CVF | CLIMATE VULNERABLE FORUM

CPP PROJECT #3

I-TRASH END-TO-END DECENTRALIZED WASTE MANAGEMENT SYSTEM

PROJECT SNAPSHOT

PROJECT OVERVIEW

Trash is a smart end-to-end decentralized waste management system, a socially inclusive waste management platform, providing decentralized waste collection, green transportation, private disposal solutions, and recycling 99.9% of all waste collected through its trained professional independent operators (informal collectors) scattered across the city, who are easily matched with collection requests from users via i-Trash Mobile App.

Decentralized END-TO-END waste management solutions (zero waste to landfill)

- **Project Location:** Greater Accra Ghana.

- **Project size/capacity:** 800 to 1000 tons of waste per day recycling facility.

- **Sector:** Waste Management

- **Project stage:** implementation

- **Key partners and stakeholders:** LEDZOKUKU Municipal Assembly Ghana, Rescue Volunteers Ghana and Tricycle unions

BANKABILITY & FINANCIAL VIABILITY

- **Total project cost:** $80,000,000 USD
- **Funding required:** $25,000,000 USD
- **Financial model/structure:** Equity and debt
- **Expected IRR (Internal Rate of Return):** 36.18% per annum
- **Payback period:** 4 years
- **Other financial metrics: (Net Present Value (NPV):** $13,417,718. Return on Investment (ROI): 18% and Debt Service coverage ratio(DSCR):80%
- **Key investors/partners (if any):** None for now, but talking with Commercial Banks

- **Risk mitigation strategies:** insurance coverage and securing long-term waste collection contracts to ensure consistent cash flow and guarantee feed for the waste-to-energy process

CLIMATE RESILIENCE & MITIGATION

- **Climate resilience measures:** We have implemented climate resilient waste management practices, such as smart 24/7 rapid decentralized waste collection and deploying of EV garbage trucks for green transportation of waste, and designated dumping centers to enhance waste collection. Recycling up to 99.9% of all waste collected.

- **GHG emissions reduction:** Our project is expected to reduce greenhouse gas (GHG) emissions by 25,000 tons of CO2 equivalent per year, primarily through the use of EV garbage trucks, renewable energy sources and energy-efficient systems to power our recycling plant and dumping centers. This prevents waste from going to landfills which mostly end up in burning, causing excessive release of CO2 into the atmosphere. Thereby resulting in greenhouse gasses warming our planet.

- **Adaptation strategies:** We have incorporated natural ecosystem-based adaptation measures, such as mangrove restoration and dune stabilization, to enhance the project's resilience to climate change.

- **Alignment with climate policies and regulations:** Paris Agreement: Our project is aligned with the goals of the Paris Agreement, which aims to limit global warming to well below 2°C and pursue efforts to limit it to 1.5°C.

- **National climate policies:** Our project complies with national climate policies and regulations, including the country's Nationally Determined Contribution (NDC) under the Paris Agreement.

- **International best practices:** Our project incorporates international best practices in climate resilience and mitigation, including those recommended by the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Framework Convention on Climate Change (UNFCCC).

RESOURCE EFFICIENCY

- **Energy efficiency measures:**

- **Smart Collection Routes:** i-Trash intends to use geolocation, Google map integrated into its mobile app and real-time data analytics to optimize waste collection routes, significantly reducing time and energy consumption.

- **Energy-Efficient Equipment:** The project employs energy-efficient machinery and vehicles, e.g electric trucks (EV) to remove pollution during waste collection and factory processing.

- **LED Lighting:** Facilities are equipped with LED lighting, which consumes less energy compared

to traditional lighting solutions.

- **Water/resource conservation strategies:**

- **Water Recycling Systems:** Implementing water recycling systems in waste processing facilities to reuse water, reducing overall consumption.

- **Efficient Water Use:** Utilizing water-efficient technologies and practices in all operations to minimize water wastage.

- **Water resources management:** We have implemented a water-efficient system that reduces water consumption within our operations by 30% and incorporates a rainwater harvesting system to collect and store rainwater for non-potable uses.

- **Material Recovery:** i-Trash maximizes the recovery of recyclable materials from waste, reducing the need for raw material extraction and conserving natural resources.

