documented.

### 13.3 Relevant national environmental and social management requirements

The Project would need to comply with the environmental and social requirements of the United Republic of Tanzania and laws governing land in Tanzania. These issues will need to be addressed in the ESIA report. The specific laws and regulations of relevance are cited below:

- Constitution of the United Republic of Tanzania



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- General Environmental Management
  - National Environmental Policy (1997)
  - Environmental Management Act (EMA), Cap 191 2004
  - Environmental Impact Assessment and Audit Regulation (2005) and its Amendment 2018
  - Environmental (Registration of Environmental Experts) Regulations (2005)
- Management of Air Emissions and Ambient Air Quality
  - Environmental Management Act (EMA), Cap 191 (Sections 74, 75, 130-132)
  - Environmental Management (Air Quality Standards) Regulations, (2007)
  - Public Health Act, Cap 336 (2009)
  - Occupational Health and Safety Act, No.5 (2003)
- Management of solid wastes
  - Environmental Management Act (EMA), Cap 191 (Sections 114 – 118)
  - Public Health Act, Cap 336 (2009)
  - Environmental Management (Hazardous Waste Control and Management) Regulations (2009)
- Management of Wastewater and Ambient Water quality
  - Environmental Management Act (EMA), Cap 191 (Sections 61, 62, 123 – 129)
  - Environmental Management (Water Quality Standards) Regulations (2007)
- Management of soil quality
  - Environmental Management (Soil Quality Standards) Regulations (2007)
- Management of noise
  - Environmental Management Act (EMA), Cap 191 (Sections 147)
  - Environmental Management (Quality Standards for Control of Noise and Vibration Pollution) Regulations (2011)
- Management of Land and Land Use
  - Constitution of the United Republic of Tanzania
  - Land Act No. 4 of 1999
  - Village Land Act No. 5 of 1999
  - Land Acquisition Act of 1967
  - Land Use Planning Act No. 6 of 2007
  - National Land Policy (1995)



- Local Government (District Authorities) Act No. 7 of 1982 and Local Government (Urban Authorities) Act No. 8 of 1982
- Land (Assessment of the Value of Land for Compensation) Regulations of 2001
- Management of Public / Occupation Health and Safety
  - The Water Resource Management Act No. 11 (2009) and Water Supply and Sanitation Act No. 12 (2009)
  - The Road Act No. 13 (2007)
  - Occupation Safety and Health Act (2003)
  - Employment and Labor Relations Act No. 6 of 2004
  - Workers Compensation Scheme Act.
- Management of PPPs
  - The PPP Act 2010 (as amended)
  - The PPP Regulations (2015)

### 13.4 Applicable ESMF and RPF

An ESMF dated August 2019, has been prepared for TPPP. The ESMF establishes a mechanism to conduct environmental and social screening and develop ESIA's and ESMPs. The ESMF has been prepared to set out the procedures, the scope and requirements to: conduct the environmental and social screening; to complete the environmental and social assessment; to specify the review process; and the approval and implementation of measures for PPPs to be supported under TPPP. The preparation of a RAP/ARAP is integrated with the environmental and social screening of a PPP set out in the ESMF. The ESMF explains how Tanzania's environmental management legislation and World Bank Safeguard Policies and guidelines on the environment will be addressed by TPPP.

The RPF (a) establishes the resettlement and compensation principles and implementation arrangements, (b) addresses the preparation and implementation of RAPs and ARAPs<sup>13</sup>, (c) describes the legal and institutional framework underlying Tanzanian approaches for resettlement, compensation and rehabilitation, (d) compares the Tanzanian laws and the World Bank's Operational Policy for Resettlement (OP 4.12) and (e) identifies the gaps, (f) defines the eligibility criteria for identification of project-affected persons (PAPs) and entitlements; considering Tanzanian laws and the World Bank OP 4.12, (g) describes the process for the preparation, implementation, monitoring and evaluation (M&E) of Resettlement Action Plans (RAPs) and Abbreviated Resettlement Action Plans (ARAPs), and (h) provides procedures for filing grievances and resolving disputes.

<sup>13</sup> WB's Safeguards Policy OP 4.12 - Involuntary Resettlement states that "where impacts on the entire displaced population are minor, or fewer than 200 people are displaced, an abbreviated resettlement plan may be agreed with the borrower. Impacts are considered "minor" if the affected people are not physically displaced and less than 10 percent of their productive assets are lost."



