EXECUTIVE PROJECT SUMMARY

Project Title: Environmentally Sustainable Integrated Waste Management Technologies in Tigrai

Background information

Solid Waste Management is a major public health and environmental concern in the urban areas and many developing countries. The situation in Africa, particularly in the large urban towns is severe. Improper waste management leads to substantial negative health and environmental impacts such as, pollution of air, soil and water, and generation of GHG from landfills, and safety problems such as diseases spread by insects and rodents attracted by garbage heaps, diseases associated with different forms of pollution.

Nowadays, the amount of waste generation in Tigrai is dramatically increasing, the composition of waste is also becoming more and more diversified especially postwar. This further aggravates the currently-existing capacity in waste management and the region is struggling with budgetary constraints. This results in an irreversible health risks to public and the environment, emission of greenhouse gases to the atmosphere, leakage of possible environmental hazards and ground water pollutants. Despite of the most obvious environmental damage caused by the wastes, little focus was given to its management; policy gaps, poor compliance and monitoring and lack of financial and human resources. So, converting waste to useful outputs using combined (composting, shredding, incineration and WtE) technologies, not only creates an additional revenue stream but also reduces the burden of waste management. Altering the waste to valuable outputs could be a long-term solution to the waste management challenge in Tigrai.

It is crystal clear that the war in Tigrai region caused major problems on the environmental health system of the state. The impact of the conflict took us back to square one, when; many projects works on environment were commenced. None compliance of the existing environmental laws marked the stoppage of the major works on waste management too. Besides to the recent war, Tigrai has been exposed to unpredictable rains including the complete failure of rains, seasonal shifts in rainfall patterns and shortage of rainfall and this uncertainty is expected to increase with climate change. Overall, the anticipated changes in temperature and rainfall as a result of climate change are expected to exert direct and indirect impacts on all elements of human wellbeing.

Project Objective, Impact and Outcomes

The overall objective of the project is to reduce and ultimately eliminate the releases of unintentionally produced GHG, POPs and other globally harmful pollutants into the environment, arises from improper waste management and improved the livelihood of conflict affected communities particularly youth and women. Moreover; the project promotes widespread adoption of best available technologies/best environmental practice (BAT/BEP) in the evolving healthcare and urban waste management infrastructure in a manner that reduces adverse environmental impacts and protects human health.

Impact: Mitigated adverse environmental and social impacts and reduce GHG emissions arise from improper solid waste management and improved the livelihood of conflict affected communities particularly youth and women

Expected Outcomes:

The project strives for maximum waste recovery through ***incineration***, ***composting***, ***waste-to-energy*** and ***plastic shredding*** technologies, aims at zero waste to be disposed onto dump-yards and landfills. The expected outcomes of this projects are to reduce the environmental pollution caused by waste. By using sustainable technologies of waste management systems, we are able to achieve the following outcomes:

Outcome 1: Strengthened regulatory and legal framework based on national standards

Outcome 2: Operationalized innovative and green waste management technologies, that would be established sustainable waste management mechanisms

Outcome 3: Capacity built at the regional level on all levels of management of solid wastes using integrated technologies

Outcome 4: Reduced solid waste volume, while converting waste to useful outputs and creates an additional revenue stream using the combined technologies (composting, shredding, incineration and WtE)

Outcome 5: Project management, monitoring and evaluation

Relevance to National, Regional and Global Priorities

In response to the Paris Agreement, Ethiopia has submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC on June 2015. After ratifying the Paris Agreement in March 2017, the government approved it as Ethiopia's 1st Nationally Determined Contributions (NDC). The government also updated its NDC and submitted it to the UNFCCC in July 23, 2023. The updated NDC has set 2025 interim and 2030 final NDC targets and has identified 40 adaptation interventions.

Implementation of updated NDC targets at emission reduction by 68.8% by 2030 which will cost estimated amount of USD 316 Billion USD, of which 63.2 billion will be covered by own finance and the remaining expected to be mobilized from international donors. The major climate change mitigation actions included in the updated NDC are in the sectors of agriculture (livestock and managed soils), land use change and forestry, energy, industry and waste sectors.

The waste sector accounts for relevant emission sources with emissions emanating from municipal solid waste generation, decomposition of organic components of waste on landfills, wastewater as well as from solid waste incineration. Mitigation action in the waste sector has a significant potential to reduce emissions. The sector contributes 3% of total BAU emissions in 2030. Conditional interventions can reduce the emission level in 2030 to 2.9 Mt CO_2eq. This equals a relative reduction of emissions of 74.7% (-8.6 Mt CO_2eq) compared to BAU emissions in the waste sector. The unconditional pathway projects a reduction of emission levels to 9.5 Mt CO_2eq, which represents a relative reduction of 17.1% of sectorial BAU emissions in 2030 (-2.0 Mt CO_2eq).

Policy intervention in the waste sector are waste management through reducing emissions from reduced waste generation rate per capita; Reducing emissions from introducing a restriction on organic materials on landfills, i.e., waste separation and composting and reducing emissions from wastewater. The urban mitigation actions included in the updated NDC aim at reduction of GHG emissions from the waste sector (solid and liquid waste). Thus, implementing this project will contribute to the global goal of emission reduction by the waste sector

Project implementation and management

Tigrai Environmental Protection and Climate Change Authority (TEPCCA) will be mainly responsible for the implementation of the project activities i.e., TEPCCA is the lead implementer. However, due to the nature of some of the core activities, other partners such as Mekelle University will jointly work with TEPCCA to implement and manage relevant project

components. Furthermore, other national and international partners can jointly implement some of the core components of the project.

Project Funding and Management

For implementing the core components of the project, both project funding and co-funding will be solicited. Indicative finance requirement for the project is estimated to be ***$ 21,500,000*** (twenty-one million and five hundred thousand) out of which ***$ 1,075,000 million*** will be covered by government and communities through co-financing. The co-financing includes both monetary and in-kind support from the lead implementing sectors and community mobilization.

To manage the project a coordination framework will be envisaged. TEPCCA will be responsible for oversight of the project including project preparation, project implementation and supervision, financial management, and reporting. At the regional level, the TEPCCA will establish a project coordination unit that will lead and coordinate the day-to-day execution of project activities. The project coordination unit will be assisted by technical team drawn from Mekelle University and research centers. A Periodic monitoring and evaluation (M&E) shall also be conducted by the TEPCCA to ensure that project activities are being implemented in the planned time schedule, quality and to also identify potential risks early on the project. Moreover, other national and international partners can jointly implement some of the core components of the project.