Tanzania PPP Support Program

# Client – World Bank, PPP Center and PPP Node

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

Deliverable – Final pre-feasibility report for Dodoma SWM Project

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Consultant Team

Lead Partner

CRISIL Infrastructure Advisory
An S&P Global Company

Sub-consultants

Knight Frank CLYDE&CO

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# 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 |

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| Abbreviation | Full-form |
|---|---|
| IRR | Internal rate of return |
| KPI | Key performance indicators |
| LCC | Lifecycle cost |
| 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 |

| Abbreviation | Full-form |
|---|---|
| TPPP | Tanzania Public Private Partnership Program |
| TPSP | Tanzania PPP support program |
| TRA | Tanzania Revenue Authority |
| 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



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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 projects (SWM) 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 Dodoma. The Project aims at upgrading the solid waste management lifecycle in the city of Dodoma 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, regulatory and institutional prefeasibility 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 the towns of Mwanza, Tanga, Mbeya, Dodoma, Arusha, Kigoma-Ujiji and Mtwara-Mikindani.

The works supported under the TSCP project in these cities involved the construction of sanitary landfill, solid waste collection centers, 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.

Major infrastructure has already been created under TSCP, as a result of which additional investment required for our Project is not as high, as it would have been, had infrastructure not been created under TSCP. For the PPP Project, capex during the first year, in Dodoma is ~65% of the capex incurred as part of the TSCP project. This percentage is higher in case of Dodoma, as compared to that in the towns of Arusha, Mbeya and Mtwara

as the number of rural wards to be covered under the Project in Dodoma is significantly higher as compared to that in the other three towns. Additionally, under TSCP infrastructure was created only for the urban wards.

## Strategic case

The estimated population of Dodoma in 2019 is 543,554 as per data provided by City Council of Dodoma (CCD). There are 41 administrative wards within the city, of which 21 wards are urban wards and the remaining 20 wards are rural wards. CCD provides SWM services in 21 wards covering urban areas. Out of these 21 wards, eight wards are covered by a private company, Green Waste, which is responsible for all SWM services such as collection, transportation and disposal of waste at landfill. The remaining 13 wards are covered by local community based organizations (CBOs) that are responsible for collection of waste.

Dodoma generates about 350 tons of solid waste daily, of which 236 tons is generated in the urban wards and 114 tons is generated in rural wards. The solid waste generated in the 20 rural wards is not collected. In the urban wards, of the 236 tons generated, 150 tons are collected for disposal at the landfill sites. The waste collection rate, considering waste generated in all the 41 wards, stands at ~43%. Currently, there are several infrastructure and service level deficiencies underpinning the Project's business need such as, deficient SWM services coverage, low waste collection rates, low handling capacity (equipment, vehicles and staff), absence of waste segregation at source, inefficiencies in waste collection services by CBOs and public health hazards.

The main stakeholders of the PPP Project are CCD (as the implementing agency), PPP Node (for 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 to both the waste generators as well as the casual labor and staff. The upgraded SWM value chain would provide improved quality and coverage of SWM services, safe and hygienic services and 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 Dodoma. The Project would result in 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 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 their working arrangements; (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 output specifications. We have formulated a comprehensive set of mitigation measures to enable the local government authority (LGA) in 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 three 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 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 & transport (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 severe 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 Dodoma is small and would therefore requires 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 fees. 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 CCD'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 Dodoma, 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, CCD is incurring an annual expenditure of TZS 651 million on SWM services, while the total revenue of council is TZS 432 million. Thus, once the Project is implemented, CCD will save on its net expenditure (TZS 219 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 include incremental income for casual labor and staff, savings for the council, savings in healthcare expenses and increase in employment opportunities for the casual labor and staff, reduced air, water and soil pollution, and odour control, among others. Similarly, the economic benefits for the consumers (waste generators) would be savings in healthcare expenses of households, reduction in soil, water and air pollution, and odour control, improved hygiene, cleanliness and

aesthetics in the city. The economic benefits for the developer (ProjectCo) would be the profit after tax (PAT). With an economic rate of return (ERR) of 38.2%, 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 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 CCD and the ProjectCo under the proposed PPP Project. The CCD 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 Dodoma, 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 CCD 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 for the first year is TZS 6,296 million (USD 2.7 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 a PPP 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).

**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 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 CCD 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 5% revenue share to CCD. 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 6,296 million and over a 15 years period equals TZS 38,832 million. With a project IRR of 19.7% and equity IRR of 20.2% for the 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 5% revenue share to the CCD) 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 5% revenue share to the CCD, (the Consultant has not considered 5% revenue share to CCD 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 5% revenue share to CCD 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 | 6,296 | 38,832 | 20.2 |
| Option 1 - Only C&T | 3,749 | 29,049 | 20.5 |

| Scenario | Capex (first year) TZS million | Capex (over 15 years) TZS million | Equity IRR (%) |
|---|---|---|---|
| Option 2 - Only landfill | 2,547 | 9,783 | 19.5 |

*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 the waste generators in Dodoma are not entirely convinced of the need for higher user charges for waste collection services.

Considering cost recovery for the ProjectCo and 5% of revenue to be shared with CCD (for integrated operations and only C&T), the user charges for urban households would need to be increased by ~45% (from TZS 4,000 to TZS 5,800 per month). The user charges for rural households have been set at TZS 2,000 per month (currently no user charges are levied). The user charges for all other waste generators such as industries, institutions, etc. would need to be increased by 35-43%). In addition, all user charges would be revised by 25% every three years and 5% of the revenue earned by the ProjectCo would be shared with CCD. 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 CCD) | Proposed user charges and tipping fees | | |
|---|---|---|---|---|
| | | Integrated | Only (C&T) | Only landfill |
| Urban households – CBD area (per month) | 4,000 | 5,800 | 5,800 | - |
| Urban households – Non CBD area (per month) | 4,000 | 5,800 | 5,800 | - |
| Rural households (per month) | - | 2,000 | 2,000 | |
| Commercial units (per month) | 10,000 - 25,000 | 14,300 - 35,750 | 14,300 - 35,750 | - |
| Industrial units (per month) | 100,000 | 135,000 | 135,000 | - |
| Institutional units (per month) | 100,000 | 135,000 | 135,000 | - |
| Hospitals (per month) | 100,000 | 100,000 | 100,000 | |
| Tipping fee per ton from private transfer trucks | 10,000 | 15,000 | - | 15,000 |
| Tipping fee per ton from CCD's transfer trucks[1] | - | - | - | 12,000 |
| Tipping fee per ton from ProjectCo's transfer trucks[2] | - | - | -12,000 | - |

*Source: Consultant*

[1] This tipping fee is applicable in the case of only landfill, payable either by CCD or a C&T operator (private player) to the ProjectCo.
[2] In case of only C&T, tipping fee of TZS 12,000 per ton of waste has to be paid by the ProjectCo to CCD or to the landfill operator for disposing waste at the landfill site. Since, it is an operational expenditure it is depicted by a negative sign.

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 20.2%, 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 5% of the revenue earned with the CCD. In addition to the base case the Consultant has evaluated two additional charge scenarios testing the impact of change in user charges, impact of change in user charges escalation period and impact of change in the percentage of revenue to be shared with the ProjectCo. The base case and additional scenarios have been presented in the table below.

*Table 1-3: Additional scenarios for the integrated option*

| Particulars | Base case | Scenario 1 | Scenario 2 |
|---|---|---|---|
| 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 collection of waste | 21 | 21 | 21 |
| Number of rural wards covered for collection of waste | 20 | 20 | 20 |
| Role of ProjectCo | Integrated | Integrated | Integrated |
| Monthly user charges - urban households- CBD (TZS) | 5,800 | 4,000 | 5,800 |
| Monthly user charges - urban households- Non-CBD (TZS) | 5,800 | 4,000 | 5,800 |
| Monthly user charges from rural households (TZS) | 2,000 | Not levied | 2,000 |
| Average increase in user charges for other waste generators | 35%-43% | 0% | 35%-43% |
| User charges escalation period (in years) | 3 | 3 | 5 |
| User charges escalation rate (in %) | 25% | 25% | 25% |
| % revenue share by ProjectCo with LGA (in %) | 5% | 0% | 0% |
| Total Project capex over 15 years (in TZS mn) | 38,832 | 38,832 | 38,832 |
| Equity IRR (in %) | 20.20% | 19.90% | 20.50% |
| Agreement period (in years) | 15 | 15 | 15 |
| TZS subsidy per ton per day to be provided by LGA | Not required | 20,000 | 7,250 |
| Annual increment in subsidy (in %) | Not required | 5% | 5% |
| Subsidy in Year 1 (in TZS mn) | Not required | 2,331 | 845 |
| Subsidy in Year 5 (in TZS mn) | Not required | 4,133 | 1,498 |
| Subsidy in Year 10 (in TZS mn) | Not required | 6,619 | 2,399 |

*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, 5% of revenue earned by ProjectCo will be shared with CCD and no subsidy is required to be paid by the CCD to the ProjectCo. However, for it to be implemented, 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 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 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. However, it is to be noted that the CCD would be required to pay a subsidy of TZS 20,000 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 CCD to ProjectCo in year 1 is TZS 2,331 million, in year 5 is TZS 4,133 million and in year 10 in TZS 6,619 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 CCD in comparison to the base case. The CCD will be required to pay a subsidy of TZS 7,250 per ton per day to the ProjectCo, which would increase by 5% per annum, to factor in the 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 CCD to the ProjectCo in year 1 is TZS 845 million, in year 5 is TZS 1,498 million and in year 10 is TZS 2,399 million. Under this scenario the expenditure to be incurred by CCD would be lower as compared to the expenditure to be incurred under Scenario 1. However, given the limited financial capability of CCD, it would also be difficult for CCD to provide this subsidy.

The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of CCD 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 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 Dodoma. 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

Dodoma SWM PPP scores 3.33 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 Dodoma, majority of waste generators are not entirely convinced of the need for higher user charges for waste collection services.

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 CCD is yet to execute any PPP project and has lack of staff with adequate experience in SWM PPPs. For further details refer to Section 16.

## Conclusions and next steps

Our rigorous, comprehensive and multi-disciplinary analysis confirms that the proposed PPP is strategically, economically, commercially, financially and managerially viable wherein the user charges are set at cost recovery level along with a 5% revenue share to CCD.

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 CCD. The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of CCD with their management and councilors. In summary, 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 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.

# 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. These projects 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 thus 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 Dodoma for CCD is one of the eight projects.

## 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:

| | |
|---|---|
| CRISIL An S&P Global Company | 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. |
| CLYDE&CO | 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. |
| Knight Frank | 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. |

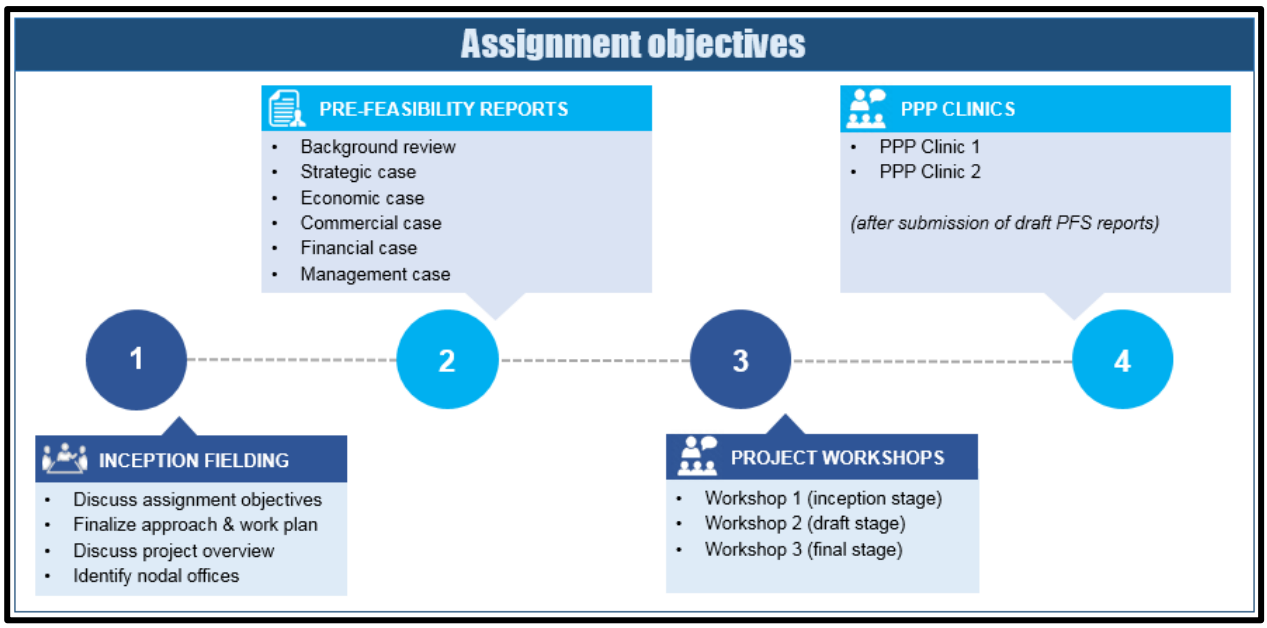
## 2.3 Objectives

Project objective

The overall objective of the Project is to improve the solid waste management system in the city of Dodoma. The Project involves upgrading the existing processes for collection, transportation 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 if 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.




*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 pre-feasibility 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.

*PPP clinics:* After conducting the second set of workshops for the projects the Consultant conducted 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 |

## 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 maket 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.

# 3. Strategic case

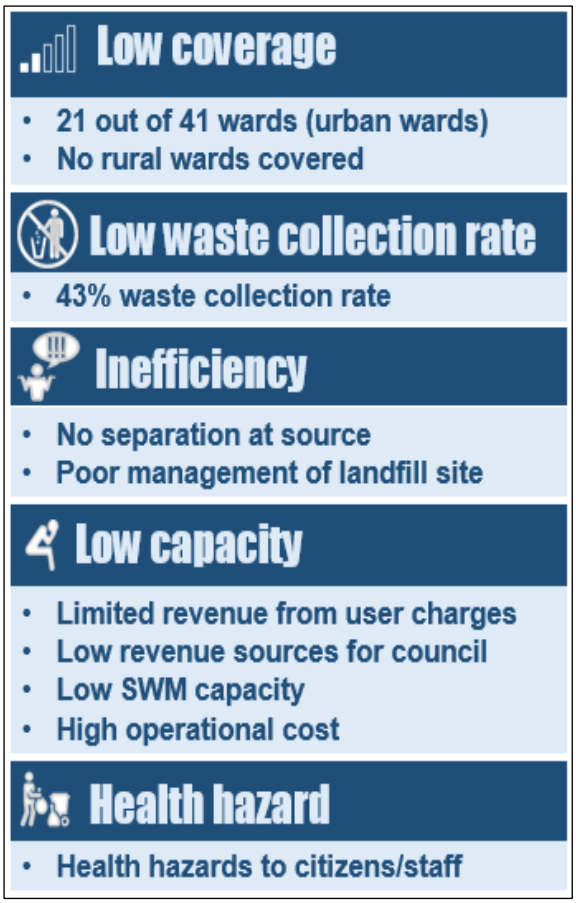
*This chapter presents the strategic case underpinning the proposed solid waste management Project in Dodoma. It details the Project's rationale/ objective and its economic benefits. It also covers the roles and responsibilities of the various stakeholders of the Project and the existing arrangement 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 underpinning the Project's business need.

Deficient SWM coverage

Out of a total of 41 administrative wards within the city, 21 wards are urban wards and the remaining 20 wards are rural wards. CCD provides SWM services in 21 wards covering urban areas. Of these 21 wards, eight wards are covered by a private company, Green Waste responsible for all SWM services such as collection, transportation and disposal of waste. The remaining 13 wards are covered by local CBOs that are responsible only for collection of waste. The solid waste generated in the 20 rural wards is not collected. The residents in these 20 wards are either burning their waste or burying the waste in pits in an unsafe and uncontrolled manner thus resulting in unacceptable public health and environmental issues.




Low waste collection rates

Dodoma generates about 350 tons of solid waste daily (from urban and rural wards), as per a baseline study conducted in 2015. Of this, 236 tons is generated in the urban areas covering 21 wards. The solid waste generated in the rural areas is not collected at all. In the urban area, of the 236 tons generated, 150 tons is collected for disposal at the landfill sites. The waste collection rate, considering waste generated in all the 41 wards, is ~43%.

We expect the quantum of waste generated will increase to ~570 tons in five years, up to ~741 tons in 10 years and up to ~964 tons in 15 years (depending upon the percentage of population increase as well as the per capita increase in the quantum of waste generated). If the waste collection rates remain at the current levels, it would lead to increase in illegal burning/ unsafe disposal of waste in pits. Uncollected waste would be piled

up in localities, leading to stench (foul smell) and posing health and environmental hazards to the community at large.

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, consisting of a chairman, a secretary and other 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.

The CCD, Green Waste (private player) and the CBOs do not have adequate manpower, equipment and technology to manage solid waste comprehensively and in accordance with international environmental standards. In order to collect waste, Green Waste and the CBOs use their own equipment, which include hand-push carts, wheel barrows, litter bins, tractors, motorcycles, tricycles, etc. to take the waste to 61 skip bucket containers located in 21 wards. Green Waste has three trucks of 20-ton capacity each, whereas the council has four trucks of capacity 12 tons each. The council also has two tipper trucks and one small truck as well. These equipment and vehicles are not enough to manage the entire solid waste generated in the municipality. The council has 124 drivers and waste pickers employed in the collection and transportation phase, and 32 employees manage disposal at the landfill site. More workers and equipment are needed to increase the waste collection rate as well as to cover all the wards and all households and establishments in each ward.

No separation at source

There is no segregation of waste at the source by households and other waste generators. Hence, the 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.

Management of the landfill site

The Chidaya 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 the year 2017 after the project completion. The landfill is located ~around 15 km from the city center and is about 48 hectares in size, of which currently only 20 hectares is operational at the landfill site. TSCP involved the construction of the Chidaya 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.

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.

Limited revenue collection from user charges

User charges are collected primarily by Green waste and CBOs from households, commercial units, institutional units, industrial units, hospitals, petrol pumps etc. Since, CBOs are small informal groups, they do not formally report the revenue generated from collection of user charges. Additionally, these user charges do not generate sufficient revenues for Green Waste and CBOs. The residents also seem unwilling to regularly pay for their waste collection and prefer burning or unsafe burying of waste in pits to avoid these user charges.

Low revenue sources for council

The CBOs load skip containers with solid waste collected from various establishments such as households, markets, business centers, institutions, industries, etc. Once the skip container is full, they unload the skip container in the transfer trucks at collection centers and then pay TZS 50,000 per skip container to the council. These transfer trucks are managed by the council. The CBOs sometimes delay their payment to the council and as a result the latter faces cash flow problems. Additionally, trucks owned by Green Waste and other private establishments such as academic institutions and Bank of Tanzania also enter the landfill site to dispose solid waste. Tipping fee at the gate is TZS 10,000 per ton. These are two revenue sources accruing to the council. In sum, these are the only two sources that generate income from SWM services for the council. Currently, CCD is earning a revenue of TZS 432 million per year through SWM services.

High operational cost

A challenge faced by the council is the high level of operational costs. Some areas are far away from the council and the landfill site thus resulting in high transportation costs. Additionally on the landfill site, TZS 1.5 million is paid per day as O&M cost and TZS 50 million is used every 3 months for repair and maintenance of all equipment such as compactors, skip loaders, etc. Insufficient budget for operation and maintenance as well as for purchase of solid waste equipment affects the timely delivery of services leading to deficient SWM at the transfer stations, thus underpinning the business need for the project. Currently, CCD is spending TZS 651 million per year on SWM services.

| | | |
|---|---|---|
|  |  |  |
| Waste collection point | CBO members at collection points | Tipper truck |
|  |  |  |
| Waste transfer tricycle | Recyclable waste at recycling plant | Landfill site |

## 3.2 Project objectives

The Project aims at upgrading the existing processes for collection, segregation, 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 rate. 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 41 wards in Dodoma (including the 20 rural wards) 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 which 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 amalgamating 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 CCD as further explained in detail under the Section 3.3.

Increase in collection rates

Currently, the waste collection rate in Dodoma stands at ~43%, wherein only 150 tons are collected out of a total of 350 tons generated on a daily basis. The PPP Project aims to achieve a high level of waste collection and 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

from households are low and an increase in bill collection rates to 80% 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 revenues through bill collection. Additionally, households and other waste generators in rural wards would also contribute to an increase in waste collection and bill collection rates.

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 also at the landfill site. 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, because 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

For SWM services in Dodoma, major infrastructure has already been created under TSCP, as a result of which additional investment required for the Project is not as high, as it would have been, had infrastructure not been created under TSCP. For the PPP Project, capex during the first year, in Dodoma is ~65% of the capex incurred as part of the TSCP Project. This percentage is higher in case of Dodoma, as compared to that in towns of Arusha, Mbeya and Mtwara as the number of rural wards to be covered under the Project in Dodoma is significantly higher as compared to that in the other three towns. Additionally, under TSCP infrastructure was created only for the 21 urban wards and not for rural wards.

Currently, Green Waste and CBOs are engaged in the process of collection of waste from 21 urban wards in the city of Dodoma. Green Waste and CCD lack staff to carry waste from the collection centers to landfill sites. Therefore, more workers are needed to increase the waste collection rate as well as to cover all the wards and all households and establishments under a particular ward. Additionally, the council does not have sufficient equipment, machinery and vehicles to cover all the wards. Therefore, more staff, equipment, machinery and vehicles for the collection, transportation and landfill processes are required.

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). The higher capacity trucks (15 tons) have been considered as these can cover two skips at a time. For the landfill operations, 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 casual labor and staff the ProjectCo would add 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 2017, 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 number of machinery and equipment and hiring of adequate number of staff for the management of landfill.

Active community participation

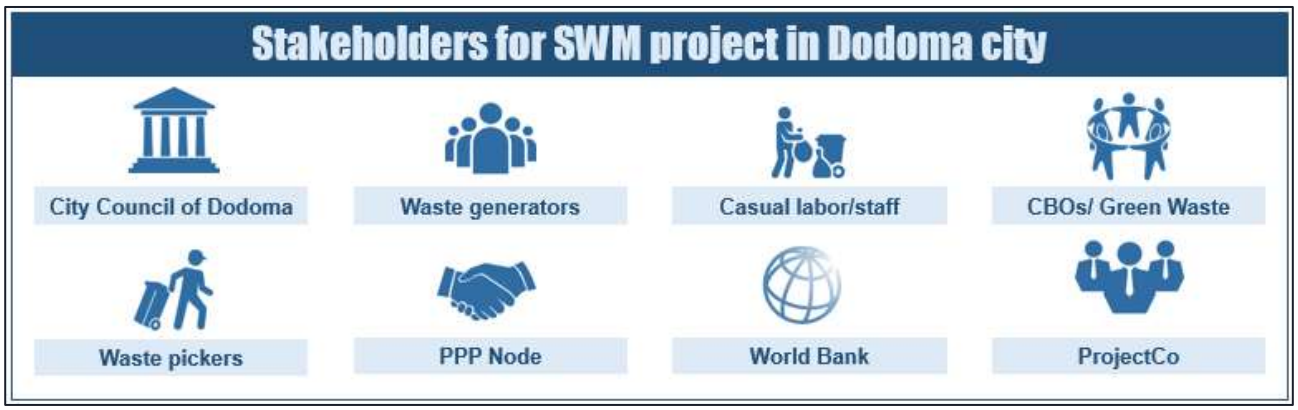
Public participation is crucial to the success of solid waste management projects. The proposed Project envisages creating public awareness, fostering effective community participation, transparent and clean administration, introduction of citizen charters and accountability at all levels.

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

A main objective of the proposed Project would be 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 Dodoma.



City Council of Dodoma

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 CCD in conducting market sounding for the Project and reaching out to investors and developers. Additionally, PO-RALG will be providing technical assitance to CCD 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 pre-feasibility 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 13 CBOs providing waste collection services to households and businesses in Dodoma city. Almost all the CBOs have minimum 10 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.

- *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 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 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 CCD. 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 CCD intends to support both the ProjectCo and the CBOs to achieve better waste collection services for the city.

Staff/ casual labors

Staff/casual labors 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 Dodoma. The current staff/casual labor of the council will need to be integrated with the ProjectCo. While the casual labor of CCD could be integrated with the ProjectCo due to short contracts of 3 months duration, the permanent staff of CCD 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 the future need.

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, the waste pickers 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.

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 the 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, Green Waste is a private player engaged in the process of collection, transportation and disposal at eight wards in the city. Once the PPP Project is deployed, the current SWM by Green Waste in eight wards will cease to exist. Green Waste can bid for the proposed PPP Project for the entire 41 wards in the city.