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## 13.5 Annex D: Environmental and social screening form

Annexure D of the environmental and social screening form of the environment and social management framework (ESMF) prepared in August 2019, has been included below for the Arusha SWM Project.

### PART A: BRIEF DESCRIPTION OF PPP

The proposed Project shall utilize the existing assets (such as, the landfill site and waste management equipment and vehicles) that have been funded under the Tanzania Strategic Cities Project (TSCP), refer IDA CREDIT No. 54600-TZ. Under this the Solid Waste Management component was classified as Category B and accordingly the ESIA has been conducted by the government agency for that component.

In the proposed Project, it is now expected that the ProjectCo shall take over these assets, install new SWM equipment at the landfill site and 'skips' (skip bucket containers) at select waste collection sites spread across the city limits. Therefore, to that extent, the proposed Project is not likely to require extensive land acquisition (it will utilize the existing sites and acquire the right to use of small land parcels for stationing the skips at new secondary transfer stations. The land is expected to be provided by the city council and/or other relevant government agency from the present right of way or government owned land). Therefore, the Project is not anticipated to involve any involuntary resettlement.

The Project does not require any new construction of the land fill site. The Project involves refurbishment of the existing land site fill site and small portion of new construction for the concrete platforms to be constructed to locate the skip at various transfer points. This is not anticipated to have any substantial excavation or quarrying works involved. The material for the construction of these structures shall be procured locally. Therefore, the Project's expected environmental impacts during construction are not significant.

During the operations phase, the PPP Project will manage the operations and maintenance of the land fill site and all the assets. Currently there are CBOs providing waste collection services to households and businesses in 15 wards in Arusha. Once the ProjectCo takes over, collection will be managed by the ProjectCo, which would result in a loss of livelihood for the employees engaged with the CBOs. To effectively mitigate the adverse social impact, the ProjectCo shall work/partner with CBOs under the Project. More details are provided in the following sections.

### PART B: BRIEF DESCRIPTION OF THE ENVIRONMENTAL SITUATION AND IDENTIFICATION OF ENVIRONMENTAL AND SOCIAL IMPACTS

#### ***Describe the location, siting, surroundings (include a map, even a sketch map)***

*Collection centers:* Waste is collected by CBOs, private companies as well as ACC, wherein, CBOs collect waste from 15 wards, private companies collect waste from nine wards and ACC collects waste from remaining one ward as well as from highways, markets and schools from all 25 wards. Five collection points are situated at strategic locations near highways, schools, and markets for collection by the council. Collection from households and other establishments in 25 wards is carried out by CBOs and private players. In total, there are 16 primary collection points at strategic locations and streets within the city. For the proposed PPP Project, the existing skip bucket containers would be utilized and additional skip bucket containers would be required to be added with increase in waste generation over the years.



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**Landfill site:** The Muriet sanitary landfill was developed under the TSCP and was funded by the World Bank. The site is located ~7 km from the city center. It is owned by the council and is currently operational. We confirm the work undertaken under the TSCP is of a high professional standard and the landfill site is highly suitable for the proposed PPP Project. We reviewed the site, and indeed its location is suitable as it is situated away from the city, but at the same time is well connected. Of the total available area of ~29.1 hectares of land and 7 cells for landfill at Muriet, only 2 cells are currently operational. The expected life span of the landfill is 20-22 years. More details are provided in section 3.6.

**Describe the land formation, topography, vegetation in/adjacent to the project area:** More details are provided in section 3.6 and the ESIA conducted for the landfill site under the TSCP. For the small parcels of land to be used for the transfer points, the land is expected to be within urban/rural areas with considerable habitation. The exact location and details would need to be identified and analysed during the ESIA process.

**Environmentally sensitive areas or threatened species:** Are there any environmentally sensitive areas or threatened species (specify below) that could be adversely affected by the PPP?

