S&M WORKING PAPER SERIES

From Landfill to Learning Hub

Toward Africa's First Circular Economy Excellence Center: Lessons from Addis Ababa

Author:	Soil and More Ethiopia
Date:	August 2026
Series:	S&M Working Paper Series, No. 1
Suggested citation:	Soil and More Ethiopia (2026). From Landfill to Learning Hub: Toward Africa's First Circular Economy Excellence Center. S&M Working Paper Series, No. 1, Addis Ababa.

Abstract

Ethiopia's economy, like much of the region's, still operates largely on a linear take-make-dispose model, despite the adoption of a National Circular Economy Roadmap in 2025. This paper describes an effort to close the gap between that policy ambition and practical implementation: a proposed Circular Economy Excellence Center on a 7-hectare site in Bole Arabsa, Addis Ababa, developed by Soil and More Ethiopia in partnership with the Addis Ababa City Cleansing Management Agency (AACMA) and national and regional environmental authorities. The center is designed to integrate waste sorting, composting, biogas, plastic and paper recycling, e-waste dismantling, and Black Soldier Fly processing under one site, alongside a public learning and training program. Drawing on Soil and More Ethiopia's thirteen years of field experience in composting and SME development — including an 18-hectare model facility in Ziway and a C40 Cities Bloomberg Philanthropies Award-winning decentralized composting program — the paper sets out the center's design, partnership model, and anticipated environmental, social, economic, and policy outcomes. It closes by drawing out what the model may offer other African cities facing the same gap between circular economy policy and practice.

1. Introduction: The Limits of a Linear Economy

Ethiopia's economy operates largely on a linear model: resources are extracted, transformed into products, and eventually discarded as waste. This model is resource-intensive, environmentally damaging, and economically inefficient — it treats waste as an endpoint rather than a resource. The consequences are visible across sectors: manufacturing and industry face high material costs and missed opportunities for recycling and reuse; agriculture experiences a steady loss of organic matter, soil degradation, and growing dependence on synthetic inputs; urban development contends with mounting pressure on landfills, pollution of water bodies, and loss of valuable land; and public institutions — government offices, schools, hospitals — generate significant waste with no systematic approach to segregation, recycling, or composting.

Addis Ababa alone generates more than 3,000 tons of solid waste daily. Low segregation rates, limited recycling infrastructure, a large informal waste workforce, and mounting landfill pressure are the visible symptoms of this linear model — but they are symptoms, not the root problem. A circular economy transition needs to address production, consumption, and institutional practice as much as it addresses waste management itself.

2. Ethiopia's Policy Response: The National Circular Economy Roadmap

Ethiopia has taken an important policy step. The National Circular Economy Roadmap (Ethiopian Environmental Protection Authority, 2025) outlines a vision for transitioning from a linear to a circular economy, identifying priority sectors, setting targets, and proposing interventions for waste reduction, resource efficiency, and material circularity.

A significant implementation gap remains, however. The Roadmap exists on paper, but there is no practical, publicly visible starting point where policymakers, industry leaders, academics, and practitioners can see circular economy principles demonstrated in action — the Roadmap, in effect, lacks a physical home.

The work described in this paper is intended to align directly with that Roadmap, as well as with the Addis Ababa City Cleansing Management Agency's (AACMA) Integrated Solid Waste Management Masterplan, Ethiopia's updated Nationally Determined Contribution (NDC 3.0) under its Climate Resilient Green Economy strategy, and Sustainable Development Goals 9 (Industry, Innovation and Infrastructure), 11 (Sustainable Cities and Communities), 12 (Responsible Consumption and Production), 13 (Climate Action), and 17 (Partnerships for the Goals).

3. The Missing Link: Why Demonstration Infrastructure Matters

What is generally missing — in Ethiopia and in many developing economies pursuing similar circular economy roadmaps — is an integrated, publicly accessible, fully operational facility that serves several functions simultaneously: a learning and demonstration hub where industries, policymakers, academics, and communities can understand and adopt circular economy principles through direct observation and hands-on training; a replicable model that can be rolled out in smaller form across other districts and cities; a showcase for institutional circular economy, demonstrating how industrial parks, schools, government institutions, and real estate developments can integrate these principles

into daily operations; and a policy and research platform where a roadmap moves from a planning document to an observable, evaluable reality.

Solid waste management is a natural entry point for this kind of facility — it is visible, it is urgent, and the technologies involved (composting, recycling, biogas) are well proven — but it is not, on its own, the whole story. A demonstration center built only around waste risks reinforcing the idea that circular economy is a waste-sector concern rather than a cross-sectoral economic model. The center described in this paper is designed to address the broader challenge: demonstrating circular economy principles across waste management, manufacturing input recovery, agriculture, urban development, and institutional operations together.