## 3.4 Strategy and sector review

This section provides a brief overview of solid waste management, in CCD and other councils in addition to explaining the 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, Arusha, Kigoma-Ujiji and Mtwara-Mikindani. Works supported under the TSCP project in Dodoma involved the construction of the Chidaya 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[3] has been handed over to the CCD.

Solid waste management in other councils

*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 wards are served by CBOs, wherein, only waste collection 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.

*Arusha City Council (ACC):* Out of a total of 25 administrative wards in the city, the Arusha City Council provides SWM services in all wards covering urban and rural areas, of which 15 wards are covered by CBOs and nine wards by private companies. For ACC, 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):* The Mtwara-Mikindani Municipal Council 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

[3] Tipper trucks, skip containers, skip masters, wheel loaders, bulldozers, weighbridge, excavator and compactor

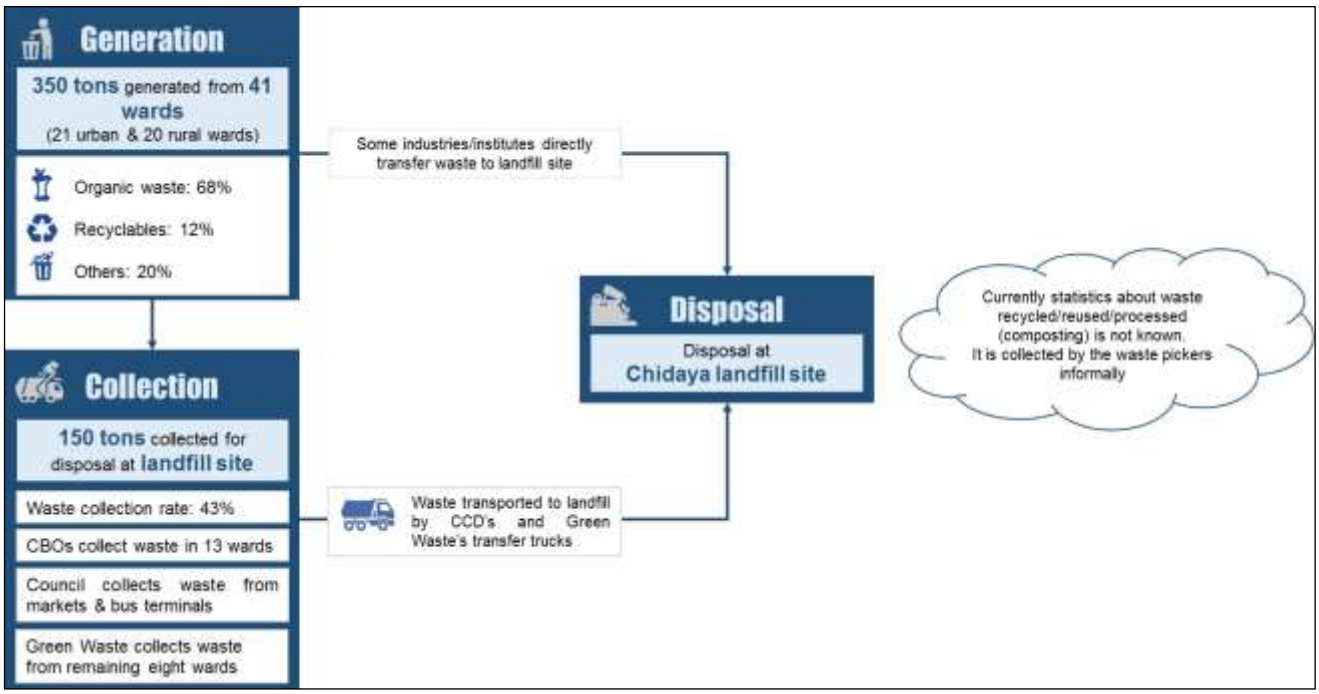
TDV 2025 targets transforming Tanzania into a middle-income country. The strategic direction of Tanzania's second five year development plan (FYDP II) is to ensure that Tanzania is characterized by planned and serviced urban settlements with functioning town planning procedures, including improved solid 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 the SWM in Dodoma.

*Figure 3-1: Existing SWM arrangement in Dodoma*




SWM coverage

Out of a total of 41 administrative wards within the city, 21 are urban wards and the remaining 20 are rural wards. CCD provides SWM services in 21 wards covering only the urban areas. Of these 21 wards, eight wards are covered by a private company, Green Waste responsible for all SWM services such as collection,

transportation and disposal. The remaining 13 wards are covered by local CBOs that are responsible only for collection of waste. The council manages the transfer to the landfill site. The solid waste generated in the 20 rural wards is not collected at all. The residents in these 20 wards are either burning their waste or burying the waste in pits in an unsafe and uncontrolled manner thus resulting in unacceptable public health and environmental issues.


Solid waste generation

Dodoma generates about 350 tons of solid waste daily (from urban and rural wards), as per a baseline study conducted in 2015. As of 2015, the waste generation rate stands at 0.6 kg per capita per day. Out of a total of 350 tons, 236 tons is generated per day in urban areas. Out of a total of 236 tons generated in urban areas, 150 tons is collected for disposal at landfill sites. Solid waste generated per day according to different waste generators is provided in the table below. 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 Dodoma*

| Waste generator | Waste generation per day (Tons) | Number | Waste generated per unit (Kg/unit) |
|---|---|---|---|
| Households (urban) | 189.6 | 62,469 | 3.04 |
| Households (rural) | 18.4 | 38,358 | 0.48 |
| Commercial units | 62.0 | 1,098 | 56.5 |
| Institutional units | 30.0 | 635 | 47.2 |
| Industrial units | 35.0 | 102 | 343.1 |
| Hospitals | 2.1 | 69 | 30.0 |
| Others | 12.9 | - | - |

*Source: City Council of Dodoma*

Solid waste collection

Solid waste collection is done by Green Waste and CBOs using hand push carts, tractors, motorcycles, tricycles and then they transport the waste to 61 skip buckets located in 21 wards. CBOs use tricycles, hand pushcarts, wheel barrows, etc. to take waste to skip containers. Once full the skip container is transferred to council's transfer trucks for disposal at landfill site and the CBOs pay TZS 50,000 per skip container to the council. Green Waste does door to door waste collection. For street cleaning, litter bins are located alongside roads and streets. From households and commercial establishments they collect waste driving trucks door-to-door. The council collects waste only at markets and bus terminals. Out of 236 tons of solid waste generated at 21 urban wards, 150 tons is collected for disposal at the landfill site. 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 68% of the total waste generated, whereas recyclables and others together form the remaining 32%.

*Table 3-2: Waste composition in Dodoma City*

| Waste composition in Dodoma | Type of waste | Composition (%) | Overall (%) |
|---|---|---|---|
| Organics | Organic waste | 68% | 68%[4] |
| Recyclables | Plastic | 7% | 12% |
| | Glass | 3% | |
| | Metal | 2% | |
| Others | Textile | 4% | 19%[5] |
| | Paper | 9% | |
| | Wood | 3% | |
| | E-waste | 1% | |
| | Inert waste | 2% | |

*Source: City Council of Dodoma*

Additionally, trucks belonging to Green Waste and other private establishments such as academic institutions and Bank of Tanzania also enter the landfill site to dump solid waste and pay TZS 10,000 per ton as tipping fee.

Solid waste transportation

Green Waste has in total three transfer trucks, having a capacity of 20 tons each, each of which make about five trips a day to the landfill site. The council owns 4 transfer trucks (12 tons capacity each), each of which make three to four trips a day to the landfill site. On an average, each transfer truck travels ~120 km per day.

[4] As per CCD

[5] The percentage of recyclables and others as a percentage of total waste generated has been calculated by benchmarking it with the waste generated in other councils.

Additionally as mentioned above, some institutes and other private establishments collect their own waste which is transported directly to the landfill site and is charged TZS 10,000 per ton as tipping fee.

Solid waste treatment at the landfill site

Officially opened in the year 2017, the sanitary landfill was constructed and was funded by the World Bank. The landfill site is about 48 hectares in size, of which only 20 hectares is operational at the landfill site. The expected life span of the landfill is 15-20 years. The waste received at the landfill must be weighted, leveled, disposed, compacted and filled with the soil. The Chidaya sanitary landfill receives and handles non-hazardous solid waste daily from 2:00 am to 12:00 pm. The waste received at the landfill is weighted, leveled, disposed, compacted and filled with the soil. Approximately about 120-150 tons of solid waste are handled daily at the landfill from different sources of waste production such as households, markets, shops, industrial areas, as well as from 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, Green Waste & CCD | CBOs, Green Waste & CCD |
| Transportation | Green Waste & CCD | Green Waste & CCD |
| Landfill management | CCD | CCD |

*Source: Consultant*

Revenue sources

*Revenue from user charges*: User charges are collected primarily by Green Waste and CBOs from households, commercial units, institutional units, industrial units, hospitals, petrol pumps, etc. Since, CBOs are small informal groups they do not report the revenue generated from collection of user charges due to tax implications. Therefore, CBOs do not share the revenue collected, by user charges, with the council. Currently, the user charges are revised every four years and there is no specific percentage of escalation. The percentage of escalation is decided by mutual agreement. The CBOs collect user charges once every week whereas Green Waste collects user charges once every two weeks. However, the actual frequency of collection might differ depending upon the availability of users. It is upon the users to pay either a specific percentage of the monthly user charges as per the bye-laws or pay the entire amount in one go. Also, there is an understanding between hotels and Green Waste wherein the hotels pay according to a pre decided arrangement between the two parties.

The table below lists the user charges per unit per month levied for each of the waste generators such as households, commercial units, etc.

*Table 3-4: User charges in Dodoma*

| Establishment | User charges per unit per month (TZS) | Remarks |
|---|---|---|
| Households | 4,000 | - |
| Commercial unit | 10,000 – 25,000 | Depends upon kind |

| Establishment | User charges per unit per month (TZS) | Remarks |
|---|---|---|
| Institutional unit | 100,000 | - |
| Industrial unit | 100,000 | Sometimes charged per ton |
| Hospitals | 100,000[6] | Only non-hazardous waste |

*Source: Consultant*

*Revenue from transfer fees from CBOs:* The CBOs load skip containers with solid waste collected from various establishments such as households, markets, business centers, institutions, industries, etc. Once the skip container is full they unload the skip container in transfer trucks at collection centers and then pay TZS 50,000 per skip container to the council. This amount is a revenue source accruing to the council. Currently, the CCD is incurring an annual expenditure of TZS 651 million on SWM services, while the total revenue of council through SWM services is TZS 432 million. Therefore, the council is currently incurring an operating loss by spending more than what they are earning.

*Tipping fees at the landfill site:* Trucks belonging to Green Waste and other private establishments such as academic institutions and Bank of Tanzania also enter the landfill site to dump solid waste and pay TZS 10,000 per ton as tipping fee.

Equipment and vehicles

Green waste and CBOs use their own equipment to collect waste which includes hand push carts, wheel barrows, litter bins, tractors, motorcycles, tricycles, etc. Storage facilities include 61 skip bucket containers and 46 litter bins. Green waste possesses three trucks of capacity 20 tons each, whereas the council has four trucks of capacity 12 tons each. The council also has two tipper trucks and one small truck as well. The equipment and vehicles at the landfill site are as mentioned in the table below. The council currently owns the following equipment and vehicles for its SWM operations as depicted in the table below. The first column of the table lists the equipment/vehicles whereas the second column mentions the number of each vehicle or equipment.

*Table 3-5: Trucks and equipment at the landfill site*

| Type of truck/equipment | Number |
|---|---|
| Bulldozer | 1 |
| Excavator | 1 |
| Compactor | 2 |
| Wheel loader | 1 |
| Tractor | 1 |
| Tractor trailers | 3 |
| Skip loader | 4 |

[6] As per stakeholder consultation and willingness-to-pay assessment a hospital and a health center are paying TZS 100,000 per month. According to data provided by CCD, hospitals are paying TZS 10,000 per month.

| Type of truck/equipment | Number |
|---|---|
| Side loader | 1 |
| Tipper truck | 1 |
| Double cabin | 1 |

*Source: City Council of Dodoma*

Staff employed

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

*Table 3-6: Current staff for SWM management in Dodoma*

| Phase | Staff | Number | Salary (TZS) |
|---|---|---|---|
| Collection & transportation | Drivers | 124 total | 150,000 per month |
| Collection & transportation | Waste pickers | | |
| Disposal | Officers | 4 | 40,000 per day |
| Disposal | Attendants | 3 | 20,000 per day |
| Disposal | Drivers | 8 | 10,000 per day |
| Disposal | Security guards | 3 | 5,000 per day |
| Disposal | Casual laborers | 14 | 5,000 per day |

*Source: City Council of Dodoma*

Manjego garden market collection centers

The market site consists of primarily vegetable and fruit vendors. The market has a primary collection center. The market has a skip container that gets filled twice a day. The market site also has a transfer truck which gets loaded with the contents of the skip container.

Collection center for recyclable material

The Consultant visited the Relini collection center in Dodoma, which was full of material segregated from solid waste. Such material was picked up from households, collection centers, highways, skip containers and was collected at Relini collection center, to be sent to recycling and processing plants. On an average, monthly 10 tons of hard plastic and 15 tons of plastic bottles are collected at the collection center. Hard plastic costs around TZS 700 /Kg and plastic bottles cost TZS 300 /Kg. The plastic collected at this collection center, is recycled to paint. Other materials collected at this collection center consists of containers, plastic bags, aluminum, paper, animal waste, scrap metals, etc.

## 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:* The 61 skip containers, are located at strategic locations alongside roads and streets in 21 urban wards in Dodoma. The skip containers are located at areas close to households and central business areas in the city. For the proposed PPP Project, the existing skip bucket containers would be utilized and additional skip bucket containers would be added. Additional skip containers would be required primarily for rural wards which were not covered under TSCP.

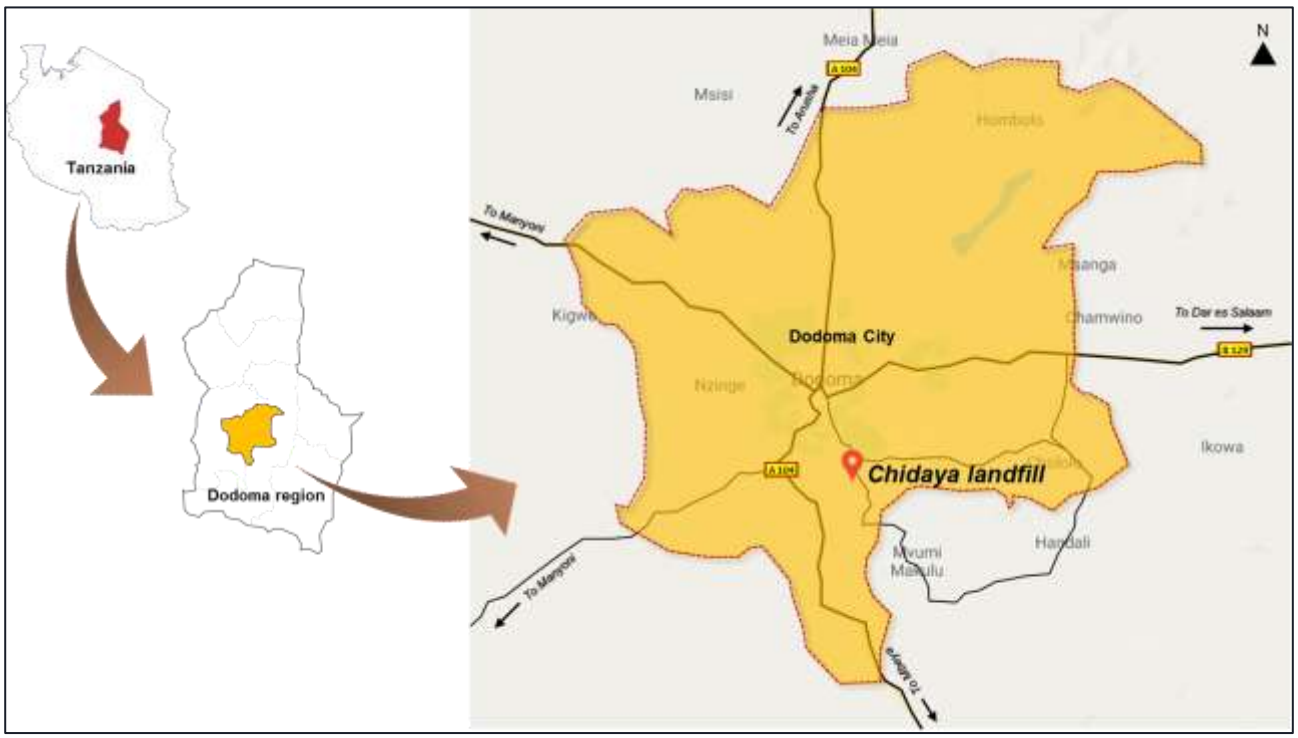
*Landfill site:* The Chidaya sanitary landfill was developed under the TSCP and was funded by the World Bank. The site is located ~15 km from the city center. It is owned by the council and is currently operation. We confirm the work undertaken under the TSCP is a high professional standard and the landfill 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 and is well connected to the main city, but at the same time is well connected. Of the total available area of ~48 hectares of land for landfill at Chidaya, only 20 hectares is currently operational. The expected remaining life span of the landfill is about 15-20 years.

Location connectivity

*Collection centers:* The 61 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 can easily carry solid waste from the collection points to the landfill site.

*Figure 3-2: Location of Dodoma city*

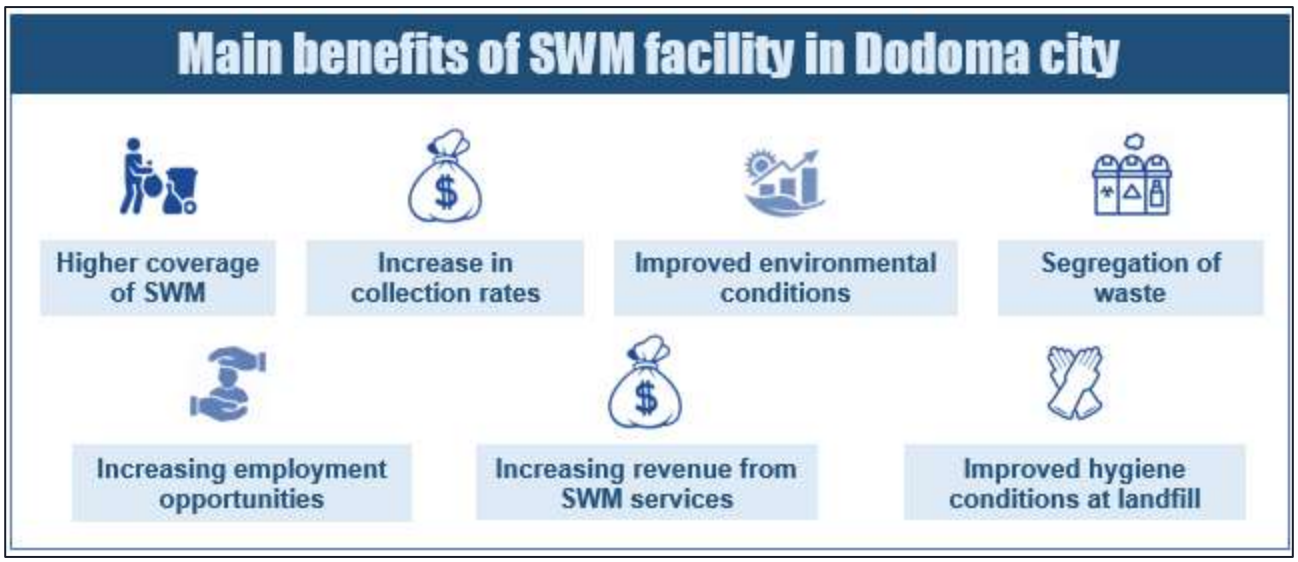



Land title deed

CCD 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.

## 3.7 Main benefits of proposed PPP

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




Higher coverage of SWM

Implementing the PPP Project, all the households, commercial units, institutions and industries would be serviced for the waste collection operations. Therefore, waste generators will not need to resort to illegal burning/unsafe disposal of waste in pits.

Increase in waste and bill collection rates

Currently, the waste collection rate in Dodoma is 43%, wherein only 150 tons of waste is collected out of a total of 350 tons generated on a daily basis. The PPP project envisages achieving a high level of waste collection rate and also a high level of bill collection rate. In our financial model, we have envisaged waste collection rates of ~80% in the first two years, increasing gradually 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 from households is low, households being the main waste generators in Dodoma. Increase in bill collection rate to 80% 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. Also, as part of the proposed PPP Project, 20 rural wards will be added for SWM services in Dodoma, thus adding to the bill collection rate.

Improved environmental conditions

The project would deploy sanitary procedures at all steps of the SWM value chain thus ensuring cleanliness and hygiene, thus reducing health related risks to the staff/casual labor. Currently, the rural wards are not covered for waste collection. Also, many waste generators (such as households, commercial units, industries, institutions and hospitals) in urban wards are not included in waste collection process. The un-serviced waste generators are expected to resort to illegal burning/unsafe 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 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 the remaining 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 also at the landfill site. 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. So, we propose a gradual process in which we firstly aim at secondary segregation and then moving on to segregation at source.

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 involve 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. The user charges for urban households would be increased by ~45% (from TZS 4,000 to TZS 5,800 per month). The user charges for all other waste generators like industries, institutions, etc. would be increased by 35-43%. 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. Additionally, 80%-100% bill collection rates would be achieved thus leading to further increasing the SWM revenues. However, it has to be noted that majority of the waste generators are not willing to pay higher user charges for waste collection as per the stakeholder consultations and willingness–to-pay survey assessment undertaken by the Consultant.

## 3.8 Main risks

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


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 Green waste, CBOs and casual labor

CBOs are local communities of minimum 10 members, each, which have come together 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 Green Waste, 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, giving rise to environmental issues and health hazards to the community at large. The stakeholder consultations and willingness to pay survey revealed that majority of the waste generators were not willing to pay higher than what they are currently paying, in tandem with better services, as they feel that current charges are already reasonable. Thus, in order to implement the higher user charges, 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 like 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, etc.

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 rate 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 CCD, 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 local and regional companies with sufficient experience in the solid waste and PPP sector.

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. They 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 amalgamating 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 CCD as further explained in detail under the 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 the landfill site to collect recyclables. Also, in order to deal with political risks, CCD 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. CCD 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 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, 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. 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. 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.

# 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 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 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 lesser than what would have been required, had major infrastructure not been created under TSCP. The capex required is TZS 6,296 million in the first year and TZS 38,832 in total over 15 years.

PPP agreement

After selecting the preferred bidder, the draft PPP agreement is finalised 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 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 (CBD and Non-CBD) would need to be increased by ~45% (from TZS 4,000 to TZS 5,800 per month). The user charges for all other waste generators like industries, institutions, etc. would need to be increased by 35-43%. 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 5% of the total revenue earned by ProjectCo will be shared with CCD.

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 increased to cost recovery level to make the Project viable. The user charges for urban households would be increased by ~45% (from TZS 4,000 to TZS 5,800 per month). The user charges for all other waste generators like industries, institutions, etc. would be increased by 35-43%. The user charges for rural households have been set at TZS 2,000 (currently no user charges are levied). In addition, all user charges would be revised by 25% every three years. Additionally, 80%-100% bill collection rates would be achieved thus leading to further increasing the SWM revenues. However, it has to be noted that majority of the waste generators are not willing to pay higher user charges for waste collection as per the stakeholder consultations and willingness–to-pay survey assessment undertaken by the Consultant. Thus, in order to implement these user charges, 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 like 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, etc.

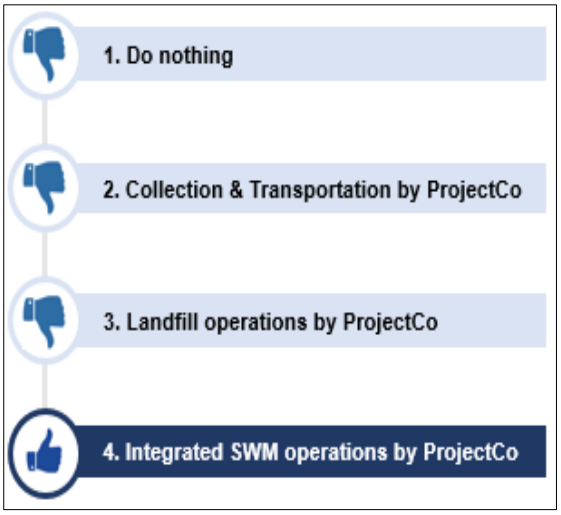
Contract management skills

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 Dodoma city.