- Intact natural forests: No
- Riverine forest: No
- Surface water courses, natural springs: No
- Wetlands (lakes, rivers, swamp, seasonally inundated areas): No
- How far is the nearest wetland (lakes, rivers, seasonally inundated areas, sea)?: Not Applicable, as the exact transfer site locations will be identified by the private partner during implementation phase.
- Area of high biodiversity: No, it is not likely as transfer station sites will be areas of habitation.
- Habitats of endangered/ threatened, or rare species for which protection is required under Tanzania national law/local law and/or international agreements: No
- Others (describe): Not Applicable

**Rivers, Lakes and Marine Ecology:** Is there a possibility that, due to construction and operation of the Project, the river and lake ecology will be adversely affected? Attention should be paid to water quality and quantity; the nature, productivity and use of aquatic habitats, and variations of these over time: No

#### **Protected Areas**

- Does the Project area (or components of the project) occur within/adjacent to any protected areas designated by government (national park, national reserve, world heritage site etc.)? No

*If "YES", Natural Habitats (OP 4.04) is triggered and the PPP is ineligible for support under TPPP.*

If the project is outside of, but close to, any protected area, is it likely to adversely affect the ecology within the protected area areas (e.g. interference with the migration routes of mammals or birds)? No

#### **Geology and Soils**



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- Based upon visual inspection or available literature, are there areas of possible geologic or soil instability (prone to: soil erosion, landslide, subsidence, earthquake etc.)? No, not likely to be. However, the exact location is yet to be identified.
- Based upon visual inspection or available literature, are there areas that have risks of large scale increase in soil salinity? No, not likely to be. However, the exact location is yet to be identified.
- Based upon visual inspection or available literature, are there areas prone to floods, poorly drained, low-lying, or in a depression or block run-off water? No, not likely to be. However, the exact location is yet to be identified.

**Contamination and Pollution Hazards:** Is there a possibility that the Project will be at risks of contamination and pollution hazards (from latrines, dumpsite, industrial discharges etc.)? Yes. With the increase in the quantity of waste accepted at the landfill on a daily basis, would lead to an increment in the number of cells being operational at the landfill site. This might lead to an increase in the toxicity of water, leachate, organic and microbial pollution of ground water, if the disposal and treatment methods and equipment are not upgraded simultaneously. This could lead to an impact on soil, surface and ground water. The impact from the effect of leachate and waste water is high and might lead to long term irreversible effects beyond the boundaries of the landfill site.

Poor management of the collection centers, landfill and transportation trucks would result in solid waste pollution along routes and neighborhood. Scavengers and animal/birds can scatter waste leading to pollution. Additionally light waste can become airborne quickly and can spread to areas outside the landfill leading to pollution. However the effect of these impacts can be considered low. Also during upgradation of roads, drains and landfill, equipment and trucks may lead to hydrocarbon pollution as a result of operation of vehicles and equipment or servicing at workshops. This may also be accompanied by soil and water pollution that might result from the spillage of oil and fuel. The effect of these impacts can also be considered as low.

**Landscape/aesthetics:** Is there a possibility that the Project will adversely affect the aesthetic attractiveness of the local landscape? Yes. Although, the landfill site is situated far away from the urban habitation, the location of skips would be within urban habitation and would need to be aesthetically undertaken.

**Historical, archaeological or cultural heritage site:** Based on available sources, consultation with local authorities, local knowledge and/or observations, could the Project alter any historical, archaeological, cultural heritage traditional (sacred, ritual area) site or require excavation near same? No. It is unlikely. As the landfill site is situated far away from the urban habitation and the location of skips would be within urban habitation at a surface level and would need to be aesthetically undertaken.

If "YES", Physical Cultural Resources (OP 4.11) is triggered and the PPP is ineligible for support under TPPP.

#### **Resettlement and/or land Acquisition**

- Will the PPP require land acquisition? No. The existing land fill site is being utilized.

*If "Yes" the PPP is ineligible for support under TPPP.*



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- Will the PPP otherwise result in involuntary resettlement, land acquisition, relocation of property, or loss, denial or restriction of access to land and other economic resources?: No. The existing land fill site is being utilized.

*If “Yes” Involuntary Resettlement OP 4.12 is triggered. Please refer to the Resettlement Policy Framework (RPF) for appropriate mitigation measures to be taken.*

**Loss of Crops, Fruit Trees and Household Infrastructure:** Will the project result in the permanent or temporary loss of crops, fruit trees and household infra-structure (such as granaries, outside toilets and kitchens, livestock shed etc.)? No. The existing land fill site is being utilized.

If “Yes” Involuntary Resettlement OP 4.12 is triggered. Please refer to the Resettlement Policy Framework (RPF) for appropriate mitigation measures to be taken. Mitigation for accidental damage will be addressed in ESMP.

