



## Solid waste management systems reform in Dar es Salaam's low-income areas

Different urban areas require different service delivery models. Through I4ID, innovative approaches and methods to improve solid waste collection and disposal in Dar es Salaam's underserved and unserved areas were introduced. Innovations included a new PPP contracting procedure for service-challenged areas, a pioneering model for more effective fee collection, and award-winning low-cost methods of customer tracking for SMEs. As a result, close to 50,000 residents in the city's poorest, informal settlements now benefit from cleaner and healthier living environments.

This case study presents the experiences of the Institutions for Inclusive Development (I4ID) Programme's partnership in improving urban solid waste management in Tanzania. It documents the lessons learnt by Palladium, SNV in Tanzania, BBC Media Action, and ODI UK throughout four years of programme implementation (2017-2020). Supported with UKAid and IrishAid funding to address several service delivery and economic issues, the partnership contributed in:

- strengthening inclusivity and accountability practices in Tanzania's institutions for long-term social progress and economic growth; and
- enabling the delivery of equitable services to benefit women, young people, people living in poverty, and vulnerable groups across Tanzania.

### The challenge

Urban solid waste management is at crisis levels in Dar es Salaam and many towns and cities in Tanzania, particularly in low-income settlements. At household level, managing solid waste is almost always a woman's burden, and can be hazardous and time-consuming. The lack of organised collection services mean that women have to spend time burying organic waste and burning non-organic, plastic waste.

In Tanzania, urban waste management systems are beset with several entrenched problems.

- Waste companies have not been able to collect sufficient user fees to finance collection and transport of solid waste to authorised dumping sites.
- Poor access roads and long distances to

authorised dumping sites without appropriate transfer infrastructure have made illegal dumping in rivers and people's living environment more attractive.

- A weak public-private partnership (PPP) environment has made it challenging for many ward authorities to procure professional waste management services. Short-term and unsustainable service contracts offered by the municipalities have limited the potential to create the economies of scale needed to service lower income communities.

## I4IDs engagement

I4ID aimed to resolve the critical systems failures of urban solid waste management, particularly in Dar es Salaam's low-income settlements. In Dar es Salaam, with a population of 6.7 million people, it is estimated that 60 percent of the city's residents – live in low-income settlements.

**In the face of huge infrastructure plans for Dar es Salaam, I4ID identified an opportunity to influence Local Government Authorities (LGA) and donors to focus on systems and process failures in solid waste management.**

Major investments in physical infrastructure are needed to improve access to and deliver safe services. As well as to avert the environmental impact of mismanaged landfills on people's health and socio-economic development. In 2017, the Dutch government indicated an interest to co-finance a major upgrade in the city's waste management systems. Discussions with the Government of Tanzania and the World Bank are still in progress and are likely to take several more years to conclude.

Parallel to discussions initiated by the Dutch government in 2018, the I4ID partnership took the opportunity to catalyse much needed urgent action and longer-term attention to systems failures in management processes and contracting procedures, in particular. I4ID aimed to increase access to formal waste collection services to cater to the needs of the city's high-density informal settlements. By increasing residents' access to services, I4ID sought to contribute to better living environments and reduce the risk of flooding due to waste dumped into Dar es Salaam's storm drains and waterways.

*The levels of illegal dumping, threats to public health, and vulnerability to flooding, all have the greatest impact on poor and vulnerable residents living in informal and unplanned settlements.*

**'Talking trash': getting out and meeting stakeholders, finding out what works, where, who and why – seeking positive deviance and local innovation.**

To explore and understand systems failures in solid waste management, identify barriers, and determine some entry points for action, I4ID took a different approach. Rather than rely on lengthy research, the team walked the city's streets, seeking and pro-actively engaging with government and private sector stakeholders at their workplace to pitch the joint development of small prototypes. The I4ID partnership aimed to co-create approaches to improve solid waste service delivery by engaging with practitioners in a problem-driven process which deepened understanding; this process is described in the subsequent sections.