Option 1 - Do nothing




This option maintains the current status quo, which might result in solid waste from the 20 rural wards not being collected. The residents in these 20 wards might continue burning their waste or burying the waste in pits in an unsafe and uncontrolled manner thus resulting in unacceptable public health and environmental issues. The SWM services in Dodoma require upgradation and streamlining collection, transportation and disposal at landfill, thus maintaining cleanliness and hygienic conditions in the city. Additional equipment and vehicles are required and additional staff needs to be hired. The current situation might result in equipment becoming obsolete and landfill not being managed in a sustained manner. Based on this, we discard this option.

Option 2 – Collection and transportation by ProjectCo and landfill operations by CCD, 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 CCD or by another private operator under a separate PPP contract. Chidaya sanitary landfill was developed and is operated and maintained as a part of World Bank's TSCP project. The TSCP assistance ends 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/ 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.

Dodoma is a town with 150 tons of waste reaching the landfill site on a daily basis. The waste quantity to be landfilled in Dodoma is small and therefore, would require a higher tipping fee per ton to be paid by the C&T operator to make the landfill financially viable, which will negatively impact the financial viability of the C&T operations. Thus, the C&T Operator has a strong incentive in avoiding and minimizing its tipping fee and therefore 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, absence of economies of scale, patchy legal compliance and high level of illegal dumping. Thus we discard this option.

Option 3 - Only landfill operations by ProjectCo and collection, transportation by CCD 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 low if the collection and transportation phase is carried out by CCD and CBOs.

As discussed above, the quantity to be landfilled in Dodoma 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 CCD’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 CCD in the form of an availability payment that is decoupled from the actual waste disposed.

Also, 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 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 CCD 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 in Dodoma 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 private operator under a PPP or CCD). 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 PPP's 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 CCD | Discarded |
| 3 | Collection & transportation by CCD 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 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 that would arise in Tanzania is that the 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 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 part of integrated solid waste management process, however strict controls and regulations are required to prevent the adverse impacts 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 Dodoma, is only 350 tons currently which is projected to increase to ~570 tons by year 5 of the PPP Project, and is projected to increase to ~741 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 Dodoma, 350 tons of solid waste will produce 175-210 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 Dodoma*: 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 like Japan and other urbanized nations. In Tanzania, in a city like Dodoma, the indicative cost of land is TZS 500/sqm in the Chidaya 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. 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 have been described 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. Note that a typical composting plant would require 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 compositing rates in similar context:* The quantum of waste generated in Dodoma 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, financing and policy issues. Composting plants in developing economies operate in a fragile environment. Consumers face competing products that provide fast- acting 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 CCD. While the casual labor of CCD could be integrated with the ProjectCo due to short contracts of 3 months duration, the permanent staff of CCD could be involved in functions such as street cleaning, drainage and monitoring and supervising the ProjectCo. We recommend excluding this from the PPP aiming at preserving the livelihood of permanent staff and casual labor of CCD. Moreover, including street cleaning and drainage in the ProjectCo's scope of operations will increase the Project cost as additional

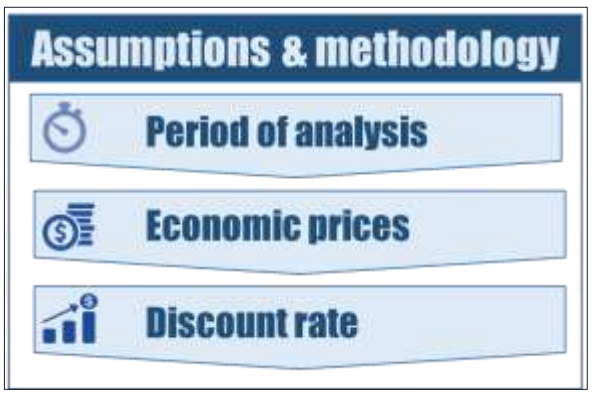
capex (to purchase the cleaning equipment) and additional opex (due to more number of staff required) would be required. This will further increase the user charges to be charged from waste generators by the ProjectCo in order to make the Project viable. It will also add complexity to the contract as 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 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.

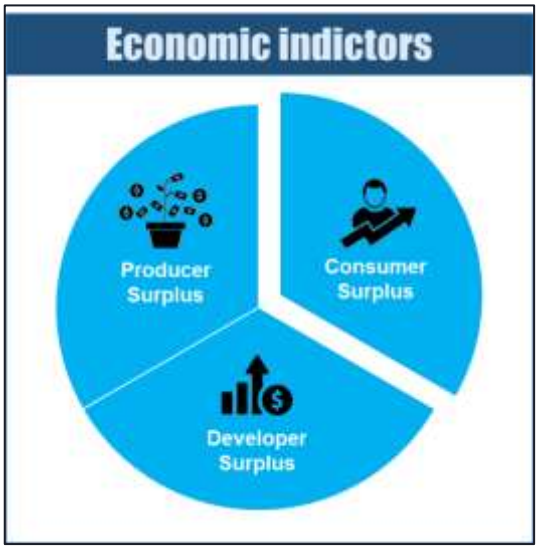
Assumptions and methodology

The economic analysis looks at both quantifiable and non-quantifiable factors such as incremental income, taxes paid, savings in healthcare expenditure, job creation, reduction in fuel consumption, 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 Dodoma 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/partnering 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.

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 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 Dodoma 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? |
|---|---|
| ***Producer surplus*** | |
| Incremental income of casual labor/workers/staff/CBOs | Yes |
| Savings for CCD | Yes |
| Savings in healthcare expenses of casual labor/workers/staff | Yes |

| Indicators | Quantified? |
|---|---|
| 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 |
| ***Consumer Surplus*** | |
| 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 |
| 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 |
| ***Developer Surplus*** | |
| Profit After Tax (PAT) | Yes |

*Source: Consultant*

Metrics

As explained in the table above, the capex and opex for the CCD 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/partnering with the ProjectCo, revenue from savings in healthcare spending, and savings in operating expenses for CCD have been considered. The incremental income for SWM workers and operating expenses for CCD have been calculated considering both with-Project and without-Project scenarios.

In the consumer surplus, the savings in healthcare expenditure of the waste generators have been calculated by multiplying the estimated population of Dodoma city in the coming years with the average per capita healthcare expenditure related to 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 benefits generated by the Project have 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 38.2%, and exceeds the economic cut-off rate of 12%. The economic NPV amounts to TZS 14,192 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.

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 (%) |
|---|---|
| **Base case** | 38.2% |
| **Scenario 1** | |
| With-Project capital cost higher by 20% | 34.2% |
| With-Project capital cost lower by 20% | 43.4% |
| **Scenario 2** | |
| With-Project PAT lower by 20% | 37.9% |
| With-Project PAT higher by 20% | 38.4% |

*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 |
|---|---|---|
| City Council of Dodoma (CCD) | It will be able to fulfill its social responsibility without any significant capital investment. The Project gives CCD an opportunity to leverage private sector efficiencies in upgrading the SWM infrastructure and streamlining operations, while CCD 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 41 wards). 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 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 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. | High |
| 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 |

# 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.

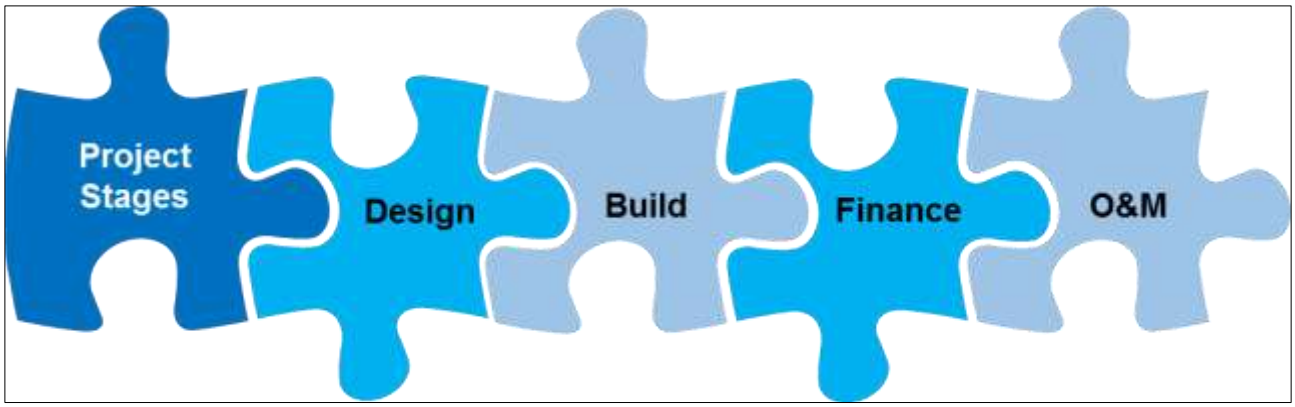
Information from the feasibility study and economic feasibility analysis is a key input to the PPP structuring. The PPP structure then feeds into the commercial feasibility, and affordability and VfM analysis, which could iteratively result in changes to the proposed risk allocation. In short, PPP structuring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

Project structuring overview

Dodoma currently has infrastructure in place for the day to day SWM operations. Major infrastructure has already been created under TSCP, as a result of which additional investments required for our Project are not as high, as they would have been, had infrastructure not been created under TSCP. For the PPP Project, capex during the first year, in Dodoma is ~65% of the capex incurred as part of the TSCP project. This percentage is higher in case of Dodoma, as compared to that in towns of Arusha, Mbeya and Mtwara as the number of rural wards to be covered under the Project in Dodoma is significantly higher as compared to that in the other three towns. Additionally, under TSCP infrastructure was created only for the urban wards and not for the rural wards. Most of the infrastructure is already in place, however additional equipment, vehicles and machinery need to be purchased as well as additional staff need to be hired for covering the rural wards as well as for covering all waste generators under each ward. The PPP project aims at streamlining the entire

value chain of SWM operations 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.




*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 both urban and rural 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 CCD 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 Dodoma 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 immoveable 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 the Project cost is not as high, as it would have been, had capex not been incurred and major infrastructure not been created under TSCP. The Project cost is, TZS 38,832 million over 15 years.

*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.

CCD's constraints

City Council of Dodoma has current surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally, the average surplus in the last four years is around 4.6% of the total revenue. The Project cost over a period of 15 years is TZS 38.8 billion. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained. The LGA does not have sufficient resources to fund the Project alone. Preferably the party responsible for upgrading and investing should preferably also operate the SWM services 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 upgrading 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

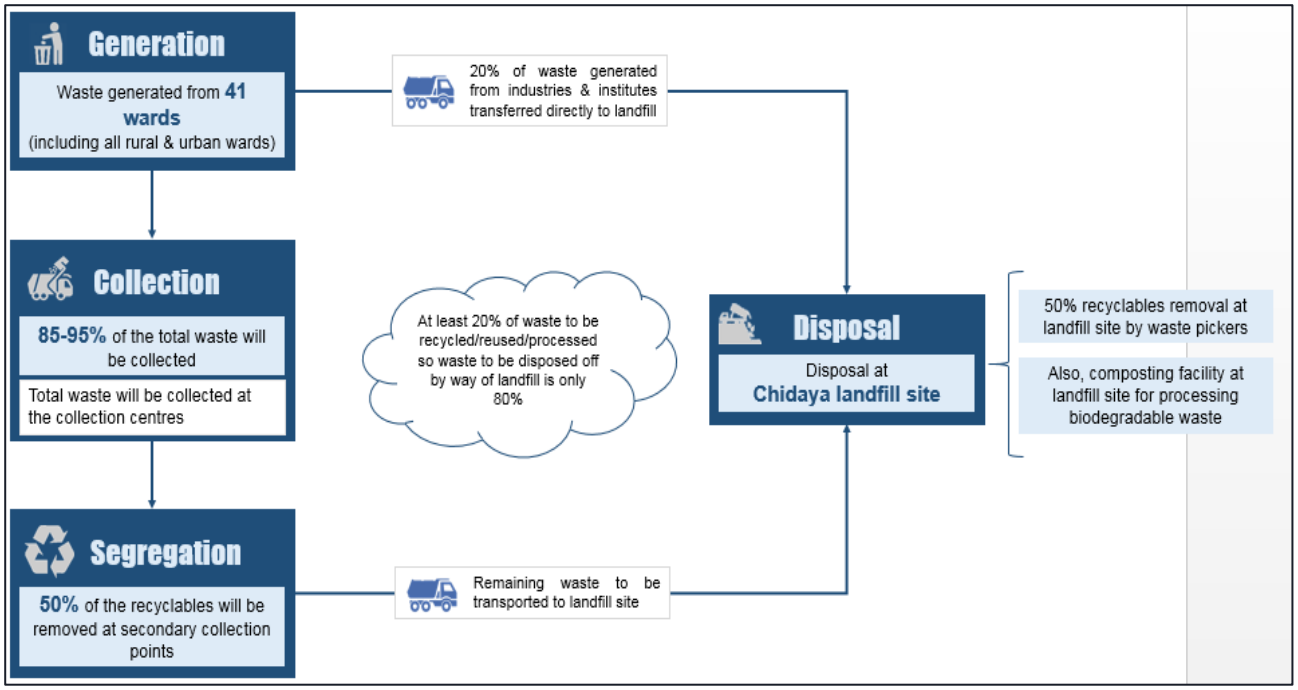
Based on the above constraints, we recommend a DBFOMT model. In this model, ProjectCo is responsible for designing, building, financing, and operating and maintaining the Project and its services and finally transferring the Project to the LGA at the end of the agreement period. The LGA will be responsible for providing the land parcel (landfill site and collection centers), equipment, vehicles, machinery and other assets created under TSCP. The LGA will also be responsible for facilitating necessary approvals, such as environmental permits and regulating tariff charges as per the municipal bye-laws, 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.

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

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



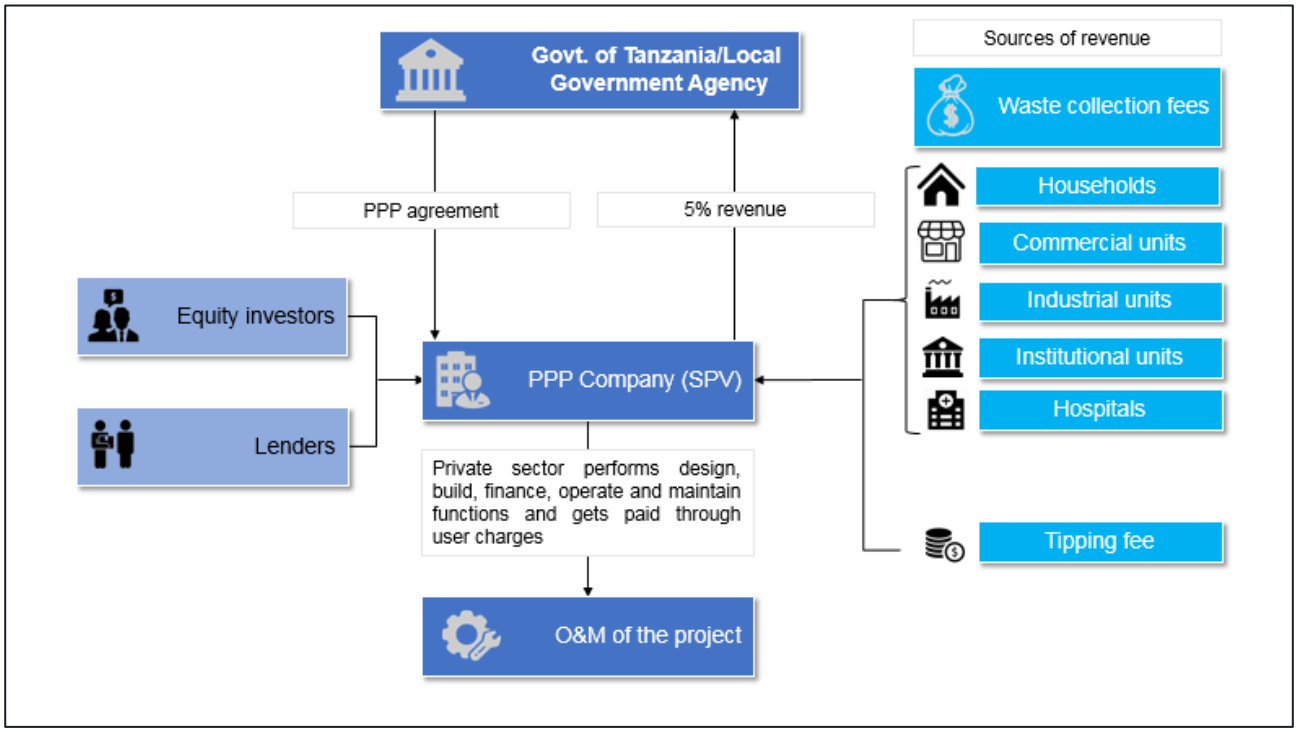

In the proposed PPP Project, a hub and spoke model has been conceptualized wherein tricycles and pushcarts will be utilized for collecting waste from door to door. This waste would then be collected in skip containers (secondary collection points) from which it will be transported to the landfill site 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 areas as well as 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.

*Figure 5-2: Proposed PPP model*




*Source: Consultant*

The proposed PPP model will have City Council of Dodoma 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 user charges collected from households, commercial units, industrial units, institutional units, hospitals and also tipping fee collected from private transfer trucks.

Responsibilities of CCD

- *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 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 Dodoma. 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 additional ESIA would be required 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 done.

- *Leasing of collection centers and landfill site to the ProjectCo, with ownership remaining with CCD* - The existing collection centers and landfill site, procured under TSCP, will be leased to the ProjectCo by CCD during the agreement period, However, the ownership will remain with CCD. Under the PPP Project, CCD 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 the CCD 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, CCD 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.
- *CCD to operate the SWM facilities after the completion of agreement period* – At the end of the agreement period, CCD has the right to continue with the SWM operations, as per the Tanzanian laws.
- *CCD 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, etc. 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 CBOs*– The city council will facilitate CBOs, to work/partner with the ProjectCo within the Project. This will ensure continuation of their livelihood and employment. In return, ProjectCo will also benefit from their intricate knowledge and expertise.
- *Enforcement of solid waste byelaws* – CCD 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. CCD to enforce rules and regulations.

<u>ProjectCo responsibilities</u>

- *Obligations of ProjectCo* - ProjectCo would be responsible for designing, constructing, 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.
- *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 CCD* – As per the base case proposed by the Consultant, the ProjectCo must share 5% of the revenue earned through SWM activities with CCD.
- *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 under the Project and provide them continued employment thus sustaining their livelihood.
- *Environmental monitoring* – While the CCD will monitor and supervise the ProjectCo, the latter will undertake its own monitoring and will submit such reports periodically to CCD as defined in the PPP agreement to be signed between CCD and the ProjectCo.

Agreement period

- *Content of the PPP agreement* - The PPP agreement will be entered into between the CCD 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 CCD 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 for first year is TZS 6,296 million (USD 2.7 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 fees 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.

*Table 5-1: Summary of responsibilities of the ProjectCo and CCD*

| Stages in PPP Contract | ProjectCo | CCD |
|---|---|---|
| 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 causal 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 |

| Risk | Description of risk | Risk assumed by |
|---|---|---|
| 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 SWM value chain. The council should lease the landfill site and collection centers to the ProjectCo on a timely basis | Medium |
| 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 | CCD 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. CCD 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.

| Output specifications for collection | |
|---|---|
| • All wards to be covered for waste collection<br>• 100% coverage of households and other establishments for waste collection<br>• 100% waste collection rate to be achieved, excluding any special drives for waste collection from one-time activities.<br>• To ensure that littering of solid waste does not occur in the city<br>• Any infectious/hazardous waste not to be accepted in waste collection vehicles<br>• Recyclables to be segregated during collection, for further processing by processing plants<br>• To ensure that solid waste is transported through the value chain in a segregated manner<br>• Daily records of quantity of solid waste collected, origin of waste to be maintained<br>• Current year revenues collected, as a percentage of total operating revenues for the period to be 90%<br>• Total number of MSWM complaints redressed within 24 hours of receipt of complaint to be more than 80% | |
| *Collection coverage* | • Door to door waste collection to be practiced<br>• There shall be no illegal dumping/burning of waste<br>• Collection to be carried out<br>➢ Daily in urban wards<br>➢ Once a week in rural wards |
| *Collection vehicles/ equipment* | • Adequate number of tricycles/pushcarts to be utilized for door to door collection<br>• Adequate number of gunny bags/polythene bags/dustbins to be used for collection<br>• Skip containers to be located at suitable locations in each ward |
| *Collection staff* | • Adequate number of staff to be used for collection<br>• Staff to use personal protective equipment while collecting waste |

| Output specifications for transportation |
|---|
| • Transportation of waste from collection centers to be undertaken every alternate day<br>• Daily records of quantity of solid waste transported to landfill to be maintained |

| Output specifications for transportation |
|---|
| • Adequate number of vehicles to be used for transportation of waste<br>• Adequate number of drivers and staff to be utilized for transportation<br>• Some percentage of drivers and other staff to be kept as buffer as a contingency plan |

| Output specifications for processing and landfilling | |
|---|---|
| • Priority to be given to waste recycling, resource recovery and processing to reduce the amount of final disposal<br>• Extent of final disposal at the landfill site to be a maximum of 80% of the total waste collected<br>• To adopt suitable technology or combination of technologies to make use of wastes to minimize burden on landfill.<br>• While handling biodegradable waste, priority to be given to biological processing such as composting, anaerobic digestion and other biological processing for stabilization of waste<br>• Landfilling to be restricted to non-biodegradable, inert and other waste that is not suitable for recycling or biological processing<br>• Extent of recycling, reuse or biological processing to be a minimum of 20% of the total waste collected.<br>• Any infectious or hazardous waste not to be accepted at the landfill<br>• Waste to be disposed of in a scientific manner at a sanitary landfill<br>• Recyclables to be collected from landfill site by waste pickers for processing<br>• All waste at landfill to be compacted and reduced in volume after disposal<br>• 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<br>• Utilized for separation of co-mingled wastes<br>• Separation of bulky items, separation of ferrous metals using magnets<br>• Separation of waste components by size using screens, manual separation of waste<br>• Size reduction by shredding, volume reduction by compaction and combustion<br>• Facility to have planned areas for unloading, collection & processing of solid waste<br>• Facility to have on-site storage area for recyclables, non- process able wastes & residues<br>• Storage area for recyclables to accommodate at least thrice the daily peak volume of recyclables sorted out and processed |
| | • After reaching the recycling plants, e-waste items to be sorted manually<br>• Batteries to be removed for quality check. |

| Output specifications for processing and landfilling | |
|---|---|
| *Electronic waste processing* | • E-waste to be manually dismantled to retrieve all parts and categorized into core material and components<br>• Dismantled items to be separated into various categories/ parts that can be reused<br>• Items that cannot be dismantled to be shredded to finer e-waste pieces.<br>• Finer e-waste to be further broken down through an automated shaking process<br>• Over-band magnet to remove all magnetic materials from e-waste debris<br>• Copper, aluminum and brass to be separated from debris to leave non-metallic material.<br>• Plastic material to be separated from glass by use of water<br>• Once separated, all material retrieved can be sold as raw material for reuse |
| *Landfill infrastructure* | • Adequate number of cells to be available so as to be used in phased manner in future<br>• Landfill to have proper waste screening, weighing and inspection facilities<br>• Availability of a non-permeable liner system at the base of waste disposal area<br>• Availability of a leachate collection, treatment and removal system in place<br>• Landfill site to have a storm water management system in place<br>• Landfill site to have a gas venting system in place<br>• Site to have a groundwater testing system in place<br>• Landfill site to have a landfill gas monitoring and management program |
| *Site facilities* | • Landfill site to have a 24x7 water supply system in place<br>• Landfill site to have electrical works in line with good industry practice<br>• Adequate equipment for fire prevention and control to be available at landfill facility<br>• Provision of toilets, first aid, electricity, drinking water and telephone<br>• Provision of parking facility to avoid queuing up of transfer trucks and other vehicles<br>• Provision of proper fencing to prevent unauthorized access to facility |
| *Vehicles and equipment at landfill site* | • Landfill to have adequate number of equipment and vehicles such as-<br>➢ Bulldozers<br>➢ Excavators<br>➢ Compactors<br>➢ Wheel loaders<br>➢ Water tankers<br>➢ Tipper trucks, etc. |

| Output specifications for processing and landfilling | |
|---|---|
|  <br>*Staff at landfill site* | • Adequate number of staff to be available at the landfill facility such as-<br>➢ Landfill operation manager<br>➢ Landfill supervisor<br>➢ Record management assistant<br>➢ Operators for equipment and vehicles<br>➢ Environment monitoring and testing officer<br>➢ Attendants<br>➢ Casual labor<br>➢ Security staff, etc.<br>• All staff to use personal protective equipment |