**Block of access and routes or disrupt normal operations in the general area:** Will the Project interfere or block access, routes etc. (for people, livestock) or traffic routing and flows? No. The existing land fill site is being utilized.

#### **Noise and Dust Pollution during Construction and Operations**

- Will the operating noise level exceed the allowable noise limits? No
- Will the operation result in emission of copious amounts of dust, hazardous fumes? Yes.
- Dust and Fumes: The removal of soil, movement of vehicles and operation of heavy machinery during upgradation works at the landfill site will increase the level of dust and emissions in the areas surrounding the landfill site. The upgradation works at road, landfill, drainage, storm water system, leachate collection etc, will involve earth works or excavations and transportation of material. Air pollution occurs due to dust, together with exhaust emissions from excavations, crushing, transportation, as well as emission of exhaust fumes from trucks, machinery and upgradation equipment. Hauling of aggregates from long distances may cause dust pollution.
- Noise pollution: Movement of trucks near collection centers, for unloading skip containers, creates noise pollution for the citizens living in the nearby residential areas. Movement of vehicles and the usage of heavy machinery at landfill site both during upgradation and operations will increase the levels of noise and vibration in the local environment near the landfill site. The effect could cause health problems such as respiratory diseases if there are any inhabitants near the landfill site. However, the site is at a substantial distance from nearest habitation.

**Degradation and/or depletion of resources during construction and operation:** Will the operation involve use of considerable amounts of natural resources (construction materials, water spillage, land, energy from biomass etc.) or may lead to their depletion or degradation at points of source? No. The project only involves rehabilitation of land fill site, upgrading of waste management equipment and construction of small concrete base at the new transfer stations.

#### **Solid or Liquid Wastes**



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- Will the Project generate solid or liquid wastes? (including human excreta/sewage, asbestos): Yes. The Project is for scientific management of solid waste generated in the city. However, during the process of handling solid waste management, some waste may get mishandled. With the increase in the quantity of waste accepted at the landfill on a daily basis, would lead to an increment in the number of cells being operational at the landfill site. This might lead to an increase in the toxicity of water, leachate, organic and microbial pollution of ground water, if the disposal and treatment methods and equipment are not upgraded simultaneously. This could lead to an impact on soil, surface and ground water. The impact from the effect of leachate and waste water is high and might lead to long term irreversible effects beyond the boundaries of the landfill site.
- If “Yes”, does the Project include a plan for their adequate collection and disposal? Yes. The ProjectCo will implement an effective plan for collection and disposal, which is the objective of this Project.

#### ***Occupational health hazards***

- Will the Project require large number (e.g., more than 100) of staff and laborers from outside the local area? No.
- Will the Project require a workers camp? No
- If “Yes”, how many workers are expected to occupy the camp?
- Are the Project activities prone to hazards, risks and could result in accidents and injuries to workers during construction or operation? Yes. There is a potential for accidents and injuries of workers during the normal course of operations.

***Will the Project require frequent maintenance and or repair?*** Yes. The Project will be maintained on an annual basis with routine and periodic repairs to ensure continued quality of the project assets.

#### ***Community engagement***

- Has input from community members and those who may be affected by the PPP been sought? Yes. A community engagement plan has been initiated by the government implementing agency.
- Is there community support for the PPP? Yes



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# 14 Annexure F: Municipal Finance Assessment