Over time, the approach taken by I4ID built up the team's credibility as a leading source of knowledge and insight into Dar es Salaam's urban waste systems. The approach enabled the team to build constructive partnerships with Small and Medium Enterprises (SMEs), major companies, senior municipal leaders, and the relevant Ministry: President's Office, Regional and Local Government (PO-RALG).

Joint development of innovative methods with national and municipal leaders, small and large waste companies, and supporting industries, to test sustainable and scalable solutions.

Innovative methods for procurement and contracting of services, cost-effective fee collection, waste transport, and governance relationship strengthening between national, municipal and local levels of political leadership and government were supported by the I4ID project. The team sought to enable the scale up of solid waste management by supporting the:

- improvement of revenue collection by waste collectors, and reducing transport costs to Dar es Salaam's distant dump site (30km from the city centre), which led to illegal dumping, often in rivers;
- development of new contracting models with Ilala municipality, and testing how sustainable waste collection services could be established in the most challenging and polluted low-income wards in the city; and
- development of new national PPP guidelines, with PO-RALG, for municipal waste services contracting to encourage greater SME investment and participation in servicing low-income wards and informal settlements.

## Systems change approach and results

Pro-poor PPP contracting procedures introduced to increase access to reliable service delivery in some of the poorest, difficult-to-access, and heavily polluted wards in Dar es Salaam.

Municipal level solid waste service sub-contracting arrangements mostly attract large companies to operate in the more lucrative and planned (easy-to-access) areas. Residents in unplanned areas are often underserved or unserved. I4ID supported some big shifts in Ilala municipality's approach to service unplanned areas, i.e., difficult-to-access and low-income wards. Experience and lessons emerging from I4ID's partnership with the municipality were meant to inform and provide models and inspiration for Dar es Salaam's other municipalities.

The main structural change achieved was in institutionalising a new contracting arrangement between SMEs and sub-municipal (ward) authorities. This new arrangement created the space for small professional companies to

engage in unserved wards. The new contracting arrangement authorised neighbourhood (Mtaa) leaders, through the Ward Development Committee (WDC), to solicit, select, and contract a small waste service providers. Under the supervision of the Municipal Authority, the ward authorities entered into 3–6-month contracts with the service provider. The contract required the contracted SME to timely collect and transfer solid waste to the authorised dump site. Failure to comply would lead to contract termination. This contracting arrangement was successfully tested in Kinyerezi and Minazi Mirefu wards, which were identified as the worst hot-spots for illegally dumped waste in streams and waterways.

Previously, residents of Kinyerezi and Minazi Mirefu relied on informal hand-cart pushers to take their waste away, or Mtaa leaders to mobilise a small community group for waste collection. Both situations would often lead to informal and illegal dumping in rivers. The introduction of the new contracting model created a serviceable market for small professional companies who would otherwise have been excluded from larger municipal procurement tenders.

National guidelines for contracting procedures developed, including a directive for LGAs to (prioritise) reliable waste services, as opposed to seeing the sector as a source of revenue.

Waste management departments are often constrained by municipal leaders who consider waste collection fees from residents as an easy source of funds to tap for other priorities. This short-termism leads to delays in remitting fees and funds to waste companies for services rendered. The practice has driven many companies to the wall in the past, and has undermined their ability to sustain and grow services, not least in low-income neighbourhoods. Making the case with political and municipal leaders for the need to prioritise sustainable service delivery has been challenging. But I4ID has made some progress.

The partnership managed to facilitate the Minister for PO-RALG – the Hon Selemani Jaffo's interview on national Azam TV. During the interview, the minister issued a strong directive to LGAs to give priority to keeping reliable waste services running, as opposed to seeing the sector as a source of



Most urban residents need low-tech innovations - manual, low-cost, service arrangements using light, flexible machinery - to access unplanned settlements along unpaved roads (Farhari Dreams)

revenue. The minister's message reverberated throughout the sector, and feedback received by I4ID on LGA practice has been positive.