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.

| Performance standards for collection | |
|---|---|
|  <br>*Compliance* | • All waste to be collected in accordance with Tanzanian standards<br>• Waste to be collected as per Good Industry Practice |
|  <br>*Collection centers* | • To ensure that no waste is unloaded on ground at any point of time<br>• Each skip container to be properly covered once full<br>• Skip containers should not be allowed to overflow<br>• Skip containers to be maintained that they do not create unhygienic conditions.<br>• Skip container to have adequate capacity and good strength<br>• Skip containers to have an 'easy to operate' design for easy handling<br>• Area around the skip container to be kept clean at all times<br>• Skip containers to be cleaned/disinfected regularly<br>• Skip containers to be properly inspected on a periodic basis and any damage to be repaired |

| | Performance standards for collection |
|---|---|
| | • Skip containers to be maintained so that there are no breakages/leaks/cracks<br>• Waste handling to be carried out with proper precautions with due care for safety of workers |
| *Collection equipment and vehicles* | • All vehicles used for collection to be kept in good state of repair<br>• All equipment used for collection to be kept in good state of repair |

| | Performance standards for transportation |
|---|---|
| *Transport route* | • Transport network to be designed to achieve efficiency<br>• Transportation route to avoid zigzag movement to save time and fuel<br>• Transportation to be avoided at peak hours |
| *Transport vehicles* | • Any infectious or hazardous waste not to be accepted in waste transportation trucks.<br>• Transport vehicles to not overflow and to be covered while moving<br>• To ensure that there is no spillage of waste while the vehicle is moving<br>• Transport vehicles should be washed/cleaned and disinfected from time to time<br>• Transport vehicles to be maintained so as to prevent frequent break downs<br>• Fleet of vehicles to be maintained so that at least 90% are available at any time<br>• Vehicles to be loaded with waste at their full capacity<br>• These vehicles to be properly inspected on a periodic basis and any damage to be repaired<br>• All vehicles to be safety and security compliant, compliant with fuel emission standards<br>• All vehicles to be in compliance with applicable laws |
| *Transport staff* | • All drivers to be in compliance with applicable laws<br>• Drivers to carry driving license and registration certificate of vehicles at all times<br>• Drivers to follow all safety procedures while driving<br>• Drivers and staff to use uniform, gloves, masks and other safety gear while handling waste |

| | Performance standards for processing and landfill |
|---|---|
| *Compliance* | • Landfill and material recovery facility to comply with pollution standards, good industry practices<br>• To be operated and maintained as per standards laid down in prevailing laws<br>• To ensure all pollution control operations are installed as per applicable standards<br>• Effluents/leachate quality to be monitored & treated so as to confirm to applicable standards<br>• Quality of final compost to confirm to applicable standards<br>• All operations to comply with health, safety and security measures<br>• To ensure the facility is compliant with standards applicable to sanitary landfilling<br>• Quality and calibration certification from independent certification agency |
| *Landfill, material recovery facility and composting facility* | • Availability of designated areas for unloading, sorting, storage & processing of recyclables<br>• Instruments and devices to be installed for ventilation, controlling dust, litter and odour at material recovery facility.<br>• Landfill site to be operational for 8 hours per day<br>• Downtime of landfill facility to not exceed the maximum downtime limit<br>• Periodic maintenance of landfill base, side liner and cover system<br>• Landfill facility to be kept in a clean, tidy and orderly condition<br>• Litter, insects, odour and vectors to be controlled to prevent sanitary nuisance<br>• Access and internal roads to be kept in a good state of repair<br>• Sufficient parking space to be available inside entrance gates<br>• Facility to have an adequate lighting system<br>• Landfill operations to take care of noise pollution, traffic and offensive odour<br>• Quality assurance to be monitored from time to time |
| *Equipment, infrastructure and vehicles* | • All equipment and vehicles to be properly inspected on a periodic basis<br>• Prompt repair of all equipment, infrastructure and vehicles<br>• Calibration test for weigh bridge to be carried out on a periodic basis<br>• Storm water drains to be kept free from clogging<br>• To ensure there is no stagnation of rain water on landfill facility<br>• Cracks or leaks in the leachate collection and drainage system to be sealed immediately<br>• All vehicles and equipment to comply with all applicable standards<br>• A contingency plan to cover machine/vehicle breakdown or any operation interruptions |

| | Performance standards for processing and landfill |
|---|---|
| | • Operation manuals of machinery/equipment as well as operational safety guidelines shall be prepared and made available. |

| Service | Other performance standards applicable to collection, transportation and landfilling |
|---|---|
| *Cleanliness & Hygiene* | • Provision of daily cleaning of skip containers, equipment and vehicles<br>• Periodic removal of waste material from skip containers<br>• Skip containers to be fully unloaded to prevent leftovers from emanating foul smell<br>• Provision for sweeping off waste fall from the collection vehicles<br>• Pest control measures to be undertaken at collection centers and landfill site<br>• Monitoring of waste collection process all over the city<br>• Hygiene needs to be complied as per Tanzanian standards |
| *Health and safety* | • Provision of personal protective equipment to protect from direct contact with waste<br>• Health of workers to be checked on a routine basis<br>• Management to comply with legislation relating to public health and safety<br>• Provision of cleaning and proper salinization of equipment<br>• Fire preventive and control equipment to be available at landfill site<br>• Health and safety needs to be complied as per Tanzanian standards |
| *Environmental considerations* | • To undertake adequate mitigation measures to minimize pollution of air, water and soil<br>• Provision of hydrants to tackle fire emergency at landfill site<br>• Landfill to confirm to regulatory environment standards<br>• Provision of rain water harvesting & waste water recycling system<br>• Adherence to social and environmental performance standards<br>• Compliance with rules, regulations, guidelines and standards of Environmental Engineering and Pollution Control Organization (EEPCO)<br>• Environmental considerations to be complied as per Tanzanian standards. |
| *Customer complaints* | • All customer complaints to be redressed/resolved within 24 hours of receipt<br>• To have effective systems to capture customer complaints/grievances |

Compliance with Tanzanian Laws and Regulations

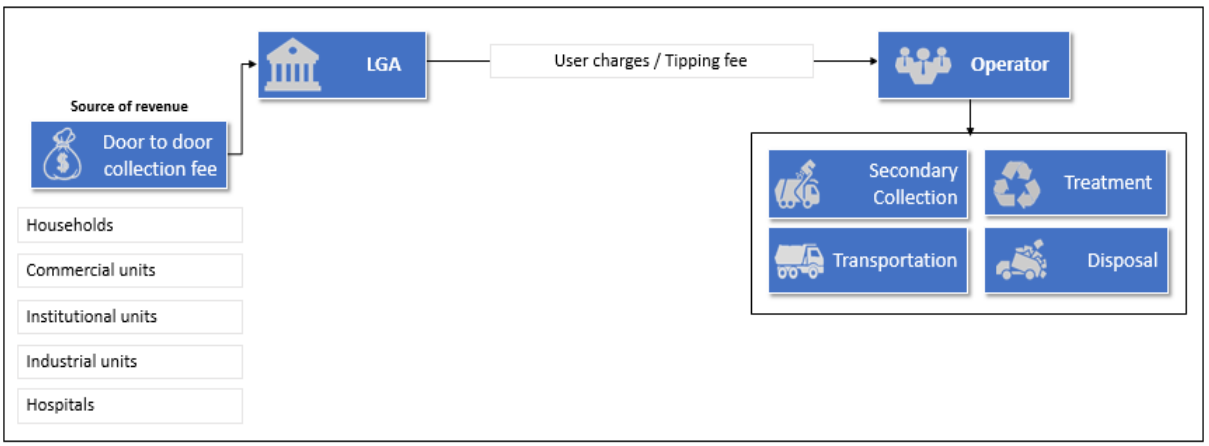
ProjectCo will have a general obligation to ensure that all works comply with relevant Tanzanian legislations and standards and good industry practices in Tanzania. All plans will need to be approved before works commence or equipment is purchased. Also, these standards must be met before the assets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

## 5.7 Recommended payment mechanism

We discern the following two options:

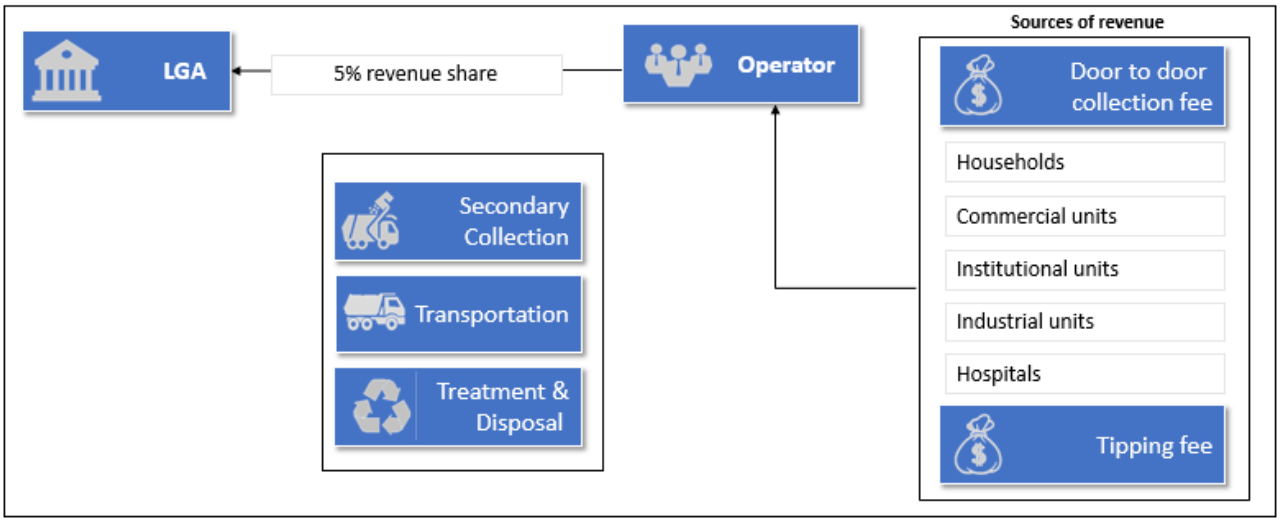
- *CCD collects user charges and pays ProjectCo* - In this case, the LGA collects the fees from households, commercial units, industrial units, institutional units, hospitals and other waste generators. Fees collected are then transferred to ProjectCo as per the contract. However, the city council is 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.

*Figure 5-3: CCD collects user charges and pays ProjectCo*




- *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 5% of the total revenue collected through SWM services, with CCD.

*Figure 5-4: ProjectCo collects user charges*




PPP contract term

The CCD 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 for first year is TZS 6,296 million (USD 2.7 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.

# 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 a private player called Green Waste, which is a private company dealing with waste collection in Dar es Salaam, Dodoma and Mwanza. The benchmarking study targets the waste collection undertaken by Green Waste in Dar es Salaam and Dodoma 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 Green Waste in Dar es Salaam are provided below.

Green Waste, Dar es Salaam

*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 manages to collect 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 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 have 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 comprised 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 from the waste generators. The table below provides details on the type of recycled wastes, quantity collected per day and prices.

*Table 6-1: 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/ iron | 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 charges. The estimated monthly expenditure for Green Waste is TZS 80-90 million, details of which are provided in the table below.

*Table 6-2: 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*

Green Waste, Dodoma

*Coverage*: Green Waste covers 8 wards in Dodoma city, wherein 72-144 tons of solid waste is collected per day. Few usable items are separated informally by workers for their own benefit. All the waste collected is transferred for disposal at the landfill site. Hazardous waste generated at hospitals in incinerated in their own incinerators.

*Revenue:* User charges are charged on a monthly basis to the tune of TZS 4,000 per household, TZS 10,000 per commercial shop, TZS 3,000 per street-side fruit and vegetable sellers, TZS 30,000 for social halls, TZS

36,000 for bars & lodges, TZS 6,000 for barber shops, TZS 10,000 for dressing saloons and TZS 10,000 for butchers. The user charges are collected monthly. The user charges are revised not very regularly but only at the outcry of the private player.

*Monthly operational cost:* Green Waste in Dodoma, incurs a monthly operational cost of TZS 84,000,000 – 120,000,000.

*Current challenges*: Some waste generators do not use skip containers directly and refuse to pay monthly fees. Ability to collect user charges is a major challenge as waste generators are reluctant to pay. Some waste generators do not have bins and therefore they just pile the waste for collection. There are issues of littering of waste as waste generators just throw their waste around and even dump hazardous waste during night along with sand piling on the roads. Institutions are sometimes reluctant to pay, citing their own arrangements for waste collection, e.g. BOT. Infrastructure in some areas such as access roads are not in good condition, hence resulting in higher running cost.

## 6.2 Willingness to pay

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

The assessment undertaken by the market assessment team involved stakeholder consultations and willingness to pay surveys conducted with waste generators such as households, office buildings, shopping complexes, hospitals and bars and also with CBOs, and the private player, Green Waste. Currently, 13 wards in Dodoma are served by locally registered CBOs, each of which has a minimum of 10 members each, and eight wards are served by Green Waste.


Dodoma region is expected to have a rapid growth in population due to the shifting of the capital from Dar-es-Salaam to Dodoma, and subsequent move of all activities to the region. In Dodoma, there is no proper established mechanism of waste handling through the entire SWM value chain. The city council is therefore required to set up a proper waste management practice. There should also be a transparent set up wherein the waste generator understands who will be responsible for which step of solid waste management. This will enable an effective coverage of collection of waste from the generation level to the disposal at landfill and recycling. Currently, CBOs collect waste in 13 wards, however most of them do not have enough capability in handling waste collection. The city council would be required to facilitate the integration of CBOs' employees and casual laborers such as sweepers, drivers, loaders, etc. 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. The government should also set restrictions and enforcements in place to avoid violence on disposition of waste and paying user charges.

The Project acceptance and willingness to pay survey show that currently there are a number of challenges facing all the stakeholders and they expect better services from the proposed PPP Project as those listed below:

- *Increase in frequency of waste removal from skip containers:* Currently, skip containers are not emptied frequently and the waste inside just piles up leading to stench (foul smell), posing health hazards to the community at large. Therefore, containers need to be frequently emptied.
- *Adequate number of trucks:* Currently, there is a delay in trucks removing waste from skip containers, in spite of payments being made regularly. There should be adequate number of trucks available at any point of time to carry waste from skip containers, to prevent the waste lying in skip containers to rot, litter around and generate foul smell. Hence, there should not be any delay in offloading skip containers, which would otherwise create inconvenience for nearby residents.
- *Adequate number of equipment:* More number of skip containers need to be added, as well as waste from skip containers need to be collected in a timely manner. Additionally, more equipment to be dedicated to waste collection.
- *Better hygiene conditions:* There is a problem of littering of waste, as waste generators sometimes just throw their waste around, and even dump hazardous waste during night. Some waste generators do not have any bins and therefore just pile waste for collection. The residents of Dodoma expect better hygiene conditions in the city once the PPP Project is deployed.


- *Better coverage:* Many households, other establishments and rural wards are not currently covered by CBOs and Green Waste 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.

As per stakeholder consultations and willingness to pay survey conducted with waste generators in Dodoma, majority of waste generators are not entirely convinced of the need for higher user charges, as they feel that the current user charges are already high. However, the user charges for the PPP Project have been set at a cost recovery level which is higher (~45% increase for households and 35-43% for other waste generators) than what waste generators are willing to pay.

## 6.3 Assumptions and methodology of financial analysis

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

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

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.

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 6-3: 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 upgrading SWM services in Dodoma city.

Works supported under TSCP in Dodoma involved the construction of Chidaya Sanitary Landfill, 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 1,422 million) and that purchased during phase 2 (TZS 769 million). For the landfill phase, the total capex incurred was the sum of construction cost of the sanitary landfill (TZS 5,658 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 CCD for operations. A summary of the capex incurred under the TSCP for Dodoma city has been provided below. Further details have been provided under Section 9.1.

*Table 6-4: Capex under TSCP*

| Components | TZS million |
|---|---|
| Cost of construction of Sanitary Landfills | 5,658 |

| Components | TZS million |
|---|---|
| Cost of machinery and equipment for Sanitary Landfills | 1,842 |
| Cost of machinery / equipment for collecting and transporting solid waste (Phase One) | 1,422 |
| Cost of machinery / equipment for collecting and transporting solid waste (Phase Two) | 769 |
| **Total cost for council** | **9,692** |

*Source: Consultant*

Indicative cost of land

It is proposed that the landfill site shall be upgraded and operated for SWM services in Dodoma. Based on the discussions with the municipal valuers, it was estimated that the land prices in the Chidaya ward area are around TZS 500 per sqm. Hence, the total estimated value of landfill site is ~TZS 240 million.

## 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 Sections 9.2 and 9.3.

## 6.6 Capital expenditure – Year 1 of PPP

*Capex for Collection and Transportation:* 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 106 skip bucket containers will be required per day for waste collection for the first year. However, currently CCD owns 61 skip bucket containers (in good condition) and therefore, capex has been considered only for the additional 45 skip bucket containers as required. The 61 skip containers currently owned by the council will be handed over to the ProjectCo.

For the project a total of 133 tricycles, 665 pushcarts and seven transfer trucks of type 1 will be required during upgrading the SWM services in the first year, as per our calculations. Capex has been considered for them accordingly. Additionally, as per our calculations, four transfer trucks of type 2 would be required for first year,

however, CCD currently owns four such transfer trucks (will be handed over to the ProjectCo). Therefore, capex has not been considered for them. The capex calculation also considers the cost of 4,544 face masks, 4,544 hand gloves, 1,136 gum boots, 1,136 headwear and 2,296 uniform. The total of all the 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 (as per data provided by PPP Node). Also, as per our calculations one additional bulldozer, wheel loader, excavator and two water tankers each will be required for the first year and therefore capex has been considered for all these equipment in the first year. Hence, the upgrading cost for landfill as mentioned above and the purchase cost for these equipment 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 under Section 9.

*Table 6-5: Capex for first year*

| Component | Capex (TZS million) |
|---|---|
| Collection and transportation | 3,749 |
| Landfill | 2,547 |
| Integrated | 6,296 |

*Source: Consultant*

## 6.7 Capital expenditure over contract duration of PPP

As population grows and as the quantum of waste generated increases over the years, additional equipment and vehicles would need to be purchased and these equipment and vehicles would need to be replaced after a certain replacement period, which would differ for each item. 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 6-6: Capex over the years (TZS million)*

| | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C&T | *3,749* | *303* | *1,181* | *784* | *1,196* | *1,066* | *2,102* | *597* | *2,464* | *903* | *4,020* | *1,125* | *4,074* | *2,400* | *3,083* |
| Landfill | *2,547* | - | - | - | - | *2,379* | *2,298* | - | - | - | *2,560* | - | - | - | - |
| Integrated | *6,296* | *303* | *1,181* | *784* | *1,196* | *3,445* | *4,400* | *597* | *2,464* | *903* | *6,580* | *1,125* | *4,074* | *2,400* | *3,083* |

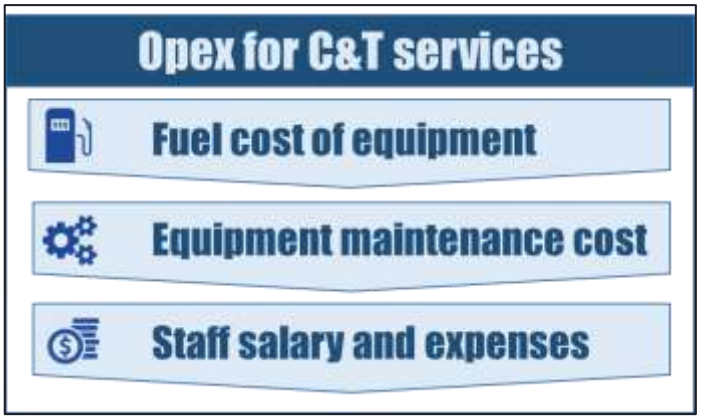
*Source: Consultant*

## 6.8 Operation and maintenance expenditure

This section provides an overview of the opex involved in the upgrading the SWM services in Dodoma. 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 Dodoma 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 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 133 tricycles, seven transfer trucks of type 1 and four 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 40 litres and 60 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 or pushcarts. 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.

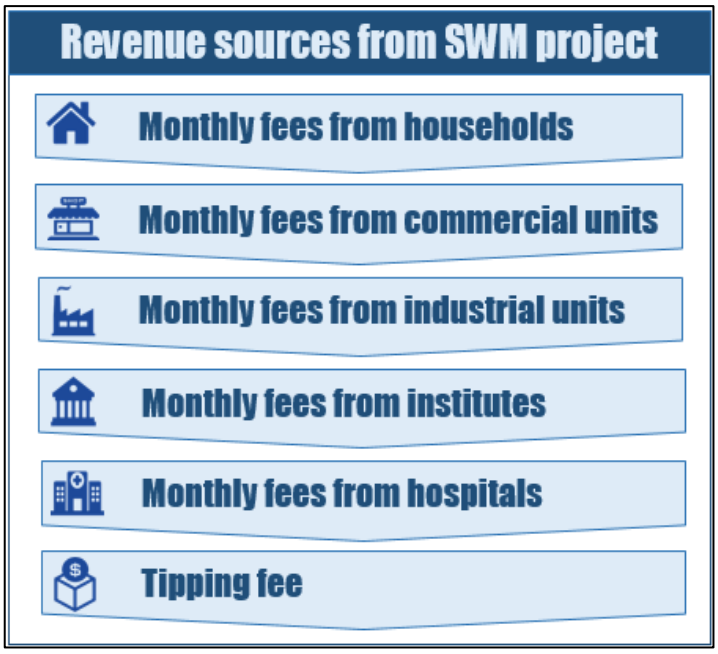

- *Staff salary and expenses:* The salary for various staff has been calculated as the product of number of staff required and monthly salary. The yearly salary is calculated and is escalated by inflation rate over the years. Additionally yearly salary cost will increase due to additional staff being 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.

The sum of the opex for the collection and transportation component as well as the landfill component of the SWM value chain 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 Dodoma city. As explained in the sections below, the user charges are set at different levels for various 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 4,000 each on a monthly basis, as per data provided by CCD. The stakeholder consultation and willingness–to-pay survey assessment undertaken by the Consultant revealed that households currently are paying somewhere between TZS 4,000–5,000 per month and the households except for one are not willing to pay any increment in user charges. Households are not entirely convinced of the need for higher user fees. However, for the PPP Project, user charges for urban households (both CBD and non CBD) and rural households have been set at cost recovery level of TZS 5,800 per month (~45% increase) and TZS 2,000 per month, respectively. These charges are higher than what households are currently paying or are willing to pay. However, it is to be noted that the level of user charges for waste collection is around 1% of household's income which seems reasonable. The fee increment is 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:* Commercial units currently pay, TZS 10,000–TZS 25,000 as per the type of commercial establishment, according to the data provided by CCD. The commercial units include hotels, restaurants, supermarkets, malls, offices, retail stores, schools, etc. As per stakeholder consultations and willingness to survey assessment conducted with an office, shopping complex and a bar, all of them are currently serviced by Green Waste for waste collection. None of the interviewees were willing to pay any increment in user charges and were not entirely convinced of the need for higher user fees. However, for the PPP Project, user charges for commercial units have been set at cost recovery level of TZS 25,000 per month. The user charges are justified considering the fact that once the SWM services are upgraded, and the capacity is enhanced, all the commercial units 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 commercial unit will escalate by 25% after every three years.

*Monthly fee from industrial units*: Industrial units currently pay TZS 100,000 on a monthly basis, as per data provided by CCD. As per stakeholder consultations and willingness-to-pay assessment undertaken with a wine factory they are currently being serviced by Green Waste for waste collection and are currently paying TZS 600,000 per month in high season and TZS 200,000 per month in low season and are not willing to pay higher after the implementation of the PPP Project. For, the PPP Project, the user charges have been set at cost recovery level of TZS 135,000 for industrial units. The fee is justified considering the fact that once the SWM services are upgraded, and the capacity is enhanced, all the industrial units 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 industrial unit will escalate by 25% after every three years.

*Monthly fee from institutes:* Institutional units currently pay, TZS 100,000 on a monthly basis as per data provided by CCD. For, the PPP Project, the user charges have been set at cost recovery level of TZS 135,000 for institutions. The user charge is justified considering the fact that once the SWM services are upgraded, and the capacity is enhanced, all the institutional units 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 institute will escalate by 25% after every three years.