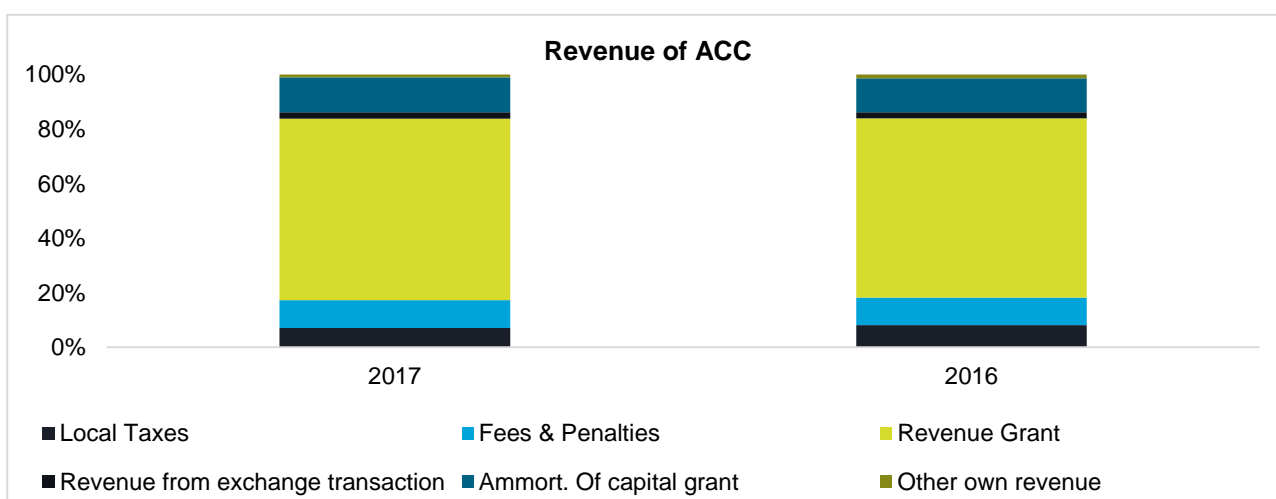
*This section provides an overview of the key revenue sources and major expenditure heads across the city council, and the inferences drawn from the provided information. Revenue and expenditure projections for the next five years have been calculated by extrapolating historical trends over the past years.*

## Revenue trend

Revenues of the Arusha City Council show an increasing trend from TZS 62.4 billion in 2016 to TZS 63.2 billion in 2017. Revenue of ACC majorly comprises local taxes, fees, fines, penalties, and licenses, revenue generated from exchange transactions, amortization of revenue and capital grants, interest income and other own revenues of the council. Over the past two years (2016-17), the revenue grant and capital grant components averaged ~65% and ~13%, respectively, of the total revenue of the council. Local taxes represented ~7.5%; fees, fines, penalties and licenses, 10%; and the remaining came from other sources. The council has been able to increase its share to total revenue for various sources such as fees, fines, penalties and licenses, revenue from exchange transaction, whereas the percentage of revenue from local taxes and other own revenue sources of council decreased by 13% and 23%, respectively.

The service levy tax component is the major revenue source in the local taxes category ranging from ~64% of the total revenue from local taxes in 2016 to ~82% of the total revenue from local taxes in 2017. Additionally, the property tax which served as 29% of the tax revenue in 2016, has been reduced to zero in 2017.

Figure 14-1: Revenue categories 2016-17 (as % of total revenue)



Source: Financial statements FY-2017 of ACC



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Table 14-1: Summary of revenue (2016-17)

Year	Revenue (TZS bn)
2016	62.4
2017	63.2

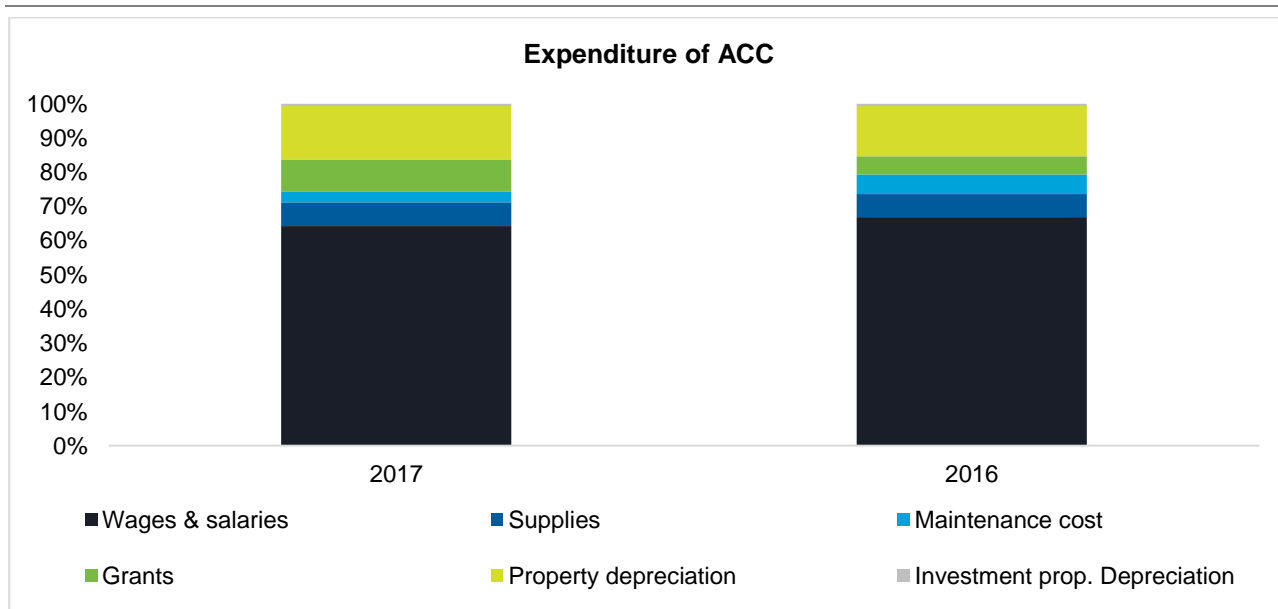
Source: Financial statements FY-2017 of ACC