PO-RALG formalised this guidance into a new national guideline, in collaboration with a group of five municipalities and the facilitation of the I4ID team. The guidelines provide advice, tools, and templates for better contracting procedures, allowing for longer term contracts, ensuring liquidity for service providers, and facilitating more flexibility to sustain services in low-income wards.

Though the guidelines were approved and validated by PO-RALG management and the participating LGAs, the document was not officially adopted by the Ministry before the I4ID project concluded. The guidelines could make a huge contribution to institutionalising and scaling the changes in managing services that I4ID piloted successfully in Dar es Salaam. It remains to be seen whether PO-RALG will push this final step for adoption, and launch the national guidelines on their own initiative.

### [SWM fee collection improved through geo-databasing properties.](#)

I4ID jointly developed several innovative approaches to help SMEs adopt good service practices, which would reduce costs, manage revenues, and sustain services that could potentially be scaled up in more wards.

In 2019, I4ID teamed up with a local waste company, GreenWastePro, and the Humanitarian Openstreetmap Team (HOT), to test a novel approach to redress the problem of fee collection and management. In collaboration with the Ilala municipality and with I4ID financial and technical support, the company designed and piloted a system of fixing unique geo-registered tags on every house, apartment, building, and shop in their catchment area. Each tag was registered with a GPS pin in their customer database, which would serve as a digital address. The system has enabled GreenWastePro to manage and track every resident's payment, and the service they should be receiving, thereby boosting revenues by 50% across the three pilot wards.

The residents, in turn, can inform the service provider of any problems with trash collection and get them fixed quickly since, for the first time, GreenWastePro could access to traceable addresses on a digital database.

This pioneering innovation to improve fee collection through geo-databasing properties was shortlisted for the FastCompany's annual World Changing Ideas Innovation Awards in 2020. The geo-tagging pilot inspired interest in a further replication across the whole of Dodoma City, and to expand the geodatabase beyond waste collection fees. This would mean expanding the scope of the geodatabase to include a further 20 different types of Own Source Revenue that LGAs derive from properties, businesses, and other

taxable assets. This interest did not come to fruition since the project was near closure.

**I4ID jointly developed a low-cost mobile App to enable smaller SMEs to monitor services. The App has been adopted by several SMEs, and has won several awards.**

The geo-tag pilot revealed that the problem of collecting fees was a major stumbling block to making services more affordable, sustainable, and scalable. I4ID developed a mobile App with Hype, a local tech company, to equip smaller waste collecting SMEs with the capability to map and track their customers, by registering customer details and GPS locations through a cloud-based App. This App has now been taken up by several SMEs. Over the years, the local tech company Hype won several awards, including SmartLabs and the Vodacom Digital Accelerator.

**Low-tech, low-cost waste transfer model better suited for difficult-to-access, low income areas introduced.**

A mobile waste transfer model was successfully adopted by four SMEs, who quickly managed to scale up services across 22 low-income mtaaas. I4ID drew inspiration from a system using tractors and trailers to transport waste, proven to be successful in Mombasa, a coastal city with similar characteristics to Dar es Salaam. With a tractor-trailer combination, several neighbourhoods can be served at the same time; by doorstep collectors consolidating waste into relatively cheap stationary trailers, while the tractor pulls one trailer at a time to a dumpsite. This whole system costs less than a third of a single compactor truck. The vehicles are sturdier and cope better with Dar es Salaam's challenging infrastructure conditions, particularly during the rainy season.

I4ID identified a financing model for companies to lease-purchase the assets, if assisted with a deposit. The model proved so successful, attracting great interest from other companies. Due to resource availability, I4ID could only limit its support to four companies. First-time engagement of these four SMEs in formal solid waste collection services kickstarted a market for waste collection services in low-income, unplanned areas, and facilitated a shift away from informal services and illegal dumping.