4. The Circular Economy Excellence Center: A Practical Model

Soil and More Ethiopia, in partnership with AACMA, Ethiopia's Federal Environmental Protection Authority (EPA), and the Addis Ababa EPA, is developing a Circular Economy Excellence Center on a 7-hectare site in Bole Arabsa, Addis Ababa — conceived as the first facility of its kind in Africa. Rather than a single-purpose recycling plant or an isolated pilot project, the center is designed as an integrated model of the full waste-to-resource value chain, bringing sorting, processing, training, and technology transfer together on one site. It is intended as a working, bankable facility: a place where government officials can observe operating best practice, private investors can test and de-risk new technologies, waste workers can receive structured training, and students and researchers can learn through direct exposure.

Figure 1. 3D design model of the proposed Circular Economy Excellence Center, Bole Arabsa, Addis Ababa.

4.1 Vision and Site

The vision is to establish a first-of-its-kind Circular Economy Excellence Center in Africa: a practical learning hub for industries, policymakers, academia, and communities to understand, adopt, and scale circular economy principles — moving Ethiopia from a linear to a circular model, as envisioned in the National Circular Economy Roadmap. The site, in Bole Arabsa, Addis Ababa, spans 7 hectares of a closed compound with existing unfinished buildings. The land has been allocated by AACMA under a 15-year Memorandum of Understanding with Soil and More Ethiopia, signed in July 2023.

4.2 Planned Components

The center is designed to integrate multiple waste management and circular economy facilities, each handling a specific waste stream or producing a specific output, so that material flows from one process to another and residual waste is minimized:

Component	Description
Learning & Demonstration Hub	Interactive exhibits, case studies, and guided tours explaining circular economy principles for policymakers, students, industry visitors, and development partners.

Component	Description
Decentralized CE Center Model	A replicable, small-scale model of a community-based circular economy center, designed for replication across sub-cities and other Ethiopian cities.
Institutional CE Demonstration	A showcase of how industrial parks, schools, government institutions, and real estate developments can integrate segregation, composting, water recycling, and energy efficiency.
Waste Sorting Station	Model facility for source separation and sorting of recyclables.
Biogas Production Unit	Conversion of organic waste to renewable energy.
Compost Production Center	Controlled Microbial Composting (CMC) — an EU-standard aerobic composting method that uses controlled temperature, moisture, and turning cycles to produce consistent, pathogen-free compost faster than conventional windrow composting.
Plastic Recycling Facility	Sorting, washing, shredding, and processing of plastic waste.
Paper Recycling Facility	Shredding, pulping, and baling of waste paper.
E-Waste Dismantling Center	Safe dismantling and segregation of electronic waste.
Black Soldier Fly (BSF) Unit	Use of Black Soldier Fly larvae to convert organic waste into high-protein animal feed — a fast, low-footprint alternative to conventional composting for certain waste streams.
Wastewater Treatment Demonstration	Small-scale treatment for on-site use and irrigation.
Urban Agriculture Showcase	Demonstration farming using center-produced compost and treated water.
Training and Innovation Center	Classrooms, meeting spaces, and demonstration areas.

Beyond these core processing facilities, the site requires supporting infrastructure — administrative offices, secure storage and warehousing, site security, and internal circulation routes — as well as basic utilities. As of mid-2026, the site lacks road access, grid power, and piped water; resolving these gaps, through city budget allocation, coordinated public investment, or private contribution, is a precondition for full operation, though some low-infrastructure activities such as training could begin on a pilot basis before that point.

5. A Multi-Sectoral, Public-Private Approach

Because circular economy touches waste management, industry, agriculture, urban development, education, and policy simultaneously, no single actor can build or operate a facility of this kind alone. The center is being developed under a public-private partnership model. AACMA serves as landowner and regulator, and is a market for center outputs such as compost for municipal parks and beautification programs. Ethiopia's Federal EPA and the Addis Ababa EPA provide policy guidance, environmental compliance oversight, and lead implementation of the National Circular Economy Roadmap and its local alignment. Soil and More Ethiopia acts as facilitator and technical partner, translating the concept into a working facility, with private investors expected to finance and operate individual facilities — biogas, composting, recycling units — under agreed terms.

A wider stakeholder ecosystem is expected to engage as the center matures, including national ministries responsible for planning, industry, education, and urban infrastructure; the Ethiopian Industrial Parks Development Corporation, for piloting institutional circular economy within industrial parks; academic institutions for research, monitoring, and student engagement; and development partners for technical and financial support. A steering committee drawing on the core partners is intended to oversee milestones, work plans, and alignment with the national Roadmap as the project progresses.

6. Evidence from the Field: Track Record

The center's design draws directly on Soil and More Ethiopia's thirteen years of field experience in circular economy, waste management, composting, recycling, and SME development.

6.1 The Ziway Model Facility

Soil and More Ethiopia developed and self-financed an 18-hectare waste management model facility in Ziway, transforming a former waste dump into a demonstration site featuring EU-standard Controlled Microbial Composting

technology, fruit and vegetable cultivation using the compost produced on site, indigenous tree planting, and a dedicated training and excellence center for composting technique.