- **Renewable Energy Integration:** i-Trash integrates solar energy, compressed natural gas (CNG), and other renewable energy sources to power its waste processing facilities, ensuring the project operates with a strong reliance on green energy solutions.

- **Circular Economy:** i-Trash embraces circular economy principles by promoting recycling, upcycling, and the reuse of materials, ensuring that waste is transformed into valuable resources.

- **Biogas Production:** Converting organic waste into biogas through anaerobic digestion, providing a renewable energy source and reducing landfill waste

ALIGNMENT WITH 1.5°C TEMPERATURE THRESHOLD

- **Short-term target (2025):** Reduce GHG emissions from waste management by 20% compared to business-as-usual scenarios.

- **Mid-term target (2030):** Achieve a 50% reduction in GHG emissions from waste management through the implementation of i-Trash smart waste management systems in 50 cities worldwide.

- **Long-term target (2050):** Contribute to a 90% reduction in GHG emissions from waste management globally by scaling up the i-Trash smart waste management system to 1000 cities worldwide.

Technological innovations (if any) contributing to low-carbon development: -

- **Artificial Intelligence (AI) and Internet of Things (IoT) integration:** The i-Trash system (3.0 App) aims to use utilizes AI and IoT technologies to optimize waste collection routes with the aid of EV trucks, reduce travel time for collectors, Total elimination of carbon monoxide (CO), and increase waste sorting efficiency.

- **Big Data Analytics:** The i-Trash system leverages big data analytics to identify areas of high waste generation, predict waste management needs, and optimize waste management resources.

- **Blockchain-based waste tracking:** The i-Trash system (3.0 App) aims to use blockchain technology to track waste from generation to disposal, ensuring transparency and accountability in waste management.

Potential for scaling impact on emissions reduction:

- **Global scalability:** The i-Trash smart waste management system can be replicated in cities worldwide, making it a scalable solution for reducing GHG emissions from waste management.

- **Partnerships and collaborations:** We intend to collaborate with cities, other waste management companies, and technology providers to scale up the i-Trash system to achieve our GHG reduction targets.

- **Open-source platform:** We have developed an open-source platform for the i-Trash system, making it accessible to cities and waste management companies worldwide, and enabling them to adapt and customize the system to their specific needs.

- By harnessing technological innovations and expanding the i-Trash smart waste management system, we are confident that we can make a substantial contribution to limiting global temperature rise to 1.5°C and advancing toward a low-carbon future.

SOCIAL IMPACT & SDG CONTRIBUTION

Job creation: -

- **Direct Jobs:** i-Trashpartner is projected to create approximately 4000 direct jobs in waste collection, processing, and management.

- **Indirect Jobs:** The project will generate around 1000 indirect jobs through partnerships with local assemblies, and recycling facilities.

Support for vulnerable communities:

- **Inclusive Employment:** i-Trash prioritizes hiring from vulnerable communities, including women, youth, and people with disabilities, providing them with stable employment and training opportunities.

- **Community Programs:** The project offers educational programs and workshops to raise awareness about sustainable waste management practices, such as waste sorting and separation, which empower local communities to adopt more sustainable practices and improve their overall environmental health.

Social inclusion measures:

- **Gender Equality:** i-Trash ensures gender equality in its hiring practices, aiming for a balanced workforce with equal opportunities for men and women.

- **Community Engagement:** The project actively involves local communities in decision-making processes, ensuring their needs and perspectives are considered.

- **Educational Initiatives:** i-Trash conducts regular workshops and training sessions to educate the community on waste management and recycling, fostering a culture of sustainability.

SDG alignment:

- **SDG 1: No Poverty:** By creating jobs and supporting vulnerable communities, i-Trash contributes to poverty reduction.

- **SDG 5: Gender Equality:** The project promotes gender equality through inclusive hiring practices and equal opportunities.

- **SDG 8: Decent Work and Economic Growth:** i-Trash generates employment and supports economic growth through sustainable business practices.

- **SDG 11: Sustainable Cities and Communities:** The project enhances urban sustainability by improving waste management systems and reducing environmental impact.