## Lessons

**Agile funding to catalyse larger investment from government.** Most government agencies have minimal budgets to take risks and commit to new ideas that are not budgeted in their financial plan. When programmes like I4ID provide seed money to pilot new innovations, and results show significant impact, governments always demonstrate a readiness to allocate funds for scaling up to other areas. Seeing is believing! I4ID provided fund support to pilot new contract models in Minazi Mirefu and Kenyerezi wards, and Ilala municipality scaled up the initiative in all peripheral wards.

**Finding windows of opportunity to support emerging change initiatives (positive deviation) is more likely to be successful since such an approach builds on local ownership and commitment.** Ilala had already aspired to be seen as the cleanest municipal in Dar es Salaam. GreenWastePro, which had designed the geo-registered tags, jumped at the opportunity to pilot this innovation in collaboration with I4ID and Ilala municipality.

**Finding these windows of opportunity enabled I4ID to win over partners and build credibility for further initiatives.** Identifying passionate organisations has been key. This included helping GreenWastePro engage in pilot schemes to provide counselling and rehabilitation services for drug dependency amongst their informal waste pickers. Mission driven companies, professional associations and value driven community organisations all make committed, passionate change-makers.

## About I4ID

Institutions for Inclusive Development (I4ID) is a programme implemented by Palladium, SNV, BBC Media Action and ODI UK, funded by UKAid and IrishAid. Between 2017 and 2020, I4ID partners piloted new and innovative approaches to introduce inclusive growth approaches and better public services to benefit the largest number of people possible in Tanzanian society.

This case study was put together by staff from the I4ID team, including Julie Adkins (SNV), who edited this brief for SNV.

To learn more about I4ID's contributions to solid waste management, view video on innovative transformation of waste management in Dar es Salaam at <https://vimeo.com/413080640>.

## About SNV in WASH

SNV contributes to sustainable change in WASH delivery systems. Ultimately, we envision a world that enables all people's access to affordable and reliable WASH services – leaving no one behind.

In households, schools, and health facilities, our programmes are designed to build professional, organisational, and inter-institutional capacities to deliver environmentally and financially sustainable rural and urban WASH services. Through programme implementation, joined-up thinking, and our research – conducted with partners in government, private sector and civil society – our contributions:

- provide evidence to integrate sanitation information in wider district-, provincial and city planning;
- assist public authorities to better target investments and oversee the efficient operationalisation of services;
- create the conditions and capacities for private sector engagement in WASH; and
- instil long-lasting sanitation and hygiene behaviours amongst consumers and professions in the front-line of WASH services delivery.

## SNV

SNV is a not-for-profit international development organisation that makes a lasting difference in the lives of people living in poverty by helping them raise incomes and access basic services. We focus on the Agriculture, Energy, and Water, Sanitation, and Hygiene (WASH) sectors and have a long-term, local presence in over 25 countries in Asia, Africa and Latin America. Our team of more than 1,300 staff is the backbone of SNV.

## Systems change case studies

SNV projects directly benefit millions of people. At the same time, our projects also drive systems change – strengthening institutions and kick-starting markets to help many more people work their way out of poverty, well beyond the scope of projects.

In this series, SNV documents and explores lessons on the way it achieves systems change, with special attention to four key parameters of success:

- leveraging finance,
- kick-starting/shifting markets,
- adoption of improved approaches by government and others,
- shifting values, norms and mindsets.

The growing number of case studies will cover a variety of geographic contexts, (sub-) sectors and development challenges.

## Cover photo

Waste accumulates due to unreliable waste collection services, creating health hazards (Fahari Dreams)

## For more information

Olivier Germain  
WASH Sector Leader  
SNV in Tanzania  
[ogermain@snv.org](mailto:ogermain@snv.org)



Ambasáid na hÉireann | Tanzania  
Embassy of Ireland | Tanzania  
Ubalozzi wa Ireland | Tanzania

SNV, 'Solid waste management systems reform in Dar es Salaam's low-income areas', *I4ID systems change case study*, The Hague, SNV, 2021.