*Monthly fee from hospitals:* As per stakeholder consultations and willingness-to-pay survey assessment undertaken with a hospital and a health centre, both the hospital and health centre are being serviced by Green Waste for the collection of non-hazardous waste and both are paying TZS 100,000 per month for waste collection and are not willing to pay higher. For the PPP Project, the user charges have been set at the current levels of TZS 100,000 per month (which is also the cost recovery level) for hospitals. The monthly user charge per hospital will escalate by 25% after every three years. A summary of the current user charges, and user charges proposed by the Consultant is provided in the table below.

*Table 6-7: User charges in TZS per month for SWM facilities*

| Establishment | Current user charges (TZS) | Proposed user charges (TZS) | Percentage increase (approximate) |
|---|---|---|---|
| Urban households - CBD | 4,000 | 5,800 | 45% |
| Urban households - Non CBD | 4,000 | 5,800 | 45% |
| Rural households | - | 2,000 | - |
| Commercial units | 10,000 – 25,000 | 14,300 – 35,750 | ~43[7]% |
| Industrial units | 100,000 | 135,000 | 35% |
| Institutional units | 100,000 | 135,000 | 35% |
| Hospitals | 100,000[8] | 100,000 | - |

*Source: Consultant*

*Tipping fee:* Currently, a few industries and institutes in Dodoma transfer their waste directly to the landfill site, which is charged a tipping fee of TZS 10,000 per ton of waste. Once the services are upgraded and disposal at landfill is streamlined, such industries and institutes can pay a sum of TZS 15,000 per ton irrespective of quantity for the first three year. Tipping fee of TZS 15,000 per ton is set at the cost recovery level. After every three years, the tipping fee will be escalated by 25%.

*Table 6-8: Annual revenue statement for proposed PPP Project*

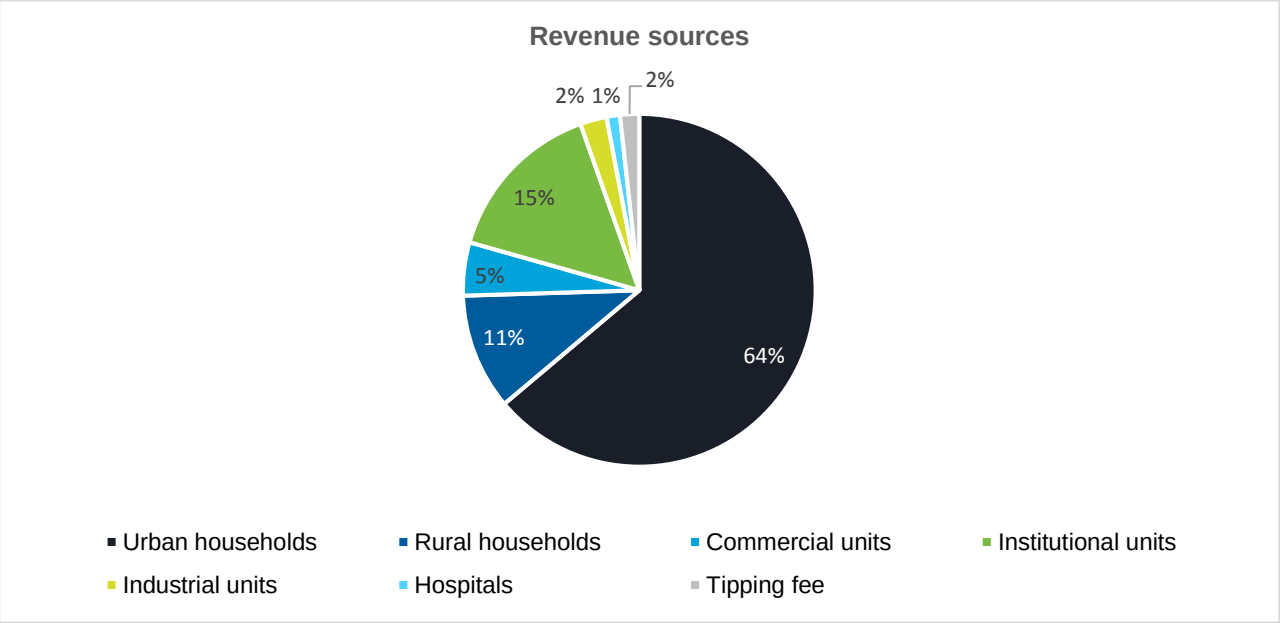
| Annual revenue statement | Number | Monthly fees (TZS) | Total first year revenue (TZS million) |
|---|---|---|---|
| Monthly fee from urban households | 79,896 | 5,800 | 3,559 |
| Monthly fee from rural households | 51,505 | 2,000 | 593 |
| Monthly fee from commercial units | 1,414 | 25,000 | 271 |
| Monthly fee from institutional units | 817 | 135,000 | 847 |
| Monthly fee from industrial units | 131 | 135,000 | 136 |
| Monthly fee from hospitals | 89 | 100,000 | 68 |
| **Subtotal (1)** | **-** | **-** | **5,475** |
| **Annual revenue statement** | **Tons transferred each day** | **Monthly fees per ton (TZS)** | **Total first year revenue (TZS million)** |
| Tipping fee from private transfer trucks | 17.8 | 15,000 | 98 |
| **Total revenue** | - | - | **5,572** |

*Source: Consultant*

[8] As per stakeholder consultations and willingness to pay assessment

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 ~75% of the total revenue generated from SWM operations, wherein ~64% is generated from urban households and the rest from rural households. Other major sources of revenue are user fees charged from institutional units (~15%). The minor sources of revenue includes fee charged from commercial units (~5%), fee charged from industrial units (~2%), fee charged from hospitals (~1%) and tipping fee charged from industries/institutes (~2%). 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*

Currently, the CCD is incurring an annual expenditure of TZS 651 million on SWM services, while the total revenue of council through SWM services is TZS 432 million. Therefore, the council is currently incurring an operating loss by spending more than what they are earning. While under the PPP Project, the CCD will receive only 5% 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 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, CCD 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 CCD 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 5% revenue share to CCD. 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 6,296 million and over a 15 years period equals TZS 38,832 million. With a project IRR of 19.7% and equity IRR of 20.2% for the 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 5% revenue share to CCD) 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 5% revenue share to CCD, (the Consultant has not considered 5% revenue share to CCD for the only landfill option). Therefore we recommend the integrated operations from 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 5% revenue share to CCD for integrated and only C&T options) have been provided in the table below.

*Table 6-9: Capex and equity IRR (TZS million and %)*

| Scenario | Capex (first year) TZS million | Capex (over 15 years) TZS million | Equity IRR (%) |
|---|---|---|---|
| Base case - Integrated | 6,296 | 38,832 | 20.2 |
| Option 1 - Only C&T | 3,749 | 29,049 | 20.5 |
| Option 2 - Only landfill | 2,547 | 9,783 | 19.5 |

*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 majority of waste generators in Dodoma are not entirely convinced of the need for higher user charges for waste collection services.

Considering cost recovery for the ProjectCo and 5% of revenue to be shared with CCD (for integrated operations and only C&T option), the user charges for urban households would need to be increased by ~45% (from TZS 4,000 to TZS 5,800 per month). The user charges for rural households have been set at TZS 2,000 per month (currently no user charges are levied). The user charges for all other waste generators such as industries, institutions, etc. would need to be increased by 35-43%). In addition, all user charges would be revised by 25% every three years and 5% of the revenue earned by the ProjectCo would be shared with CCD. The current and proposed user charges and tipping fee are summarised in the table below.

*Table 6-10: Revenue sources analysis (in TZS)*

| User charges/ tipping fee | Current (as per CCD) | Proposed user charges and tipping fees | | |
|---|---|---|---|---|
| | | Integrated | Only (C&T) | Only landfill |
| Urban households – CBD area (per month) | 4,000 | 5,800 | 5,800 | - |
| Urban households – Non CBD area (per month) | 4,000 | 5,800 | 5,800 | - |
| Rural households (per month) | - | 2,000 | 2,000 | |
| Commercial units (per month) | 10,000 - 25,000 | 14,300 - 35,750 | 14,300 - 35,750 | - |
| Industrial units (per month) | 100,000 | 135,000 | 135,000 | - |
| Institutional units (per month) | 100,000 | 135,000 | 135,000 | - |
| Hospitals (per month) | 100,000 | 100,000 | 100,000 | |
| Tipping fee per ton from private transfer trucks | 10,000 | 15,000 | - | 15,000 |
| Tipping fee per ton from CCD's transfer trucks[9] | - | - | - | 12,000 |

[9] This tipping fee is applicable in the case of only landfill, payable either by CCD or a C&T operator (private player) to the ProjectCo.

| User charges/ tipping fee | Current (as per CCD) | Proposed user charges and tipping fees | | |
|---|---|---|---|---|
| | | Integrated | Only (C&T) | Only landfill |
| Tipping fee per ton from ProjectCo's transfer trucks[10] | - | - | -12,000 | - |

*Source: Consultant*

Our calculations result in a post-tax project IRR of 19.7%, post-tax equity IRR of 20.2% for integrated operations with an average DSCR of 2.2. These returns are robust and should be acceptable to a ProjectCo as well as to financiers.

*Table 6-11: Financial pre-feasibility assessment for integrated operations (base case)*

| Item | Metric outcome | Comparison with | Conclusion |
|---|---|---|---|
| Project IRR | 19.7% | WACC of 13.8% | Project IRR higher than WACC suggests that Project is financially viable |
| Equity IRR | 20.2% | 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 6.5, 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 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:

[10] In case of only C&T, tipping fee of TZS 12,000 per ton of waste has to be paid by the ProjectCo to CCD or to the landfill operator for disposing waste at the landfill site. Since, it is an operational expenditure it is depicted by a negative sign.

*Table 6-12: Sensitivity Analysis*

| S. No. | Case | Equity IRR | Average DSCR |
|---|---|---|---|
| 1 | Base Case | 20.2% | 2.2 |
| 2 | 20% increase in capex | 17.5% | 1.8 |
| 3 | 20% decrease in capex | 23.5% | 2.7 |
| 4 | 20% increase in opex | 2.0% | 0.2 |
| 5 | 20% decrease in opex | 48.4% | 4.1 |
| 6 | 20% increase in revenue | 52.7% | 4.4 |
| 7 | 20% decrease in revenue | -5.0% | (0.1) |
| 8 | Debt Interest rate @ 18% instead of 16% | 19.7% | 2.1 |
| 9 | Debt Interest rate @ 14% instead of 16% | 20.6% | 2.2 |
| 10 | Three- yearly tariff indexation rate @ 30% | 27.6% | 2.6 |
| 11 | Three- yearly tariff indexation rate @ 20% | 9.8% | 1.7 |

*Source: Consultant*

The above table shows that Project's revenue and opex 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 -5.0% and 2%, respectively. Additionally, three-yearly tariff indexation @20% results in equity IRR of 9.8%, whereas 20% increase in capex results in an equity IRR of 17.5%. 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 52.7% and 48.4%, 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 VGF, 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 20.2%, 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 to share 5% of the revenue earned with CCD. In addition to the base case the Consultant has evaluated two additional charge scenarios testing the impact of change in user charges, impact of change in user charges escalation period and impact of change in the percentage of revenue to be shared with the ProjectCo. The base case and additional scenarios have been quantified in the table below.

*Table 6-13: Additional scenarios for integrated option*

| Particulars | Base case | Scenario 1 | Scenario 2 |
|---|---|---|---|
| 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 collection of waste | 21 | 21 | 21 |
| Number of rural wards covered for collection of waste | 20 | 20 | 20 |
| Role of ProjectCo | Integrated | Integrated | Integrated |
| Monthly user charges - urban households- CBD (TZS) | 5,800 | 4,000 | 5,800 |
| Monthly user charges - urban households- Non-CBD (TZS) | 5,800 | 4,000 | 5,800 |
| Monthly user charges from rural households (TZS) | 2,000 | Not levied | 2,000 |
| Average increase in user charges for other waste generators | 35%-43% | 0% | 35%-43% |
| User charges escalation period (in years) | 3 | 3 | 5 |
| User charges escalation rate (in %) | 25% | 25% | 25% |
| % revenue share by ProjectCo with LGA (in %) | 5% | 0% | 0% |
| Total Project capex over 15 years (in TZS mn) | 38,832 | 38,832 | 38,832 |
| Equity IRR (in %) | 20.20% | 19.90% | 20.50% |
| Agreement period (in years) | 15 | 15 | 15 |
| TZS subsidy per ton per day to be provided by LGA | Not required | 20,000 | 7,250 |
| Annual increment in subsidy (in %) | Not required | 5% | 5% |
| Subsidy in Year 1 (in TZS mn) | Not required | 2,331 | 845 |
| Subsidy in Year 5 (in TZS mn) | Not required | 4,133 | 1,498 |
| Subsidy in Year 10 (in TZS mn) | Not required | 6,619 | 2,399 |

*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 5% of revenue earned by ProjectCo will be shared with CCD and no subsidy is required to be paid by the CCD to the ProjectCo. However, for it to be implemented, 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 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 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. However, it is to be noted that the CCD would be required to pay a subsidy of TZS 20,000 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 CCD to ProjectCo in year 1 is TZS 2,331 million, in year 5 is TZS 4,133 million and in year 10 in TZS 6,619 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 CCD in comparison to the base case. The CCD will be required to pay a subsidy of TZS 7,250 per ton per day to the ProjectCo, which would increase by 5% per annum, to factor in the 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 CCD to the ProjectCo in year 1 is TZS 845 million, in year 5 is TZS 1,498 million and in year 10 is TZS 2,399 million. Under this scenario the expenditure to be incurred by CCD would be lower as compared to the expenditure to be incurred under Scenario 1. However, given the limited financial capability of CCD, it would also be difficult for CCD to provide this subsidy.

The base case along with the two scenarios evaluated by the Consultant will be further discussed by the Project team of CCD 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.

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:

*Impact on PV = weighted average risk factor × PV*

*Table 6-14: Weighted impact on PV*

| Risk category | Specific risk | Probabilistically weighted loss (%) | Weighted impact on PV (TZS million) |
|---|---|---|---|
| Construction risk | Capex over-run | 9% | 1,548 |
| | Time over-run | 34% | 5,878 |
| | Design risk | 9% | 1,548 |

| Risk category | Specific risk | Probabilistically weighted loss (%) | Weighted impact on PV (TZS million) |
|---|---|---|---|
| Operational risk | Opex over-run | 16% | 11,977 |
| | PMO cost over-run | 16% | 11,977 |
| Financial risk | Interest rate risk | 12% | 10,455 |
| | Exchange rate risk | 12% | 10,455 |
| | Inflation risk | 12% | 10,455 |
| Revenue risk | Revenue risk | 35% | 35,564 |

*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 9,986 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; and (f) force majeure risk.

The net cost under the PPP procurement approach is then 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 a 15 year agreement period is then TZS 5,154 million.

On the other hand, under the conventional public-sector procurement framework, the total value of risk i.e. TZS 87,881 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 is TZS 77,900 million and 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 6-15: Value for money calculation (TZS million)*

| Variable | PSC procurement – net costs (TZS million) | PPP procurement – net costs (TZS million) |
|---|---|---|
| PV of capital costs | 17,205 | - |
| PV of operating costs | 73,706 | - |
| PV of total costs | 90,911 | - |
| PV of retained risks | 87,881 | 9,986 |

| Variable | PSC procurement – net costs (TZS million) | PPP procurement – net costs (TZS million) |
|---|---|---|
| Project Revenue | 100,892 | - |
| PV of tax revenue from ProjectCo | - | 4,832 |
| Total PV of net costs | 77,900 | 5,154 |
| **Value for money** | **TZS 72,746 million** | |

*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 5,154 million) is significantly lower than that of the public-sector procurement approach (TZS 77,900 million). In other words, it is TZS 72,746 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 CCD has limited experience in upgrading the SWM value chain as proposed. ProjectCo with experience in this sector can use its expertise and modern construction technologies to develop the market 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.

# 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 Dodoma.*

## 7.1 Institutional review

This section provides an overview of the applicable institutional structure, the approach undertaken for institutional review, and the CCD's responses with respect to current institutional capacity, preparedness for PPP projects, and its capability to execute the PPP projects in an efficient manner.

Approach for undertaking the institutional review

The Consultant has carried out a comprehensive assessment with the investment committee members of the city council. A detailed questionnaire has been prepared with specific questions related to assessing the LGA's institutional capability. The framework and methodology provided in the World Bank Public-Private Partnerships Screening Tool were used to prepare the questionnaire. The questions were divided into three major groups:

a) *Institutional capacity*

b) *Preparedness of the LGA for PPP projects; and*

c) *Capability of the LGA to execute the projects in an effective and efficient manner*


The responses provided by the investment team members provided the inputs for preparing a diagnostic report on the institutional capacity of the city council. This would determine its ability to manage the proposed PPP projects during the implementation and operational phases.

Institutional capacity of the CCD

- *Composition of the PPP team:* The CCD has an investment committee, details of which have not been provided by CCD, however all the members in the investment committee are deputed and have their separate full-time responsibilities. Membership of the investment committee and PPP team (if any) are additional responsibilities.
- *Academic qualifications and training in PPPs*: The details of the members of Investment committee have not been provided. Thus, it cannot be said whether they possess the ability to understand the basics of PPPs. The LGA has no previous experience in contracting with the private sector. As such, the team does

not have any significant experience or expertise in PPPs. Therefore, the team will require significant training in various aspects of PPP Project preparation as the projects moves forward.

- *Financial constraints:* Currently, CCD has a surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally, the average surplus in the last four years is around 4.6% of the total revenue. The project cost over a period of 15 years is TZS 38.8 billion. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained. Therefore, it is adequate to assume the LGA will not have financial flexibility to ensure adequate funding for a robust PPP Project preparation exercise.

Preparedness of CCD for PPP projects

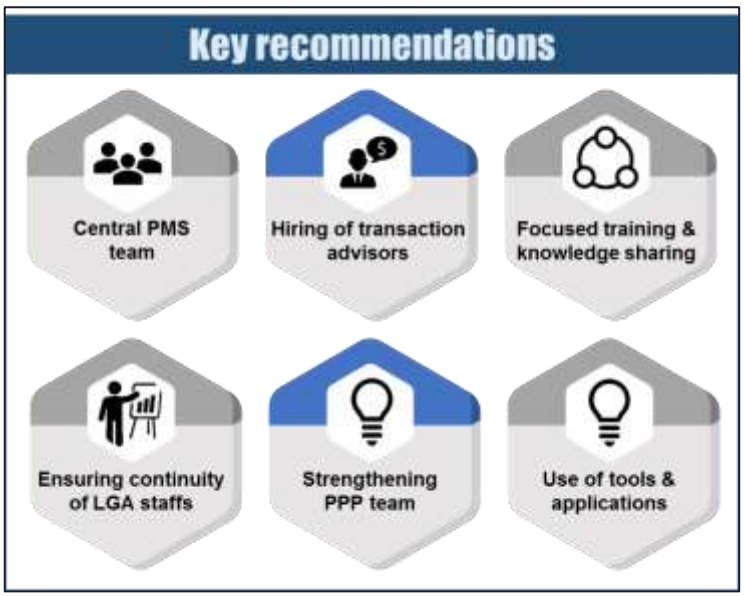
- *Less preparation:* The CCD is less prepared for the implementation of these projects. They currently do not have a project plan on the next stages of the Project with identified deadlines and responsibilities allocated. They have also not estimated the cost to be incurred by the LGA for project preparation and engineering studies.
- *Need for project planning:* The CCD currently does have well-defined plans to deal with project management and stakeholder consultations. They have not undertaken social consultation for individual projects, and would want to undertake social engagements/ stakeholder's analysis. No internal and external stakeholders have been identified, and the LGA has not finalized any plans to engage with internal and external stakeholders. They do not have project management capability for identified PPP Project.
- *Need for technical assistance*: The CCD will require considerable technical assistance and hand-holding to successfully implement the Project preparation processes as they currently do not has previous experience with PPPs. The CCD envisages that stakeholder involvement will be a constraint delaying the project implementation.

Capability of CCD to execute the Project in an effective and efficient manner

- *Need for dedicated personnel within the LGA:* There should be at least one dedicated person deployed in the LGA, who should be the primary contact point between the PPP and central Project management support teams. This person would be responsible for steering the Project from the LGAs side and look into the overall progress and monitoring of the Project with respect to timelines.
- *Support from central government to fund hiring of transaction advisors:* City Council of Dodoma has current surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally the average surplus in the last four years is around 4.6% of the total revenue. The project cost over a period of 15 years is TZS 38.8 billion. CCD will not be able to contract transaction advisors on a full-time basis with respect to the Project. Thus, it should estimate the overall budget depending on the amount of work and time required for the transaction advisor and put in a requisition of funds to the central government.

Key recommendations

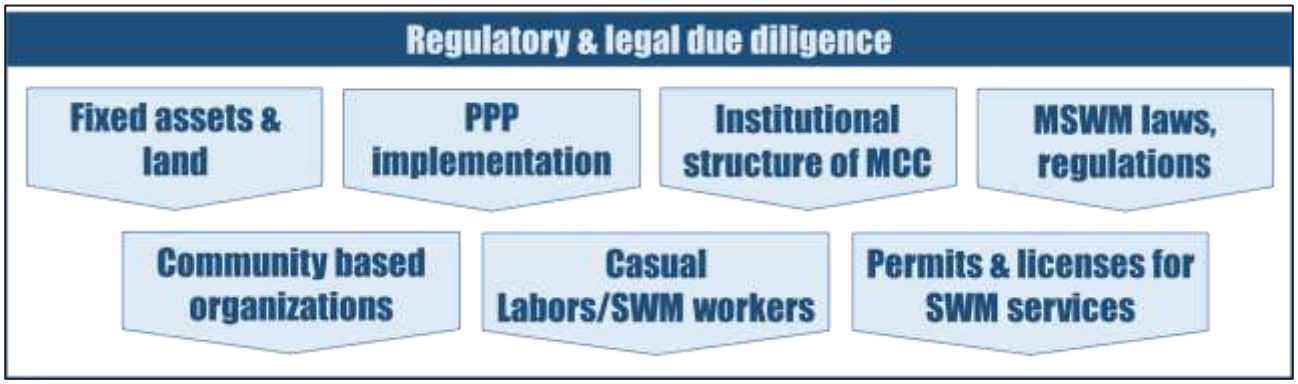
The Consultant suggests the following actions strengthening the institutional capacity of the LGA with respect to implementing the PPP Project:




- *Central project management support (PMS) team*: The LGA needs to be handheld in various aspects of project preparation. Therefore, we suggest having a central pool of technical, financial, legal, and E&S experts that can be sourced on a needs basis to meet the specific needs of the PPP project. The central PMS team could report to the PPP Node and could be utilized for assisting all the LGAs on the four SWM PPP projects, including that of Dodoma. As per the information provided by CCD they do not have a dedicated project management unit for this project.
- *Hiring of transaction advisors*: PPP procurement usually takes longer than public procurement due to the financial, legal and technical intricacies involved in the PPP procurement process. The central PMS team could provide technical support to the LGA in the tender process.
- *Focused training and knowledge sharing*: The PPP team in the LGA would require continued and focused training on Project preparation, procurement and contract management as the PPP Project progresses. The staff should be acquainted with knowledge of the best practices and tools being developed in the World Bank group, so they could benefit from the global repository of knowledge being created by the Bank. It would also help them to exchange ideas and experiences through a knowledge-sharing platform that could be created by the PPP Node for all the LGAs preparing PPPs in Tanzania and in the region.
- *Ensuring continuity of the LGA staff in the PPP unit*: Given the Project preparation and procurement process will be spread over two to three years, it would be beneficial if the trained LGA staff continues with the PPP unit for the duration. Frequent staff changes could disrupt the capacity development process.
- *Strengthening the PPP team*: Depending upon the development of a PPP pipeline in the LGA, it is suggested employing full-time staff or consultants are recruited to be placed in the LGA's PPP team responsible for technical, financial and project management activities.
- *Use of tools and applications:* It would be beneficial for the LGA to implement systems and processes and embedded tools and applications developed by the Bank and other development partners. For further details refer to Section 16.

## 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* – CCD 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 Center (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, 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, therefore, be advisable for CCD to lease the land to the ProjectCo for a specified period rather than to transfer the CCD title to the latter. The provisions of the lease will be provided for under the PPP Agreement and should include ProjectCo's obligations to upgrade, operate

and maintain the CCD SWM Project for a specific period. There is no minimum value required 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, CCD will resume the operation and management of the CCD SWM project. Thus the ownership of the CCD title remains with the CCD, while the operation and management of the assets and economic activities is 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. With this mandate, CCD as the holder of the CCD title may use the land on which collection centers and landfill sites rest upon, to secure a loan from lenders for the CCD SWM Project. As ProjectCo will only lease out the land from CCD and will not have the CCD 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 project funding without the CCD land 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 CCD in order to carry out the CCD SWM project, the ProjectCo must seek the approval of the CCD 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 CCD and ProjectCo must be clearly provided for in the PPP agreement in order to ensure CCD 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, CCD would be reluctant to allow the CCD land title to be used as security for a loan. CCD would expect ProjectCo to finance the Project without relying on the CCD title as security for a mortgage. We recommend that CCD should not exercise the right to use land as security for the CCD SWM Project. This is to ensure that in case of any default, CCD does not lose the CCD title to lenders.