### Expenditure trend

The expenditure of the council, increased from 2016 to 2017. This can be attributed to the increase in spending on supplies and consumables and due to increase in grants provided by the council. While there has been decreased in wages, salaries, maintenance cost, etc. The spending on supplies has increased from TZS 3.5 billion to TZS 3.7 billion, which is majorly due to increase in spending on medical supplies and legal & regulatory fees paid by the council. The maintenance expenses decreased from TZS 3.3 billion in 2016 to 1.8 billion in 2017. This is mainly due to the decrease in spending on physical infrastructure in 2018. Other heads for expenses for the council are grants and other transfer payments, finance costs, depreciation of plant, property, equipment, impairment of plant, property and equipment and amortization of intangible assets.

From 2016-17, wages, salaries and employee benefits averaged around 65% of expenses; supplies and consumables, around 7%; depreciation of property, plant and equipment, around 15%; and maintenance expenses, around 4-6%. The average surplus was 5.9% of the revenue. The council had a surplus of TZS 4.2 billion in 2016 which has decreased to surplus of TZS 3.3 billion in 2017.

Figure 14-2: Expenditure categories 2016-2017 (as % of total expenditure)



Source: Financial statements FY-2017 of ACC



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Table 14-2: Summary of expenses (2016-17)

Year	Expenses (TZS bn)
2016	58
2017	60

Source: Financial statements FY-2017 of ACC

#### Conclusion

Arusha City Council has a current surplus of TZS 3.3 billion as per the income statements of 2018. However, the average surplus for years 2016 & 2017 is around 5.9% of the total revenue which is insufficient to fund the Project. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained. Additionally, the council has cash and cash equivalents of about TZS 2.6 billion in 2017 which will not be enough to fund the capex for the proposed PPP Project which is TZS 26.0 billion over a 15 year period. The central government would be required to step in providing viability gap funding, if required.

Table 14-3: Summary of revenues, expenses and surplus/deficit from 2016-17:

Year	Revenue (TZS bn)	Expenses (TZS bn)	Surplus(TZS bn)
2016	62.4	58.2	4.2
2017	63.2	59.9	3.3

Source: Financial statements FY-2017 of ACC



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## 15 Annexure G: Institutional review



*The Consultant had shared the checklist with ACC during kick-off meeting to provide the details of Institutional review, but the same has not been provided by ACC, even after multiple follow ups. Hence, the details of the same have not been included in the final pre-feasibility study report.*



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## 16 Annexure H: Project Screening Tool



The Project screening tool (PST) is an Excel-based tool that screens projects to determine their potential suitability for PPP procurement. It has been developed by the World Bank Group Infrastructure, Public-Private Partnerships and Guarantees (IPG), in partnership with the Global Infrastructure Hub (GIH). The PST evaluates a project on six parameters, viz., strategic suitability, preliminary feasibility, risk assessment, PPP suitability, fiscal affordability, and institutional capacity. The PST contains structured questions detailing each of the parameters. The tool helps identify the deficiencies in the project, suggest areas for improvement, and reach an overall conclusion on the suitability of the project for PPP.

Arusha SWM PPP scores 3.38 out of maximum possible score of 5.00 on the six parameters presented in the Project Screening Tool and driven by the following factors. The SWM PPP has a strong case for its strategic suitability and preliminary feasibility, as there is a high demand for the Project from a social and environmental perspective. The SWM PPP Project will have multiple revenue sources such as user charges from various waste generators (households, commercial units, industrial units, institutional units and hospitals) and tipping fee, from private trucks. As per stakeholder consultations and willingness to pay survey conducted with waste generators in Arusha, majority of waste generators are not willing to pay higher user charges.