- **SDG 12: Responsible Consumption and Production:** i-Trash promotes recycling and the circular economy, reducing waste and encouraging responsible consumption.

- **SDG 13: Climate Action:** By reducing GHG emissions and promoting sustainable practices, the project contributes to climate mitigation efforts.

CONTRIBUTION TO GHANA'S CLIMATE PROSPERITY PLAN & NDC COMMITMENTS

Specific contributions to the CPP goals:

- **Economic Growth and Job Creation:** i-Trash can create green jobs in waste collection, recycling(Bio-Diesel, Eco-bricks, methane gas) and composting, contributing to sustainable economic growth.

- **Energy Transition:** By promoting waste-to-energy initiatives, i-Trashpartner can help transition to renewable energy sources, reducing reliance on fossil fuels.

- **Sustainable Agriculture:** The service can provide compost from organic waste, enhancing soil fertility and supporting climate-smart agriculture.

- **Alignment with NDC targets (mitigation and adaptation):**

- **Emission Reductions:** By removing landfill waste and promoting recycling and composting, i-Trash can significantly cut down methane emissions, a potent greenhouse gas.

- **Carbon Sequestration:** Composting organic waste can enhance soil carbon sequestration, aligning with Ghana's NDC targets for carbon sequestration adaptation

- **Climate-Resilient Infrastructure:** i-Trash intent to develop waste management infrastructure that can withstand climate impacts supports Ghana's adaptation goals.

- **Water Resource Management:** Efficient waste management can prevent pollution of water bodies, contributing to better water resource management.

Policy coherence with Ghana's climate agenda:

- **Integration with National Policies:** i-Trash is aligned with national policies such as the National Climate Change Policy (NCCP) and the Ghana Renewable Energy Master Plan.

- **Stakeholder Engagement:** i-Trash intends to engage local communities, government agencies, and private sector stakeholders to enhance coherence and support for the service.

- **Monitoring and Reporting:** i-Trash has established robust monitoring and reporting mechanisms to track progress and ensure transparency aligns with Ghana's commitment to the Paris Agreement.

- By addressing these areas, i-Trash can significantly contribute to Ghana's climate goals and support its commitments under the Paris Agreement.

INVESTMENT OPPORTUNITY & EXIT STRATEGY

Unique selling points of the project:

- **Innovative Waste Management Solutions:** i-Trash offers a comprehensive suite of services that integrate technology and sustainability to revolutionize waste management.

- **Environmental Impact:** The project significantly reduces waste and promotes recycling, aligning with global sustainability goals.

- **Scalability:** The platform is designed to be scalable, allowing for expansion into new markets and regions.

- **Data-Driven Insights:** Utilizes advanced data analytics to optimize waste collection and processing, improving efficiency and reducing costs.

- **Community Engagement:** Engages local communities through educational programs and incentives, fostering a culture of responsible waste management.

Investor Benefits:

- **High ROI:** Projections indicate a sub stantial return on investment due to the growing demand

for sustainable waste management solutions. also with the various i-Trash recycling byproducts which are all in demand globally.

- **Equity Stake:** Investors will receive an equity stake in i-Trash, providing ownership and potential dividends.

- **Tax Incentives:** Potential tax benefits for investing in a green and sustainable project.

- **Market Leadership:** Early investors will position themselves in a leading company within the waste management industry.

- **Positive Social Impact:** Investing in i-Trash contributes to environmental conservation and community well-being, enhancing the investor's portfolio and reputation.

Exit strategy and timeline:

- **Initial Public Offering (IPO):** Plan to take i-Trash public within 1 year, offering significant returns to investors.

- **Acquisition:** Position the company for acquisition by a larger waste management or environmental services company within 3-5 years.

- **Buyback Option:** Offer a buyback option to investors after a certain period, ensuring liquidity and return.

- **Secondary Market:** Allow investors to sell their shares on a secondary market after a lock-in period, providing flexibility.

Timeline:

- **Year 1-2:** Focus on developing and refining the integrated services, market entry, and initial customer acquisition.

- **Year 3-4:** Scale operations, expand market presence, and increase revenue through strategic partnerships and marketing.

- **Year 5-7:** Prepare for IPO or acquisition, ensuring all financial and operational metrics are optimized

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