<u>PPP implementation</u>

- *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 CCD 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 2.7 million, for first year, falls within the scope for an LGA, in this case the CCD, 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 CCD on CCD'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 current PPP regulation, 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, CCD can transfer its assets and user rights to ProjectCo (with whom they will sign a PPP agreement) to carry out the CCD SWM Project. The transfer of these rights will be for a stated period in the PPP agreement, which should not exceed 20 years where there is an extension.[11]

  At the end of the PPP agreement, the ProjectCo will be required to hand back the assets to CCD. 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 licence or permit issued by the LGA. Accordingly, Rule 26(a) of the CCD Environmental Rules provides that the CCD will be responsible for collecting a monthly waste collection fee of TZS 4,000 per household in Zone A12 and TZS 2,000 per household in Zone B13. Further, fees for the different businesses are provided under Table B of the Schedule. Further, Rule 14 and Schedule D of the CCD Environmental Rules provides for the fees to be paid by agents, organisations, industries and other waste producers who use the landfill site. Accordingly the PPP agreement between CCD 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

[11] The Consultant has been informed that the PPP regulations are being amended and among other things, will remove the limitation on duration of the agreement
[12] Zone A includes the following wards: Kilimani, K/Ndege, Uhuru, Makole, Viwandani, Madukani, Ipagala and Tambukareli.
[13] Zone B includes the following wards: Majengo, Kizota, Kikuyu Kaskazini, Kikuyu Kusini, Chamwino, Hazina, Chang'ombe, Mnadani, Miyuji, Nghoghonha, Dodoma Makulu, Nzuguni and Iyumbu.

ProjectCo will not exceed the maximum duration of the PPP agreement which is 20 years in case of an extension.

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. Moreover, applicable taxes chargeable to the users will be paid to the Tanzania Revenue Authority (TRA). 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 CCD

*Capacity of CCD* - 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, CCD 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 Center 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 CCD will be the contracting authority for the CCD 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 CCD, the CCD Environmental Rules 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.

Additionally, any person who contravenes the CCD Environmental Rules either by littering, refusal to pay collection fees, illegal dumping or failure to collect demolished waste among others, shall be liable to pay a fine of TZS 50,000 or imprisonment for a term not exceeding six months or both (Rule 28(c) CCD

Environmental Rules). Therefore, CCD will be responsible for imposing the appropriate penalties where any person interferes with the proper functioning of the CCD SWM Project.

Community based Organizations

As previously noted Rule 26(a) of the CCD Environmental Rules provides that CCD 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 currently CBOs are involved in the collection of waste directly from residential users disposing the waste in the specified collection centers and they are also involved in the collection of monthly fees from the residential users, however the role of transportation from the specified collection centers and the management of the landfill site is left to CCD. Rule 2 of the CCD Environmental rules define CBOs as community based organizations formed to impact social change within its jurisdiction. CBOs are regulated by the NGO Act, NGO regulations as well as the CCD Environmental rules. As per the functions of the NGOs, the CBOs in CCD are promoting environmental protection through collecting solid waste and ensuring safe disposal of solid waste. 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. Most of the CBOs operating under CCD have more than five members. Further details are provided under Section 12.

Labor

There is no specific provision in relation to transfer of employees of CCD to ProjectCo under the PPP Act. However, as CCD employees are public servants, their contracts should remain with CCD 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 labors. 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.

In conclusion, the CCD SWM Project can be carried as a PPP. Once the tendering process has been carried out CCD 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, unless an extension, which shall not exceed five years, has been granted.

With regards to the land title, the CCD has to ensure that they obtain the CCD 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 CCD and ProjectCo will provide, among other things, for CCD to lease out the land and its assets to ProjectCo.

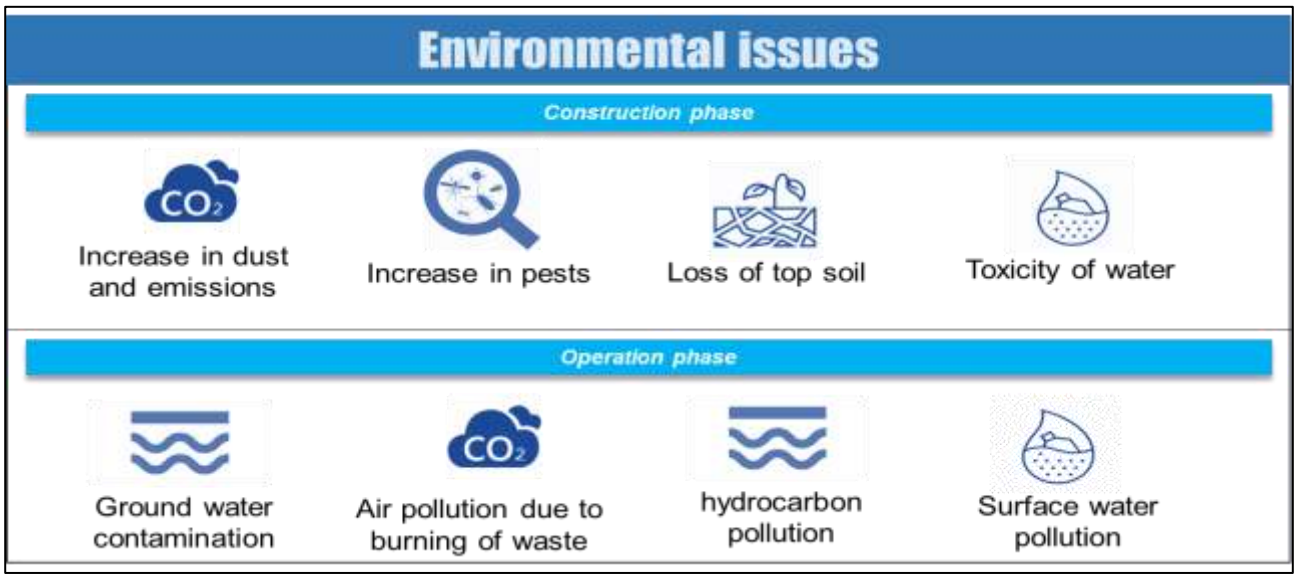
Therefore, there will be no need for a separate lease agreement as this will be annexed in the PPP agreement. We also recommend that CCD should not permit the CCD land title to be used as security by the ProjectCo for its project financing.

## 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 and upgradation of the landfill site. That, in turn would improve cleanliness and hygiene, and overall health of the city's inhabitants.

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.




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).

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) transferring of obligations to implement the ESMP and complying with national legislations and standards of World Bank to the ProjectCo and (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 Dodoma. 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 additional ESIA would be required 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 done.
- *Method of development of ESIA and ESMP*: Experts registered with 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 the 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 ESIAs 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.

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 CCD 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 hence, 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 GRM that provides a means to address and resolve all potential grievances with a PPP supported by the 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. For national PPPs, a Project specific Grievance Committee will be established by the PPP's implementing agency. Responsibilities under the implementation of the GRM include: 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.

# 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 strategically, economically, commercially and financially viable, besides providing VfM to CCD. The proposed Project meets all the requirements set out in local laws and regulations and, in particular, the PPP law.

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| **Strategic case** | 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.<br>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 and local employment opportunities, among other benefits. |
| **Economic case** | The Project results in an economic rate of return (ERR) of 38.2% and an economic NPV of TZS 14,192 million. Even in the worst scenario (Project capital cost increases by 20%), the Project results in an ERR of 34.2% and an ENPV of TZS 13,436 million over 15 years. We conclude the Project is unequivocally economically viable.<br>Though we have given the option of the 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. |
| **Commercial case** | 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 |

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| | each contract party. Under this case, the roles and responsibilities of both CCD and the ProjectCo under the proposed PPP Project have been analyzed.<br><br>Our recommended payment mechanism clearly points to the ProjectCo collecting the fees and sharing 5% of the revenue with CCD, as this ensures the incentive structures are set right. This section also covers the details of the procurement procedure and its accountancy treatment. |
| **Financial case** | 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 19.7% and an equity IRR of 20.2% 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.<br><br>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. |
| **Management case** | Capex for first year is estimated at TZS 6,296 million (USD 2.7 million) and within the maximum limit of USD 20 million, which renders the Project eligible for the PPP mode. The PPP agreement will be for maximum of 15 years. The ownership of land for landfill and collection centers would remain with the CCD, which would lease out the land to the ProjectCo during the agreement period. CCD 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). |

## 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.

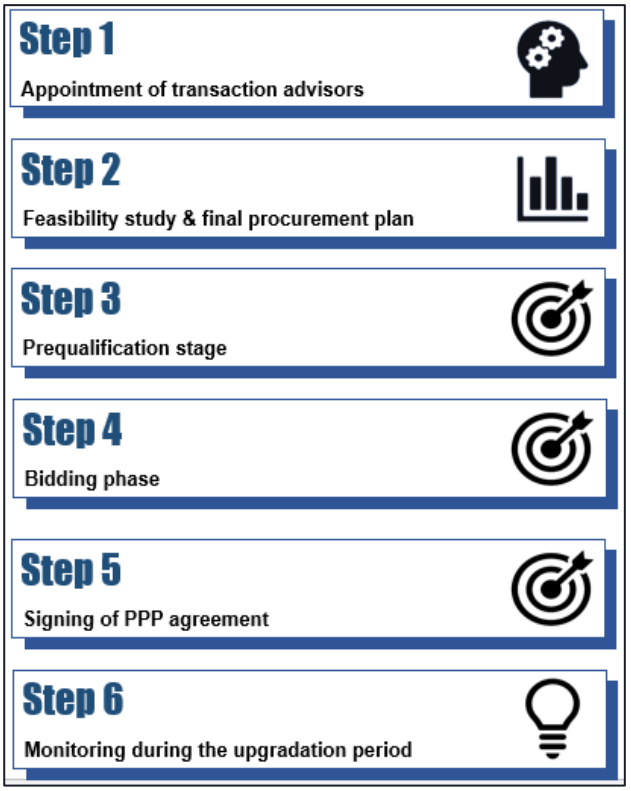
As financial bidding variables, we list the proposed end-user fees (lower the better), required viability gap funding/ annual subsidy (lower the better) or a revenue-sharing percentage (higher the better). These variables should be finalized in the feasibility phase.

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 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 CCD, 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 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.

| | |
|---|---|
| **First stage** | •Request for qualification (RFQ)<br>•Eligible and prospective bidders are pre-qualified |
| **Second stage** | •Request for proposal (RFP) or the bidding stage<br>•Pre-qualified bidders are invited to submit their technical and financial proposals |

- *Stage 5 - Signing of PPP agreement* – CCD will be the implementing agency. ProjectCo and City Council of Dodoma (CCD) will be the signatories to the PPP agreement. CCD is responsible for measuring outputs of the PPP agreement; monitoring implementation of PPP agreement and performance of the ProjectCo; overseeing day-to-day management of the PPP agreement; and reporting on the PPP agreement in the implementing agency's annual report.

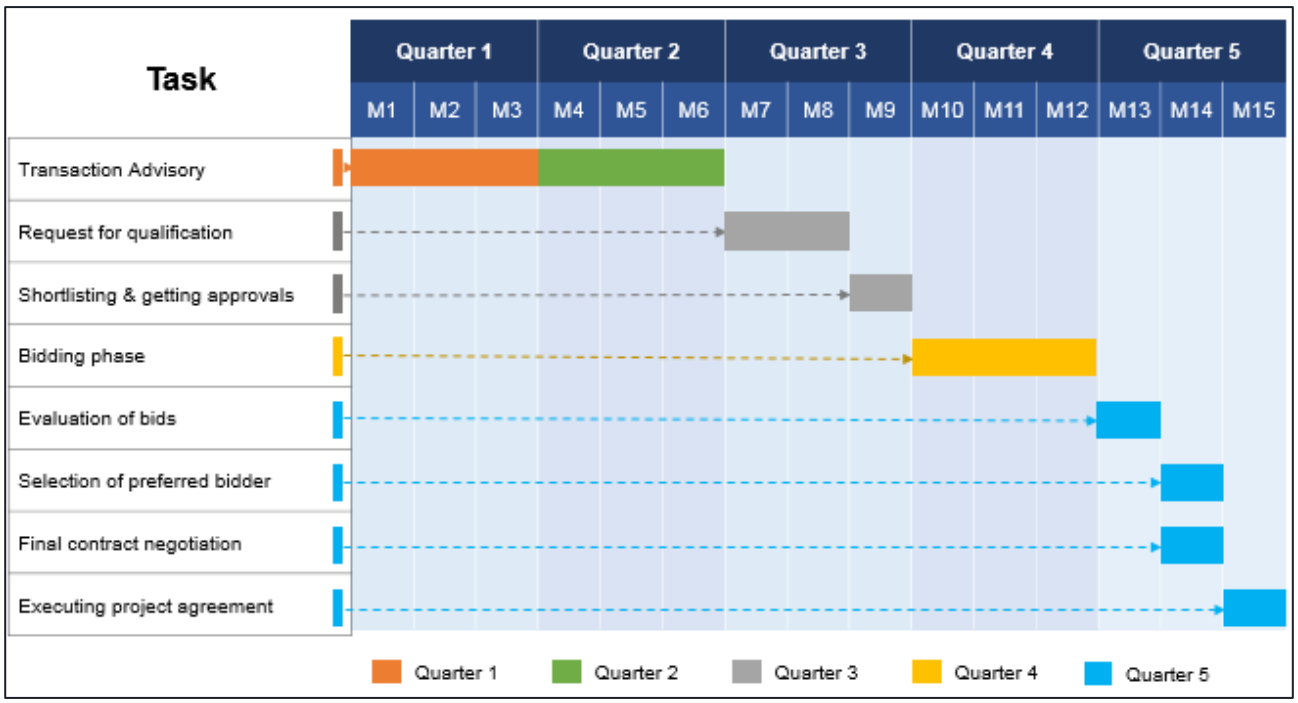
  For any material amendments in the PPP agreement, approval of the PPP Node under President's office-regional administration and local government (PO-RALG) is required. The PPP Node shall provide a variation only if it is satisfied that the PPP agreement, after the amendments, will continue to provide 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 CCD 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.

*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 include 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.
- *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:

- CCD 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 pre-feasibility 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

CCD 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.

Revision of fees

For establishing the Project's pre-feasibility, 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. Currently, households are charged TZS 4,000, commercial units between TZS 10,000–25,000, industrial units TZS 100,000, institutional units TZS 100,000 and hospitals TZS 100,000[14]. Once the SWM value chain is upgraded, better facilities are provided, the user charges will need to be set at cost recovery

[14] As per willingness to pay survey conducted with hospitals and health centers.

level of TZS 5,800 for urban households (CBD and non-CBD), TZS 14,300–37,750 for commercial units, TZS 135,000 for industrial units, TZS 135,000 for institutes, and the fees could remain at TZS 100,000 for hospitals. User charges for rural households have been set at TZS 2,000 (current no charges are levied). Currently, a few industries and institutes in Dodoma transfer their waste directly to the landfill site, which is charged a tipping fee of TZS 10,000 per ton of waste, which would be increased to TZS 15,000 per ton for the first three years and thereafter it would be increased by 25% after every third year of operation.

Future increment in fees

In the financial model, we have assumed that the end-user fees will be increased every 3 years with 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 with/sub-contracting them, and needs to integrate casual labor in the PPP Project to ensure 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 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 have been prepared wherein a detailed breakdown of the capex and opex 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 already incurred under the TSCP Project.*

*Table 9-1: Capex of the TSCP Project*

| S/No. | Equipment | Number | Amount (in TZS Million) |
|---|---|---|---|
| **Machinery / equipment for collecting and transporting solid waste (Phase One)** | | | |
| 1 | Tipper Truck | 2 | 201 |
| 2 | Side loader | 1 | 127 |
| 3 | Skip loader | 4 | 455 |
| 4 | Skip Buckets | 61 | 448 |
| 5 | Tractors | 1 | 121 |
| 6 | Trailers | 3 | 71 |
| 7 | **Total cost** | **-** | **1,422** |
| **Machinery / equipment for collecting and transporting solid waste (Phase Two)** | | | |
| 1 | Skip Pads | 1 | 6 |
| 2 | Skip Buckets | 2 | 28 |
| 3 | Skip Loaders | 0 | - |
| 4 | Tipper | 1 | 161 |
| 5 | Wheel Loader | 1 | 575 |
| 6 | **Total Cost** | - | **769** |
| **Machinery and equipment for Sanitary Landfills** | | | |
| 1 | Bulldozer | 1 | 489 |
| 2 | Landfill Compactor | 1 | 263 |
| 3 | Wheel loader | 1 | 535 |
| 4 | Excavator | 1 | 366 |

| S/No. | Equipment | Number | Amount (in TZS Million) |
|---|---|---|---|
| 5 | Weigh bridge | 1 | 60 |
| 6 | Washing Machine | 1 | 13 |
| 7 | Environmental Monitoring Equipment | 2 sets | 117 |
| 8 | **Total cost** | | 1,842 |
| 9 | Construction cost for sanitary landfill | | 5,658 |
| 10 | **Total cost for C&T (Phase 1&2) & landfill** | | **9,692** |

*Source: Consultant*

*Table 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 | 309 | 5% |
| 2 | Tri-cycles | 588 | 9% |
| 3 | Push-carts | 257 | 4% |
| 4 | Transfer trucks (Type 1) | 1,393 | 22% |
| 5 | Transfer trucks (Type 2) | - | 0% |
| 6 | Face masks | 25 | 0% |
| 7 | Gum boots | 25 | 0% |
| 8 | Hand gloves | 25 | 0% |
| 9 | Uniform | 114 | 2% |
| 10 | Headwear | 25 | 0% |
| 11 | Bulldozers | 449 | 7% |
| 12 | Wheel loaders | 490 | 8% |
| 13 | Excavators | 335 | 5% |
| 14 | Compactors | - | 0% |
| 15 | Water tanker | 183 | 3% |
| 16 | Tipper trucks | 92 | 1% |
| 17 | Upgradation of landfill site | 329 | 5% |
| 18 | **Gross capex** | **4,640** | 74% |
| 19 | Consulting fee @10% of gross capex | 464 | 7% |
| 20 | Contingency @5% of gross capex | 232 | 4% |
| 21 | **Subtotal (1)** | 5,336 | 85% |
| 22 | VAT @18% of subtotal (1) | 960 | 15% |
| 23 | **Total capex** | **6,296** | 100% |

*Source: Consultant*

*Table 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Collection & Transportation: Procurement cost of equipment (including replacements) (TZS million)** | | | | | | | | | | | | | | | |
| Cost of skip-bucket containers | 419 | 36 | 569 | 120 | 126 | 71 | 483 | 127 | 842 | 259 | 272 | 203 | 766 | 304 | 1,277 |
| Cost of tri-cycles | 792 | 28 | 83 | 93 | 108 | 51 | 855 | 101 | 179 | 202 | 219 | 162 | 1,246 | 238 | 386 |
| Cost of push-carts | 349 | 13 | 36 | 41 | 361 | 39 | 69 | 77 | 472 | 80 | 119 | 133 | 618 | 142 | 194 |
| Cost of transfer trucks Type 1 | 1,891 | - | 220 | 231 | 243 | - | 269 | - | 298 | - | 2,634 | - | 728 | 766 | 403 |
| Cost of transfer trucks Type 2 | - | 110 | - | 121 | - | 671 | - | - | 156 | - | 173 | 181 | - | 401 | - |
| **Subtotal (1)** | **3,458** | **187** | **909** | **606** | **839** | **832** | **1,677** | **305** | **1,956** | **541** | **3,417** | **679** | **3,358** | **2,232** | **2,629** |
| **Collection & Transportation: Personal protective equipment and gear (TZS million)** | | | | | | | | | | | | | | | |
| Face mask | 34 | 27.7 | 32.6 | 38.3 | 44.8 | 49.3 | 54.4 | 59.8 | 65.9 | 72.4 | 79.5 | 87.3 | 95.8 | 105.2 | 115.3 |
| Gum boots | 34 | 27.7 | 32.6 | 38.3 | 44.8 | 49.3 | 54.4 | 59.8 | 65.9 | 72.4 | 79.5 | 87.3 | 95.8 | 105.2 | 115.3 |
| Hand gloves | 34 | 27.7 | 32.6 | 38.3 | 44.8 | 49.3 | 54.4 | 59.8 | 65.9 | 72.4 | 79.5 | 87.3 | 95.8 | 105.2 | 115.3 |
| Uniform | 155 | 5.8 | 142.2 | 24.8 | 177.8 | 37.4 | 208.1 | 53.1 | 243.8 | 72.9 | 284.9 | 97.5 | 333.1 | 128.3 | 389.7 |
| Headwear | 34 | 27.7 | 32.6 | 38.3 | 44.8 | 49.3 | 54.4 | 59.8 | 65.9 | 72.4 | 79.5 | 87.3 | 95.8 | 105.2 | 115.3 |
| **Subtotal (2)** | **291** | **116** | **273** | **178** | **357** | **235** | **426** | **292** | **507** | **363** | **603** | **447** | **716** | **549** | **851** |
| **Total capex for C&T** | **3,749** | **303** | **1,181** | **784** | **1,196** | **1,066** | **2,102** | **597** | **2,464** | **903** | **4,020** | **1,125** | **4,074** | **2,400** | **3,083** |
| **Landfill: Procurement cost of equipment (including replacements) (TZS million)** | | | | | | | | | | | | | | | |
| Cost of bulldozers | 609 | - | - | - | - | 577 | 607 | - | - | - | 742 | - | - | - | - |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cost of wheel loaders | 665 | - | - | - | - | 630 | 662 | - | - | - | 810 | - | - | - | - |
| Cost of excavators | 455 | - | - | - | - | 431 | 453 | - | - | - | 554 | - | - | - | - |
| Cost of compactors | - | - | - | - | - | 624 | 328 | - | - | - | - | - | - | - | - |
| Cost of water tankers | 248 | - | - | - | - | - | 124 | - | - | - | 303 | - | - | - | - |
| Cost of tipper trucks | 124 | - | - | - | - | 118 | 124 | - | - | - | 151 | - | - | - | - |
| Upgradation of landfill site | 446 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Total capex for landfill** | **2,547** | **-** | **-** | **-** | **-** | **2,379** | **2,298** | **-** | **-** | **-** | **2,560** | **-** | **-** | **-** | **-** |
| **Total capex for Integrated** | **6,296** | **303** | **1,181** | **784** | **1,196** | **3,445** | **4,400** | **597** | **2,464** | **903** | **6,580** | **1,125** | **4,074** | **2,400** | **3,083** |

*Source: Consultant*

*Table 9-4: Opex for Integrated*

| Parameter | Calculation (for 1st year of operations) |
|---|---|
| Collection & Transportation component | |
| Fuel cost of equipment | 133 tricycles - TZS 69,000 per month fuel cost<br>7 transfer trucks type 1 – TZS 92,000 per day fuel cost<br>4 transfer trucks type 2 – TZS 138,000 per day fuel cost |
| Maintenance and lubrication cost of equipment | Skip bucket container – 5% annual repair cost – TZS 7 mn unit price – 106 operational<br>Push-carts – 5% annual repair cost - TZS 0.4 mn unit price – 665 operational<br>Tricycles – 5% annual repair cost – TZS 4.4 mn unit price – 133 operational<br>Transfer trucks type 1 - 5% annual repair cost – TZS 199 mn unit price – 7 operational<br>Transfer trucks type 2 – 5% annual repair cost – TZS 104 mn unit price – 4 operational |
| Staff salary and expenses | Waste collection staff – 1,117 required – TZS 200,000 monthly salary per staff<br>Transfer truck drivers – 12 required – TZS 400,000 monthly salary per driver<br>Transfer truck loaders – 19 required – TZS 200,000 monthly salary per loader |
| Landfill component | |
| Fuel cost of equipment | Bulldozer -2 required – 120 litres of fuel consumed per day<br>Wheel loader – 2 required – 80 litres of fuel consumed per day<br>Excavator – 2 required – 100 litres of fuel consumed per day<br>Compactor – 2 required – 60 litres of fuel consumed per day<br>Water tankers – 2 required – 13 litres of fuel consumed per day<br>Tipper trucks – 2 required – 7 litres of fuel consumed per day |
| Maintenance and repair cost of equipment | Bulldozer – 2 required - 5% annual repair cost – TZS 449 mn unit price<br>Wheel loader- 2 required – 5% annual repair cost – TZS 490 mn unit price<br>Excavator - 2 required – 5% annual repair cost – TZS 335 mn unit price<br>Compactor – 2 required – 5% annual repair cost – TZS 243 mn unit price<br>Water tankers – 2 required – 5% annual repair cost – TZS 92 mn unit price<br>Tipper trucks – 2 required – 5% annual repair cost – TZS 92 mn unit price |
| Staff salary and expenses | Landfill operation manager - 1 required – TZS 1,500,000 monthly salary<br>Landfill supervisor – 2 required – TZS 1,300,000 monthly salary<br>Record management assistant – 2 required – TZS 700,000 monthly salary<br>Excavator operator – 2 required – TZS 400,000 monthly salary<br>Tipper truck operator– 2 required– TZS 400,000 monthly salary<br>Bulldozer operator– 2 required– TZS 400,000 monthly salary<br>Wheel loader operator– 2 required– TZS 400,000 monthly salary<br>Compactor operator– 2 required– TZS 400,000 monthly salary<br>Water tanker operator– 2 required– TZS 400,000 monthly salary<br>Attendants – 3 required – TZS 700,000 monthly salary<br>Casual labor – 15 required – TZS 200,000 monthly salary<br>Environment monitoring and testing officer – 1 required – TZS 1,300,000 monthly salary |

| | |
|---|---|
| | Landfill security guards – 4 required – TZS 200,000 monthly salary |
| Landfill maintenance and repairs | Annual maintenance of landfill site 3% of TZS 6,580 mn (landfill construction cost)<br>Electricity cost – TZS 400,000 per month<br>Water services cost – TZS 200,000 per month |
| **Revenue share** | |
| Revenue share | 5% of revenue earned by ProjectCo to be shared with CCD |

*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 Dodoma city.*

Participants of the survey

The assessment involved the households, offices, shopping complexes, hospitals, bars, CBOs, and the private player called Green Waste. Currently, 13 wards in Dodoma are served by locally registered CBOs, each of which has a minimum of 10 members each and 8 wards are served by a private player called Green Waste. Both CBOs and Green Waste are involved in cleaning and collection activities only.