Being the first of its kind PPP project in Tanzania, it might be challenging to achieve financial closure. Also, the Project is expected to encounter environmental and social safeguard challenges. The institutional capability is also limited as ACC is yet to execute any PPP project and has lack of staff with adequate experience in SWM PPPs.

Table 16-1: PST score based on various parameters

Strategic suitability (10%)	Preliminary feasibility (30%)	Risk assessment (20%)	PPP suitability (20%)	Fiscal affordability (10%)	Institutional capability (10%)	Total score (100%)
5.00	4.24	2.50	2.00	5.00	2.08	<b>3.38</b>

Table 16-2: PST evaluation based on various parameters

Parameters	Questions	Final pre-feasibility
Strategic Suitability	Is there a consensus on users' and stakeholders' expectations from the project?	Yes
	Does the technical solution clearly address the service need in a cost-effective and affordable manner?	Yes
	Is the user base identified for the project in terms users, geography, growth trends etc.?	Yes
	Is there a clear articulation and substantiation of the service deficiency?	Yes
	Is there a clear description of the technical features of the project?	Yes
	Are the project outputs defined, measurable and verifiable?	Yes
	Does the scoping cover the entire term of the project?	Yes



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Parameters	Questions	Final pre-feasibility
	Will the project lead to an improvement in quality of life for its citizens? For example, by way of reduced costs of living or improved livability for the citizens.	Yes
	Does the project have high strategic importance for the region and could enable significant private sector investments in the economic development of the region?	Yes
	Has there been an assessment of all possible technical solutions to address the identified need?	Yes
Preliminary Feasibility	Is the project likely to be based on technology that has been proven commercially in similar environments previously?	Yes
	Is the project's scope of work comparable to other reference projects?	Yes
	Are the technical cost estimates in line with required output specifications?	Yes
	Are the life cycle costs for major components of the project - reasonable and affordable?	Yes
	Has a site-suitability assessment been completed for the proposed project site?	Yes
	Is the proposed site accessible with any potential challenges during construction being manageable?	Yes
	Is there a reliable initial environmental analysis related to the project?	Yes
	Will the project have any significant negative impact on any natural resources or protected land?	No
	Is the identified environmental management strategy, or its related approvals, likely to result in uncertainties or delays that could impede the implementation of the project?	No
	Will the completed project likely to be carbon neutral or net carbon negative, in terms of GHG emissions?	Uncertain
	Will the design and systems of the project be resilient and adaptive to changes in climate conditions or other significant long-term changes in operational or environmental conditions?	Uncertain
	Will the project design suitably address the impact of potential natural or human-induced hazards in the region?	Yes
	Is there a reliable initial social analysis related to the project?	Yes
	Will the project have a significant adverse impact on health or quality of life of users, workers, or the local population?	No
	Is the project likely to be socially sustainable or have manageable social impacts?	Yes
	Is there support for the project from affected communities and key stakeholders?	Yes
	Will the identified social management strategy, or its related approvals, result in uncertainties or delays that could impede the project implementation?	No
Is the economic analysis based on realistic assumptions and historical data?	Yes	
Will communities within the area of influence of the project be able to share direct or indirect economic benefits from the project?	Yes	
Is there a preliminary financial analysis based on assessment of net present value or internal rate of return of project's cash flows?	Yes	