Services expected

*Increase in frequency of waste removal from skip containers:* Currently skip containers are not emptied frequently and the waste inside just piles up leading to stench (foul smell), posing health hazards to the community at large. Therefore containers need to be frequently emptied.

*Adequate number of trucks:* Currently there is a delay in trucks removing waste from skip containers, in spite of payments being made regularly. There should be adequate number of trucks available at any point of time to carry waste from skip containers, to prevent the waste lying in skip containers to rot, litter around and generate foul smell. Hence there should not be any delay in offloading skip containers, which would otherwise create inconvenience for nearby residents.

*Adequate number of equipment:* More number of skip containers need to be added, as well as waste from skip containers need to be collected in a timely manner. Additionally more equipment to be dedicated to waste collection.

*Better hygiene conditions:* There is a problem of littering of waste, as waste generators sometimes just throw their waste around, and even dump hazardous waste during night. Some waste generators do not have any bins and therefore just pile waste for collection. The residents of Dodoma expect better hygiene conditions in the city once the PPP Project is deployed.

*Better coverage:* Many households, other establishments and rural wards are not currently covered by CBOs and Green Waste 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.

Willingness to pay survey

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

*Table 10-1: SWM details as per Green Waste (private player)*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Name of the private player | • Green Waste |
| ii. | Waste coverage | • Number of wards covered – 8<br>• Quantity of waste collected per day – 72 – 144 tons<br>• Amount of waste recycled & processed per day – Few usable items are separated informally by workers for their own benefit<br>• Amount of waste disposal at landfill per day – Entire amount collected is disposed at landfill site<br>• Hazardous waste at hospitals – Hospitals use their own incinerators |
| iii. | Current user charges per month | • Households – TZS 4,000<br>• Commercial shop – TZS 10,000<br>• Street side vegetable and fruit seller – TZS 3,000<br>• Social halls – TZS 30,000<br>• Bars & Lodges – TZS 36,000<br>• Barber shops – TZS 6,000<br>• Dressing saloons – TZS 10,000<br>• Butchers – TZS 10,000<br>User charges are collected monthly<br>User charges are revised not very regularly but at the outcry of Green waste |
| iv. | Licensing fee charged by LGA | There is some licensing fee charged by LGAs, but not very sure about it. |
| v. | Daily operational cost | • TZS 84,000,000 – 120,000,000 |
| vi. | Challenges faced | • Ability to collect user charges is a challenge, as waste generators are reluctant to pay<br>• Infrastructure in some areas such as access roads, is not in a good condition, hence higher running cost is incurred<br>• Some waste generators do not have bins, and therefore just pile waste for collection<br>• Issue of littering of waste as waste generators just throw the waste around, and even dump hazardous waste during night<br>• Sand piling on the roads<br>• Institutions are difficult to manage, as sometimes they convey that they have their own arrangements for dealing with solid waste. Eg. BOT<br>• Some waste generators do not use skip containers directly and refuse to pay the monthly fees. |

*Source: Consultant*

*Table 10-2: SWM details as per CBOs*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Name of the CBO | • Dodoma youth environment care and sanitation |
| ii. | Number of workers | • 10 workers |
| iii. | Waste coverage | • Households covered per day - 100-200<br>• Waste collected per day – ~3 tons |
| iv. | Frequency of waste collection | Differs depending upon the amount of waste generated.<br>• Houses, saloons and shops – Waste collected once per week<br>• Bar & lodge, butchers – Waste collected up to 3 times a week |
| v. | Waste collection & transportation vehicles | • The CBO does not have any truck<br>• It has one Bajaj with a capacity up to 0.5 ton.<br>• Tricycle makes 5 to 7 trips a day |
| vi. | User charges (per month) | • Households – TZS 4,000<br>• Commercial shops – TZS 10,000<br>• Local street side vegetable & fruit seller – TZS 3,000<br>• Social halls – TZS 30,000<br>• Bar & Lodges – TZS 36,000<br>• Barber shops – TZS 6,000<br>• Dressing saloon – TZS 10,000<br>• Butchers – TZS 10,000<br>• Frequency of collection: Once per month, at the end of the month<br>• Current rates are in place since 2010 |
| vii. | Protective equipment | The CBO is not provided with any equipment. They have to buy the equipment themselves |
| viii. | Payments | Currently paying TZS 50,000 to dump waste in skip bucket per week |
| ix. | Concerns and suggestions | • Skip containers to be emptied on a more frequent basis<br>• Small dustbins to be used by households: currently they use plastic bags<br>• The CBO requires financial assistance to be able to buy their own equipment |

*Source: Consultant*

*Table 10-3: SWM details as per households*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • 9 people all from residential households |
| ii. | Number of members per household | • Households – 1 to 5 members |
| iii. | Quantity of waste generated | • 0.1 - 3 kg per day |

| | | |
|---|---|---|
| iv. | Frequency of waste collection | • Waste is collected once a week or twice a month |
| v. | User charges | • User charges range between TZS 4,000 – 5,000 per month<br>• Some pay weekly, while others pay monthly |
| vi. | Collection and segregation of waste | • All the interviewees collect the waste generated using plastic bags and none of them segregate the waste |
| vii. | Disposal of waste | • All the interviewees take their own waste to waste collection pits which are then collected by council trucks to the landfill |
| viii. | Concerns | • Trucks delay in removing the collected waste<br>• Trucks do not collect the waste in spite of payments being made<br>• Need more waste collection points |
| ix. | Willingness to pay | • All interviewees except one prefer maintaining the rates that they are currently paying, reason being that they are not currently producing much waste. Only one interviewee was ready to pay 25% more. |

*Source: Consultant*

*Table 10-4: SWM details as per a bar*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • Malaika Annex |
| ii. | Contact details | • Jacob- Nyauringo, 0762 419 024 |
| iii. | Quantity of waste generated | • Average 10 kg per day |
| iv. | Frequency of waste collection | • Thrice a week |
| v. | User charges | • TZS 400,000 per month |
| vi. | Collection and segregation of waste | • Waste is collected through garbage bins. Green waste collects the waste<br>• They segregate the waste |
| vii. | Areas of improvement | • Timely service<br>• Pricing |
| viii | Expected facilities and services | • Timely service<br>• Fair prices |
| ix. | Willingness to pay | • Willing to pay TZS 250,000 (reduced price) |
| x. | Any concerns from PPP project | • No |

*Source: Consultant*

*Table 10-5: SWM details as per hospitals and health centers*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • Agha Khan Hospital<br>• Makole Health Center |

| | | |
|---|---|---|
| ii. | Quantity of waste generated | • Agha Khan Hospital – 50 kg per day<br>• Makole Health Center – 15 kg per day |
| iii. | Frequency of waste collection | • Agha Khan Hospital – Once a week<br>• Makole Health Center – Thrice a week |
| iv. | User charges | • TZS 100,000 per month |
| v. | Collection and segregation of waste | • There is a waste collection point of hazardous and non-hazardous waste<br>• Hazardous and non-hazardous waste are segregated |
| vi. | Disposal of waste | • Green Waste collects non-hazardous waste<br>• Hazardous waste is taken to general hospital for incineration |
| vii. | Concerns | • Delay in collection |
| viii | Areas of improvement | • Timely collection |
| ix. | Expected facilities and services | • More equipment |
| x. | Willingness to pay | • Not willing to pay higher |
| xi. | Any concerns from PPP project | • No |

*Source: Consultant*

*Table 10-6: SWM details as per Wine factory*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • Alko Vintegs |
| ii. | Quantity of waste generated | • 50 kg during high season<br>• 5 kg in low season |
| iii. | Frequency of waste collection | • 3 times a day in high season<br>• Once a week in low season |
| iv. | User charges | • TZS 600,000 in high season<br>• TZS 200,000 in low season |
| v. | Collection and segregation of waste | • There are 2 waste collection points for grape and other remains<br>• Segregate grape remains from other wastes |
| vi. | Disposal of waste | • Green Waste collects waste for further disposal |
| vii. | Concerns | • Delay in collection |
| viii | Areas of improvement | • More frequency required in collection in high seasons |
| ix. | Expected facilities and services | • Have good facilities and services |
| x. | Willingness to pay | • Not willing to pay higher |
| xi. | Any concerns from PPP project | • Issues to be solved and reasonable prices to be charged |

*Source: Consultant*

*Table 10-7: SWM details as per offices*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • NHIF Building |
| ii. | Contact details | • David Mageta- 677004322 |
| iii. | Quantity of waste generated | • 1-7 kg per day |
| iv. | Frequency of waste collection | • N/A |
| v. | User charges | • N/A |
| vi. | Collection and segregation of waste | • There is a waste collection point<br>• Segregation is done |
| vii. | Disposal of waste | • Burnt on site and they are in process to contract a service provider |
| viii | Concerns | • Delay in collection |
| ix. | Areas of improvement | • None |
| x. | Expected facilities and services | • Fair price<br>• Quality services |
| xi. | Willingness to pay | • TZS 300,000 |
| xii. | Any concerns from PPP project | • None |

*Source: Consultant*

*Table 10-8: SWM details as per shopping complex*

| S/N | Item | Comments/ Views |
|---|---|---|
| i. | Participants | • Dodoma Plaza |
| ii. | Contact details | • John Nathan 0716026414 |
| iii. | Quantity of waste generated | • 5-20 kg per day |
| iv. | Frequency of waste collection | • Twice a week |
| v. | User charges | • TZS 708,000 per month |
| vi. | Collection and segregation of waste | • Service provider collects waste<br>• Waste is segregated |
| vii. | Disposal of waste | • Waste is collected in waste collection point for further disposal |
| viii | Concerns | • Waste collection points are not enough<br>• Delay in waste collection |
| ix. | Areas of improvement | • Increase in number of waste collection point<br>• Timely collection of waste |
| x. | Expected facilities and services | • Fair price<br>• Timely service |
| xi. | Willingness to pay | • Not willing to pay higher<br>• Willing to pay TZS 600,000 ( reduced charges) |

| | | |
|---|---|---|
| xii. | Any concerns from PPP project | • None |

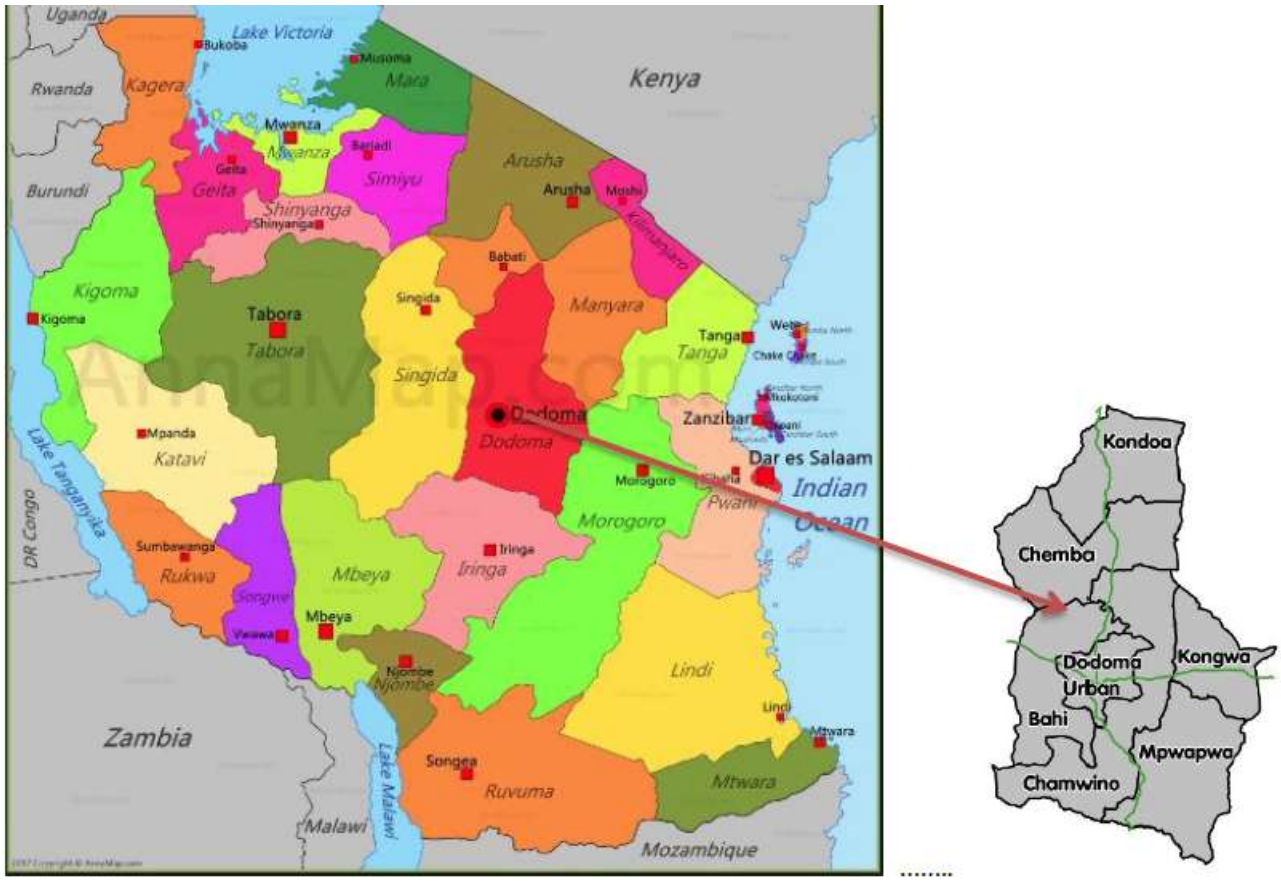
*Source: Consultant*

# 11. Annexure C: Demand Study

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

*Dodoma Region:* Dodoma Region is the capital city and one of Tanzania's 31 administrative regions. It is located in the heart of Tanzania in the eastern-central part of the country. The region borders with the Manyara Region to the north and part of east, Morogoro Region to the remaining part of east, Iringa region to the south and Singida Region to the west.

*Figure 11-1: Dodoma region*




*Region size:* Administratively, The Region is divided into 7 districts namely: Dodoma Urban, Kondoa, Chema, Kongwa, Bahi, Mpwapwa and Chamwino. As of 2012, Dodoma region was divided into a total of 193 wards.

*Population:* According to 2012 census, the total population of Dodoma Region was 2,083,588 of which 1,068,614 were the female and 1,014,974 were the males. The regional population growth rate is 2.1% annually. Region is the 8th Region with high population after Dar es Salaam, Mwanza, Mbeya, Tabora, Morogoro, Kagera and Kigoma. With the Government shifting to Dodoma, we are expecting that the population has increased even further. The table below shows the arrangements on the region division and population size.

*Table 11-1: Administrative units, by districts, land area and population*

| Districts | Area Sq. Kms | Wards | Population |
|---|---|---|---|
| Bahi | 14,004 | 20 | 221,645 |
| Chamwino | | 32 | 330,543 |
| Chemba | | 20 | 235,711 |
| Dodoma Urban | 2,576 | 41 | 410,956 |
| Kondoa | 13,210 | 28 | 269,704 |
| Kongwa | 4,041 | 22 | 309,973 |
| Mpwapwa | 7,479 | 30 | 305,056 |
| Total | **41,310** | **193** | **2,083,588** |

*Source: The 2012 Tanzania National Census 2012*

*Household size:* According to 2012 population census the Region had a total of 453,844 households and household size of 4.6. Dodoma Region like most of other regions in Tanzania has more population living in rural areas than those living in urban area.

*Economic activities:* The economy of Dodoma is based on agriculture and livestock keeping, commercial activities and employment in the public and private sectors.

*Areas covered for SWM:* As explained above Dodoma urban District has 41 wards in total. The Consultant was informed by the municipal officers that out of 41 wards only 21 wards are being served and the remaining 20 wards are not served or are underserved as they are far away from the Central Business District (CBD) and are not easily accessible. For example, Hombolo ward is one among the 20 wards which are not formerly served. The ward is about 40 km away from the CBD.

*Waste generated:* It is estimated that the 41 wards generate about 350 tons of waste per day of which the 21 wards, that are currently served, generate about 236 tons of waste per day. The 20 wards which are not formerly served generate only about 114 tons since most of them are more of agriculturalist wards where most of the waste collected is being burnt and buried.

*Waste recycling:* According to the city council representative it is estimated that about 57% of solid waste is degradable waste while the remaining is non-degradable. There was no clear sorting mechanism observed during the survey but there were individuals who segregate the water bottles, scrap metals, nylon, plastic and sulphate bags. At the landfill site, once the trucks dump the wastes,

the landfill operator allows the reusable waste pickers to pick materials they can reuse after which he/she instructs the machinery operators to bury the waste. As per the Consultant interview with these individuals the quantum of waste segregated amounts to 4 to 5 tons of nylon, 4 to 6 tons of plastic, 10 tons of sulphate bags and 15 tons of water bottles per month. The prices per kg, they get for selling each of the above mentioned waste is TZS 250 for nylon, TZS 250 for plastics, TZS100 for sulphate bags and TZS 200 for water bottles.

*Key players in the waste collection process:* For the process of waste collection the key players include the city council, the Community Based Organizations (CBO) and a private company called Green Waste. CBOs are registered under the community development department at the city council by sending their requests to the ward office. As informed to the Consultant during inception meeting, the solid waste management in Dodoma can be broken down in four phases which are general cleaning, collection of waste, transportation and disposal at the landfill site. Of the 21 wards currently served by the council, Green Waste serves 8 wards. The remaining 13 wards are served by CBOs. Each CBO is estimated to serve about 1000 households with an average of 20 households per person a day.

CCD has outsourced waste collection and bill collection to the CBOs and Green Waste however CCD remains the general body overseeing the operations. The private player is engaged for carrying out all the four phases of solid waste management mentioned above in the 8 wards that it serves while the CBOs are responsible for collection of solid waste to the designated collection points and then the city council takes the wastes from collection point to the landfill site which is located about 13 km from the CBD in Chidaya area. The landfill site is operated by the city council. Cleaning and collection of solid waste from the common areas/ public areas such as the markets, open spaces, playing grounds to mention a few, is done by the city council while the drainage cleaning is done by the private player.

# 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 different types of solid waste. Rule 26 (a) of the CCD Environmental Rules provides that CCD may appoint an individual person, entity or group such as community based organization (CBO) to carry out the function of collection, management and transportation of waste on CCD's behalf. Further, Rule 6(b) of the CCD Environmental Rules provides that the collection of solid waste shall be conducted by CCD and any personnel authorized by CCD to perform such function on CCD's behalf. Additionally, Rule 26(b) of the CCD Environmental Rules provides that the Community Development Officers (CDO) have mandate to manage cleanliness in their streets, prevent littering and general environmental management as well as establish community based organization (CBO). The CDOs have a further mandate to impose a fine of TZS 50,000 (approx. US $23) on the spot for anyone found in contravention of the CCD Environmental Rules.

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 26(a) of the CCD Environmental Rules provides that the CCD will be responsible for collecting a monthly waste collection fee of TZS 4,000 per household in Zone A[15] and TZS 2,000 per household in Zone B[16]. Further, fees for the different businesses are provided under Table B of the Schedule. Further, Rule 14 and Schedule D of the CCD Environmental Rules provides for the fees to be paid by agents, organizations, industries and other waste producers who use the landfill site.

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

[15] Zone A includes the following wards: Kilimani, K/Ndege, Uhuru, Makole, Viwandani, Madukani, Ipagala and Tambukareli.
[16] Zone B includes the following wards: Majengo, Kizota, Kikuyu Kaskazini, Kikuyu Kusini, Chamwino, Hazina, Chang'ombe, Mnadani, Miyuji, Nghoghonha, Dodoma Makulu, Nzuguni and Iyumbu.

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 CCD to enter into an agreement with the ProjectCo. The agreement between CCD and the ProjectCo may provide for the transfer of assets owned by CCD to ProjectCo for the duration of the project and/or the transfer of CCD'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, which is 20 years in case of an extension.

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 CCD on CCD'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, CCD can transfer its assets and user rights to ProjectCo (with whom they will sign a PPP agreement) to carry out the CCD SWM Project.

The transfer of these rights will be for the stated period in the PPP agreement, which should not exceed 20 years, where there is an extension (in the proposed amendments to the PPP Regulations there will be no cap on the 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 fees, ProjectCo may set up an account where such funds will be deposited. The applicable taxes chargeable to the users will be paid to the Tanzania Revenue Authority (TRA). It is important to get a separate tax advice regarding 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 CCD. 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 CCD

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, CCD 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 Center 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 CCD will be the contracting authority for the CCD 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 CCD SWM Project, CCD have the mandate to undertake the projects under the PPP regime as CCD 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, CCD will ensure that ProjectCo carries out its functions effectively and efficiently whilst maintaining the public service element. Although, CCD has the mandate to carry out a PPP project, as far as we are informed, CCD 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 CCD officials on 26th March 2019, the Consultant met some of the members of the PPP team including the CCD land and planning officers and environmental officer.

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 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. 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 Dodoma 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 CCD, the public officers as referred in the NGO Act are referred to as Community Development Officers (CDO) of Dodoma Municipality. 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. Most of the CBOs operating under CCD have more 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 collecting 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 CCD has an obligation to promote CBOs within their jurisdiction, preventing CBOs from carrying out their functions may be deemed contrary to CCD Environmental Rules. 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 CCD where the latter breaches the terms of their contract.

- However, in order to reduce the pushback from civil society organisations 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 project Co 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.

*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 CCD SWM Project will be collection, transportation and management of the Chidaya 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. Moreover, 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 CCD and ProjectCo may provide (among other things) for CCD to transfer the collection centers, transportation trucks, and the management of the Chidaya 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 by-laws that govern waste management within their municipality. For CCD such by-laws are the CCD Environmental Rules. Rule 4 of the CCD Environmental Rules authorizes officers from CCD to inspect and provide guidelines in relation to nuisance. According to Rule 5 and Rule 6 of the CCD Environmental Rules, every household or business is responsible for collecting all solid waste in appropriate refuse bins, with a proper lid and should be used daily. Further, Rule 7 of the CCD Environmental Rules provides a responsibility for every household, business and public service vehicles to provide facilities for the collection and management of solid waste. Rule 29 of the CCD Environmental Rules provides that any person who wishes to demolish a building should obtain the requisite permit from CCD and should make relevant payment in order to assist CCD in the collection of debris from the construction/demolition. The Consultant has been informed by CCD 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 centers 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 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 CCD 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 CCD 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.