Parameters	Questions	Final pre-feasibility
	Are the demand or volume projections backed by surveys or demand forecasting models using reliable historical data?	Yes
	Are the financing assumptions comparable to similar projects? Such as, the debt-to-equity ratio, interest rate and tenure of debt, and cost of equity.	Yes
Risk Assessment	Have similar PPP projects achieved financial close in the country or region?	No
	Are there financiers who will be, or have expressed interest in the PPP?	Skip
	Will financial close be a condition precedent to the effectiveness of the PPP agreement?	Yes
	Can it be reasonably expected that financial close will not get delayed to materially affect the conditions of effectiveness of the PPP Agreement?	Yes
	Is the project likely to be based on technology that has been proven commercially in similar environments previously?	Yes
	Is the proposed site accessible with any potential challenges during construction being manageable?	Yes
	Will the project be able to source the required skills in relation to the project's construction, operations and maintenance (as applicable)?	Yes
	Does the project scope allow the private sector to efficiently manage the design, construction and commissioning risks?	Yes
	Will there be a strong system to manage contractor/sub-contractor performance and construction related challenges?	Yes
	Will there be independent reviews of designs, monitoring of construction progress and oversight during testing and commissioning phases?	Yes
	Does the Project scope clearly include a well-defined, measurable, and verifiable O&M component?	Yes
	Will there be a strong system of safeguards, incentives and liabilities to manage contractor/sub-contractor/ equipment supplier performance during O&M?	Uncertain
	Will the project be able to source the required skills locally or from overseas, in relation to the project's construction, operations and maintenance (as applicable)?	Yes
	Will the PPP have a ready baseline of demand or offtake that has been well established either through historical data or through firm off-take commitments or through an exclusivity of service area?	Yes
	Are there precedents of similar projects in the country or in the region, where the actual usage or off-take from the project facility in the initial years has been at least 85% of the originally projected usage or off-take?	Uncertain
Are there competing projects in the defined market that could impact the ramping up of demand for this PPP project?	No	
Is there an indication that user charges will be affordable to users? Such as, through an assessment of the ability and willingness to pay of the users or through benchmarking with similar projects.	Yes	





Parameters	Questions	Final pre-feasibility
	In case of delays in ramping up of demand, will the private sector have some flexibility in repricing tariffs to manage and off-set demand shortfalls in any given year; or the government would provide some level of cash deficiency support or assurances?	No
	Is there a transparent and well-defined process for setting user charges and managing their increase?	Yes
	Is there a credible environmental and social impact analysis of the PPP?	Yes
	Are costs of mitigating the environmental and social impacts of the project considered in the PPP?	No
	Does the private sector have the ability to manage the environmental and social impact mitigation measures envisaged in its scope?	Yes
	Will the private sector take on environmental and social risks applicable after the contract signing date and not prior period liabilities?	Yes
	Will there be contractual measures to ensure that the project financials are reset in the event of delays in executing mitigation for reasons beyond the control of the project company?	Uncertain
PPP Suitability	Does the project size and contract duration have the potential to maximize private sector efficiency?	Yes
	Does the PPP adequately integrate responsibility of design, build, finance with operations and maintenance risks under one party that enables the private sector to derive efficiency gains from better management (than what the public sector could have achieved) of the whole-of-life-cycle costs of the project?	Yes
	Is there a potential for the private sector to operate and manage the project more efficiently than the public sector to decrease the project's whole-of-life-costs?	Yes
	Is there a potential for a private operator to generate higher revenues than the public sector would have through better utilization of the project assets?	Yes
	Are the modeling assumptions backed by historical or empirical data?	Yes
	Will the VFM for the project remain greater than the threshold rate in case of stress (or low) case scenario?	Yes
	Is there a favorable response expected from the private sector towards the project? For example, as gauged by the contracting agency through preliminary market consultations or similar investor interactions.	Skip
	Have similar PPP projects been successfully implemented in the past in the country or in the region?	No
	Is the project eligible for government funding support?	Skip
Is the project eligible for funding/ guarantees from multilateral/ donor agencies?	Skip	
	Is there a PPP focal point within the contracting agency?	Yes







Parameters	Questions	Final pre-feasibility
Institutional Capability	Does the contracting agency have the capacity to manage the PPP project preparation and procurement processes?	No
	Does the contracting agency or its key personnel have previous experience with PPPs?	No
	Will the contracting agency have access to transaction advisors and/or consultants for project preparation and procurement?	No
	Does the proposal have a project plan on the next stages of the project with identified deadlines and responsibilities allocated?	No
	Has the contracting agency budgeted funds, or does it have access to funds, to complete project preparation? This includes the costs of preparing required studies, securing land, resettlement costs, and environmental and social impact cost mitigation.	No
	Does the project plan incorporate a strategic communications plan to engage with internal and external stakeholders of the project during the next stages of the project?	Yes
	Are there any constraints that could delay the project from getting to the market?	No
	Has the contracting agency been effective in managing key contractual risks and monitoring performance of PPP projects during their operations phase?	Uncertain
	Will the PPP project have independent engineers or consultants to oversee the project's construction?	Yes
	Will the contracting agency hire independent consultants or advisors to periodically assess project performance during the operations phase?	Yes
Will the contracting agency insist on project level disclosure to the public in relation to project's performance and in meeting contractual obligations from time to time?	Skip	



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