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 conducts 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 CCD;*
- *CRB Registration; and*
- *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 centers for solid waste. Prior to designating an area as a collection center, 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.

# 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 Dodoma 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 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, and 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 and leachate collection 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 threating 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.

Social challenges

- *Opposition by CBOs:* Currently, 13 wards in Dodoma are covered by local CBOs that are responsible only for collection of waste. 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 Project might face opposition from CBO employees as their earning potential would be affected. Therefore, as a strategy to mitigate this risk, it is proposed that CBO workers can be integrated within the Project, and can be contracted by the ProjectCo for collection of waste. This would provide employment to CBO workers and hence, may not affect their livelihood.
- *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 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
- *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; b) speed bumps to be made to control the speed of vehicles; c) 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.

In addition to the environmental and social challenges listed by the Consultant as above, environmental and social challenges applicable to PPP Projects (under PPP) along with appropriate mitigation strategies have been detailed out in the ESMP of the ESMF, prepared for TPPP by the World Bank in August 2019, which can be referred to by the implementing agency while carrying out the ESIA.

## 13.2 World Bank safeguard policies and guidelines

The pre-feasibility 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 implemented according to the type and scope of identified impacts. World Bank safeguard policy OP 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; a 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
- 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 ESIAs 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[17], (c) describes the legal and institutional framework underlying Tanzanian approaches for resettlement, compensation and rehabilitation, (d) compares the Tanzanian laws and the World Banks Operational Policy for Resettlement (OP 4.12) and (e) identifies the gaps, (f) defines the eligibility criteria for identification of

[17] 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."

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.

## 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 Dodoma 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, 13 wards in Dodoma 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. 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:* The 61 skip containers, are located at strategic locations alongside roads and streets in 21 urban wards in Dodoma. The skip containers are located at areas close to households and central

business areas in the city. For the proposed PPP Project, the existing skip bucket containers would be utilized and additional skip bucket containers would be added. Additional skip containers would be required primarily for rural wards which were not covered under TSCP.

*Landfill site:* The Chidaya sanitary landfill was developed under the TSCP and was funded by the World Bank. The site is located ~15 km from the city center. It is owned by the council and is currently operation. We confirm the work undertaken under the TSCP is 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 and is well connected to the main city, but at the same time is well connected. Of the total available area of ~48 hectares of land for landfill at Chidaya, only 20 hectares is currently operational. The expected remaining life span of the landfill is about 15-20 years. More details are provided under 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***

- 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.*

- 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***

- 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

# 14. Annexure F: Municipal Finance Assessment

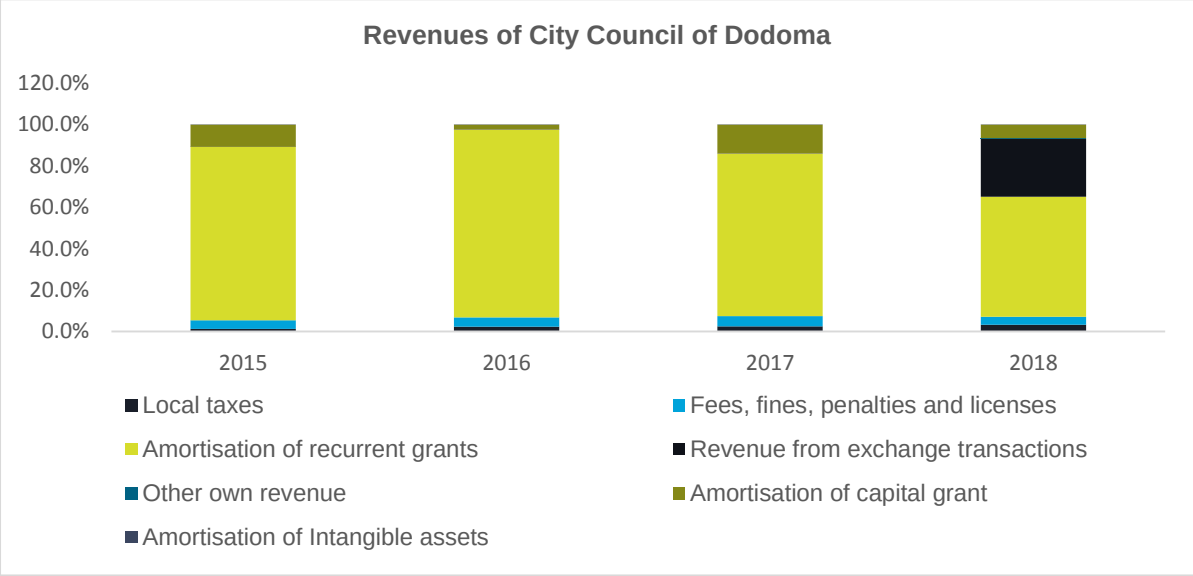
*This section provides an overview of the key revenue sources and major expenditure heads across the city council, and the inferences drawn from the provided information. Revenue and expenditure projections for the next five years have been calculated by extrapolating historical trends over the past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

Revenue trend

Revenues of the City Council of Dodoma show an increasing trend from TZS 43.6 billion in 2015 to TZS 85.7 billion in 2018, on account of increase in revenue from local taxes, increase in revenue from fees, fines, penalties and licenses and increase in revenue from exchange transactions etc. Revenue majorly comprises of local taxes, fees, fines, penalties, and licenses, revenue generated from amortization of recurrent and capital grants, and amortization of intangible assets, revenue generated from exchange transactions. Over the past four years, the amortization of recurrent grant and amortization of capital grant components averaged ~78% and ~8%, respectively, of the total revenue of the council. Local taxes represented ~2%; fees, fines, penalties and licenses, 4%; and the remaining came from other sources. The council has been able to increase its share of local taxes to total revenue from ~1% to 3%, the percentage of revenue from exchange transactions increased from 0% to 28%, whereas the amortization from recurrent grants decreased from 84% to 58%.

The property tax component is the major revenue source in the local taxes category in 2015 and 2016 contributing to ~56% and ~42% of the total revenue from local taxes in 2015 and 2016 respectively. Service levy tax component is another major revenue source in the local taxes category ranging from ~30% of the total revenue from local taxes in 2015 to ~73% of the total revenue from local taxes in 2017 and ~32% of total revenue from local taxes in 2018.

*Figure 14-1: Revenue categories 2015-2018 (as % of total revenue)*




*Source: Financial statements of CCD*

*Table 14-1: Summary of revenue over the last 4 years*

| Year | Revenue (TZS bn) |
|---|---|
| 2015 | 44 |
| 2016 | 53 |
| 2017 | 65 |
| 2018 | 86 |

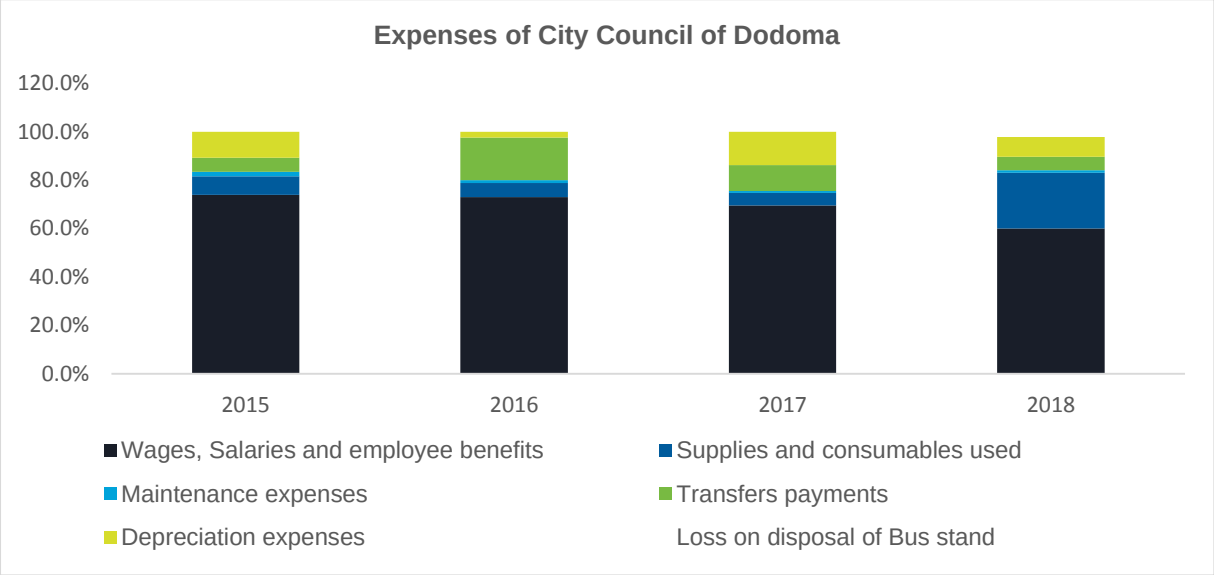
*Source: Financial statements of CCD*

Expenditure trend

The expenditure of the council, increased from TZS 43.6 billion in 2015 to TZS 72.7 billion in 2018. This can be attributed to the year on year increase in wages, salaries and employee benefits from TZS 32.3 billion in 2015 to TZS 43.6 billion in 2018. The expenses on supplies and consumables used have increased from TZS 3.4 billion in 2015 to TZS 16.8 billion in 2018. Maintenance expenses, transfer payments and depreciation expenses have fluctuated over the years from 2015 to 2018, but all of the three expenses have increased in 2018, when compared to their values in 2015. Other heads for expenses for the council are loss on disposal of bus stand, a loss incurred only in 2018.Over the past four years, wages, salaries and employee benefits averaged around ~69% of expenses; supplies and consumables, around 10%; depreciation expenses ~9%; maintenance expenses, around 1% and transfer payments ~10%. The average surplus was 4.6% of the revenue. The council had a deficit in

2015 (TZS 0.051 bn), and surplus in 2016, 2017 and 2018 respectively (TZS 1.71 bn, TZS 0.05 bn and TZS 12.9 bn respectively).

*Figure 14-2: Expenditure categories 2015-2018 (as % of total expenditure)*




*Source: Financial statements of CCD*

*Table 14-2: Summary of expenses over the last 4 years*

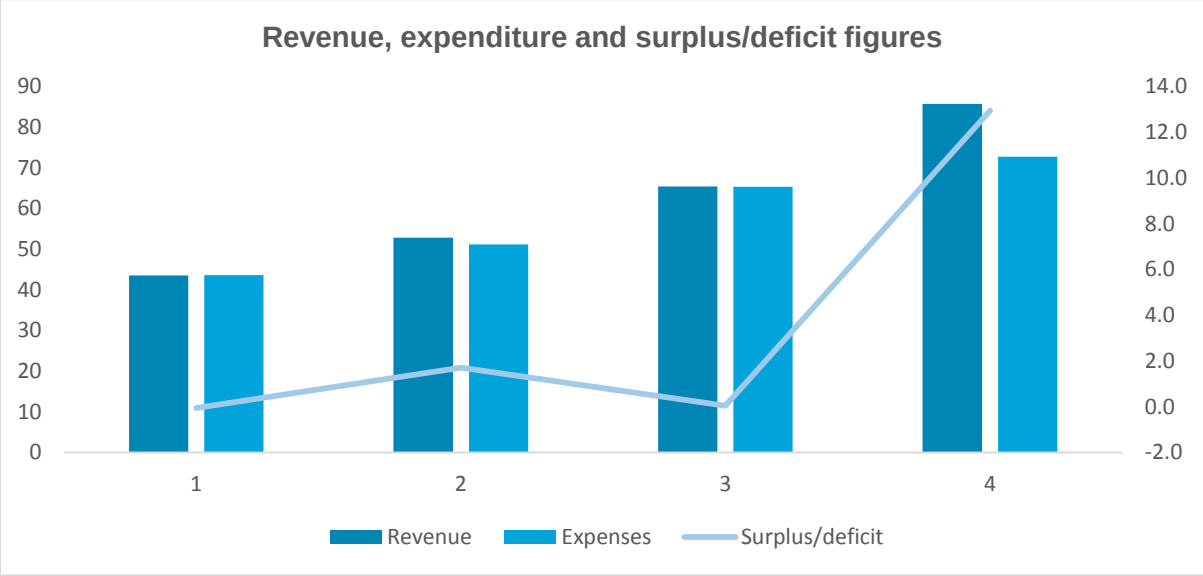
| Year | Expenses (TZS bn) |
|---|---|
| 2015 | 44 |
| 2016 | 51 |
| 2017 | 65 |
| 2018 | 73 |

*Source: Financial statements of CCD*

Conclusions

City Council of Dodoma has current surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally, the average surplus in the last four years is around 4.6% of the total revenue. The project cost over a period of 15 years is TZS 38.8 billion. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained.

*Figure 14-3: Revenue, expenditure and deficit figures for last 4 years*




*Source: Financial statements of CCD*

*Table 14-3: Summary of revenues, expenses and surplus/deficit over last 4 years:*

| Year | Revenue (TZS bn) | Expenses (TZS bn) | Deficit (TZS bn) |
|---|---|---|---|
| 2015 | 44 | 44 | -0.1 |
| 2016 | 53 | 51 | 1.7 |
| 2017 | 65 | 65 | 0.0 |
| 2018 | 86 | 73 | 12.9 |

*Source: Financial statements of CCD*

# 15. Annexure G: Institutional review

*This section provides an overview of the applicable institutional structure, the approach undertaken for institutional review, and the CCD's responses with respect to current institutional capacity, preparedness for PPP projects, and its capability to execute the PPP projects in an efficient manner.*

Approach for undertaking the institutional review

The Consultant has carried out a comprehensive assessment with the investment committee members of the city council. It prepared a detailed questionnaire with specific questions related to assessing the LGA's institutional capability. The frameworks and methodology provided in the World Bank Public-Private Partnerships Screening Tool were utilized to develop the questionnaire. The questions were divided into three major groups:

- *Institutional capacity;*
- *Preparedness of the LGA for the PPP projects; and*
- *Capability of the LGA to execute the projects in an effective and efficient manner*

The responses provided by the investment team members provided the inputs for preparing a diagnostic report on the institutional capacity of the city council. This would determine its ability to manage the proposed PPP projects during the implementation and operational phases.

Institutional capacity of the CCD

The responses provided by the investment committee members with respect to the institutional capacity are:

*Table 15-1: Survey responses with respect to the current institutional capacity*

| Questions | Response | Consultant comments |
|---|---|---|
| PPP focal point within the LGA | Yes | There is a PPP focal point with the CCD |
| Investment committee within the LGA | Yes | There is an investment committee with the CCD |
| No of members in the investment committee | Unknown | The details have not been provided |
| No of members having undertaken past PPP training | Unknown | The details have not been provided |
| Full time or deputation (part time) | Deputed | The team is deputed |
| Experience of contracting with private sector | No | The LGA has no previous experience of contracting with private sector. |
| LGA personnel have past PPP experience | No | They do not have any past PPP experience |

| Questions | Response | Consultant comments |
|---|---|---|
| Access to transaction advisors and/ or consultants for project preparation and procurement | No | Don't have access to transaction advisors and/or consultant |

*Source: Survey with LGAs*

*Key findings*

- *Composition of the PPP team:* The CCD has an investment committee, details of which have not been provided by CCD, however all the members in the investment committee are deputed and have their separate full-time responsibilities. Membership of the investment committee and PPP team (if any) are additional responsibilities.
- *Academic qualifications and training in PPPs*: The details of the members of Investment committee have not been provided. Thus, it cannot be said whether they possess the ability to understand the basics of PPPs. The LGA has no previous experience in contracting with the private sector. As such, the team does not have any significant experience or expertise in PPPs. Therefore, the team will require significant training in various aspects of PPP Project preparation as the projects moves forward.
- *Financial constraints*: City Council of Dodoma has current surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally the average surplus in the last four years is around 4.6% of the total revenue. The project cost over a period of 15 years is TZS 38.8 billion. Thus, the financial capability of the city council to provide any funding support, in case of any PPP projects, is constrained. Therefore, it is adequate to assume the LGA will not have financial flexibility to ensure adequate funding for a robust PPP Project preparation exercise.

Preparedness of LGAs for PPP projects

The responses provided by the investment committee members with respect to the preparedness of LGAs for PPP projects are:

*Table 15-2: Survey responses with respect to the current level of preparedness*

| Questions | Response | Consultant comments |
|---|---|---|
| Project plan for PPP projects with deadlines | No | Currently, they do not have a project plan on the next stages of the project with identified deadlines and responsibilities allocated. They will be required to create a detailed project plan for the proposed PPP project along with deadlines, which will help them monitor the progress of the project and seek assistance from the PPP Node when required. |
| Standard terms of reference for consultants | No | They do not have standard TOR's available for consultants hence they would be required to draft generic and specific functional TORs for transaction advisors, environmental and social, monitoring and evaluation, and contract management. |

| Questions | Response | Consultant comments |
|---|---|---|
| Undertaken social consultations | No | No social consultations have been undertaken. However, extensive and formal consultations would be needed to generate consensus on the SWM project plan. |
| Plan to undertake social consultations | Yes | The CCD will require assistance in preparing a project-specific social consultation plan. The city council will also require E&S management assistance. |
| Identified the requirement of connecting infrastructure and utilities | No | The city council has not identified the requirement for connecting infrastructure and utilities for the identified project as the project is more about operation and maintenance of collection, transportation and disposal for solid waste |
| Require land acquisition | No | Since the project involves, refurbishment/upgrading of existing infrastructure for SWM, the PPP Project does not require land acquisition. |
| Require resettlement plan | No | Since the project involves, refurbishment/upgradation of existing infrastructure (already operating) for SWM, the PPP Project does not require a resettlement plan. |
| Cost to be incurred by LGA for project preparation and engineering studies | No | As mentioned previously, budgets have not been prepared. Hence, it is unlikely they would be made available through LGAs funds as of now. |
| LGA has budgeted the funds for the same | No | As above |
| Internal and external stakeholders been identified | Yes | Internal and external stakeholders have been identified however social consultations have not been undertaken with any stakeholders. There is a need to engage with key stakeholders such as waste generators, landfill operators, workers/staff/casual labor. |
| Plan to engage with stakeholders | No | The LGA does not have any plans of engaging with internal and external stakeholders. |
| Any constraints delaying project implementation | Yes | The proposed consortium needs to have SWM experience in all the components of the SWM value chain namely a) collection, b) transportation and c) landfill. Additionally the CCD envisages 'stakeholder involvement' related constraints delaying Project implementation |
| Project management plan to address the issues | Yes | This would be required moving forward. However the council does not have any Project management plans to address issues. Though CCD has specified that they have project management plans to address the issues, details of which have not been provided |

*Source: Survey with LGA*

*Key findings:*

- *Less Preparation:* The CCD is less prepared for the implementation of these projects. They currently do not have a Project plan on the next stages of the Project with identified deadlines and

responsibilities allocated. They have also not estimated the cost to be incurred by the LGA for Project preparation and engineering studies.

- *Need for project planning:* The CCD currently does have well-defined plans to deal with Project management and stakeholder consultations. They have not undertaken social consultation for individual projects, and would want to undertake social engagements/ stakeholder's analysis. No internal and external stakeholders have been identified, and the LGA has not finalized any plans to engage with internal and external stakeholders. They do not have project management capability for identified PPP Project.
- *Need for technical assistance*: The CCD will require considerable technical assistance and hand-holding to successfully implement the Project preparation processes as they currently do not have previous experience with PPPs. The CCD envisages that stakeholder involvement will be a constraint delaying the Project implementation.

Capability of the LGA to execute the project in an effective and efficient manner

The responses provided by the investment committee members with respect to the capacity of the LGA to execute the PPP projects in an effective and efficient manner are:

*Table 15-3: Survey responses with respect to current capability of executing PPP projects*

| Questions | Response | Consultant comments |
|---|---|---|
| Average time for procurement for more than $5 mn projects | Unknown | The details have not been provided |
| Problems faced in procurement | Unknown | The details have not been provided |
| Past experience of implementing PPP projects | No | The CCD has no past experience in PPP procurement. |
| Effective in managing contractual risks | Unknown | The details have not been provided |
| Has project management capability | No | They do not have project management capability and training would be required |
| Develop a dedicated project management unit | No | This would be required for both steering the project preparation process as well as contract management. They do not yet plan to develop a project management unit for these projects. |
| Awareness of key contractual risks in the implementation of a PPP | No | CCD is not aware of the typical contractual risks which need to be taken care of during implementation of PPPs. |
| Help of independent consultants for engineering and procurement required | Yes | CCD does not require the help of independent consultants in the field of engineering and procurement. |
| Hire independent engineers or consultants | No | The CCD doesn't have nor hired independent engineers or consultants. |

| Questions | Response | Consultant comments |
|---|---|---|
| Help of independent consultants for project management and monitoring required | Yes | The CCD requires the help of independent consultants for management and monitoring. |
| Hire independent consultants to periodically assess project performance | No | The CCD does not have experience in hiring independent consultants for periodic assessment of project performance. |

*Source: Survey with LGAs*

*Key findings:*

- *Need for dedicated personnel within the LGA:* There should be at least one dedicated person deployed in the LGA, who should be the primary contact point between the PPP and central Project management support teams. This person would be responsible for steering the Project from the LGAs side and look into the overall progress and monitoring of the Project with respect to timelines.
- *Support from central government to fund hiring of transaction advisors:* City Council of Dodoma has current surplus of TZS 12.9 billion as per the income statements of 2018, and the surplus was TZS 0.05 billion in 2017. Additionally the average surplus in the last four years is around 4.6% of the total revenue. The project cost over a period of 15 years is TZS 38.8 billion. CCD will not be able to contract transaction advisors on a full-time basis with respect to the Project. Thus, it should estimate the overall budget depending on the amount of work and time required for the transaction advisor and put in a requisition of funds to the central government.

<u>Key recommendations</u>

The Consultant suggests the following actions strengthening the institutional capacity of the LGA with respect to implementing the PPP Project:

- *Central project management support (PMS) team*: The LGA needs to be handheld in various aspects of Project preparation. Therefore, we suggest having a central pool of technical, financial, legal, and E&S experts that can be sourced on a needs basis to meet the specific needs of the PPP project. The central PMS team could report to the PPP Node and could be utilized for assisting all the LGAs on the four SWM PPP projects, including that of Dodoma. As per the information provided by CCD they do not have a dedicated project management unit for this project.

- *Hiring of transaction advisors***:** PPP procurement usually takes longer than public procurement due to the financial, legal and technical intricacies involved in the PPP procurement process. The central PMS team could provide technical support to the LGA in the tender process.
- *Focused training and knowledge sharing*: The PPP team in the LGA would require continued and focused training on Project preparation, procurement and contract management as the PPP Project progresses. The staff should be acquainted with knowledge of the best practices and tools being developed in the World Bank group, so they could benefit from the global repository of knowledge being created by the Bank. It would also help them to exchange ideas and experiences through a knowledge-sharing platform that could be created by the PPP Node for all the LGAs preparing PPPs in Tanzania and in the region.
- *Ensuring continuity of the LGA staff in the PPP unit*: Given the Project preparation and procurement process will be spread over two to three years, it would be beneficial if the trained LGA staff continues with the PPP unit for the duration. Frequent staff changes could disrupt the capacity development process.
- *Strengthening the PPP team*: Depending upon the development of a PPP pipeline in the LGA, it is suggested employing full-time staff or consultants are recruited to be placed in the LGA's PPP team responsible for technical, financial and Project management activities.
- *Use of tools and applications:* It would be beneficial for the LGA to implement systems and processes and embedded tools and applications developed by the Bank and other development partners.

# 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.

Dodoma SWM PPP scores 3.33 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 Dodoma, majority of waste generators are not entirely convinced of the need for higher user charges for waste collection services.

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 CCD 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 | 4.18 | 2.50 | 2.00 | 5.00 | 1.75 | **3.33** |

*Source: Consultant*

*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 |

| Parameters | Questions | Final pre-feasibility |
|---|---|---|
| | 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 |
| | 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 |

| Parameters | Questions | Final pre-feasibility |
|---|---|---|
| | 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 |
| | 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 |

| Parameters | Questions | Final pre-feasibility |
|---|---|---|
| | 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 |
| | 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 utilisation of the project assets? | Yes |
| | Are the modeling assumptions backed by historical or empirical data? | Yes |

| Parameters | Questions | Final pre-feasibility |
|---|---|---|
| | Will the VFM for the project remain greater than the threshold rate in case of stress (or low) case scenario? | Yes |
| | Is there a favourable 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 |
| Institutional Capability | Is there a PPP focal point within the contracting agency? | Yes |
| | 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? | Uncertain |
| | Are there any constraints that could delay the project from getting to the market? | Yes |
| | Does the contracting agency have adequate project management capability as evidenced from successful experience of implementing public funded projects in the sector? | 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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