Figure 2. The Ziway site's transformation from waste dump to demonstration facility.

6.2 Recognition and Prior Programmes

- **C40 Cities Bloomberg Philanthropies Award (2022) —** Addis Ababa's decentralized composting and recycling waste management project, initiated by Soil and More Ethiopia, won the C40 Cities Bloomberg Philanthropies Award in Buenos Aires in 2022, with recognition from the Addis Ababa City Government.
- **MasterCard Foundation projects —** delivered via First Consult, providing technical assistance, business development services, and market linkages for waste paper, waste plastic, greenery/beautification, and composting SMEs — benefiting more than 12,500 individuals and establishing supply agreements between SMEs and anchor factories.
- **Decentralized composting project —** trained 1,800 individuals organized into SMEs on EU-standard CMC composting, converting vegetable market biomass into standard compost, measurably reducing waste reaching the Koshe/Reppie landfill, and establishing a market-linkage MoU with the Addis Ababa Beautification and Green Development Office.
- **SME capacity building —** over 1,000 SMEs and more than 15,000 individual trainees supported through company formation, technical assistance, equipment support, business development services, and access-to-finance and market-linkage facilitation.

7. Expected Outcomes

The center is designed to deliver measurable benefit across four dimensions.

7.1 Environmental

- diverting organic waste, plastics, paper, and e-waste from the Reppie landfill, extending its usable life and reducing methane emissions;
- converting waste into compost, biogas, and recycled material inputs for manufacturing;
- safely handling e-waste and hazardous material to prevent soil and water contamination, and reducing open burning and associated air pollution;

- providing a blueprint for decentralized centers and institutional circular economy integration elsewhere in Addis Ababa and other Ethiopian cities.

7.2 Social

- direct employment in sorting, composting, recycling, training, and center operations, with indirect jobs in collection, transport, and off-take industries;
- a pathway for informal waste pickers into organized, trained, and safer employment;
- practical skills training for waste workers, SME operators, students, and professionals;
- public visibility — the center is intended to be open to schools and community groups, shifting public attitudes toward waste as a resource rather than a nuisance.

7.3 Economic

- private capital financing and operating individual facilities under the PPP model, reducing the financial burden on the city;
- ongoing revenue from the sale of compost, biogas, and recycled materials;
- course fees, technical advisory, and equipment testing services from the training center;
- reduced transport, disposal, and illegal-dumping enforcement costs for the city.

7.4 Policy and Institutional

- a practical starting point for National Circular Economy Roadmap implementation — moving it from policy document to observable practice;
- a template for decentralized, community-based circular economy centers;
- evidence to inform EPA regulation, standards, and enforcement priorities, since policymakers can observe technologies and systems in operation before mandating or incentivizing them;
- hands-on capacity building for government staff in facility management, monitoring, and compliance;
- a shared physical space bringing government, private sector, academia, and civil society together in ways that recurring meetings alone do not achieve.

8. Broader Lessons for African Cities

Ethiopia is not alone in having a circular economy strategy that exists more fully on paper than on the ground. Many African cities face the same basic gap: a national or municipal roadmap sets direction, but no visible, operational reference point exists for policymakers, investors, or the public to point to. Three lessons from this experience may be useful to other cities pursuing a similar transition.

First, demonstration infrastructure appears to function as policy infrastructure. A roadmap document can specify targets and priority sectors, but it cannot show a regulator what a functioning compost facility smells like, how a sorting line is staffed, or what a Black Soldier Fly unit requires operationally. A physical site that policymakers, investors, and the public can visit appears to do work that written policy alone cannot — building the operational literacy regulators need before they can confidently write enforceable standards.

Second, integration across waste streams, rather than single-technology pilots, seems to matter for investor and public credibility. A single composting pilot or a single recycling facility is easy to dismiss as a one-off; a site that visibly connects multiple waste streams into a coherent system reads differently to both private investors weighing where to place capital and to public officials weighing whether the model can scale.

Third, replicability has to be designed in from the start, not added later. Embedding a deliberately small-scale, low-cost "decentralized center" model inside a larger flagship facility — rather than treating the flagship as an end in itself — gives municipal partners a concrete, costed unit they can evaluate for rollout to other districts, rather than an abstract aspiration to scale "somehow, eventually."

These lessons come with an important caveat: as of this writing, the center described here is still under development, with critical infrastructure and a second round of technical assessments outstanding. The observations above reflect the design rationale and the implementation experience to date, not a completed, independently evaluated project — a distinction future editions of this paper will be able to address as the center becomes operational.

9. Conclusion

The Circular Economy Excellence Center represents an attempt to move beyond fragmented pilot projects toward an integrated, publicly accessible, fully operational model of what a circular economy looks like in practice — spanning the full value chain from waste sorting through composting, biogas, recycling, and training, while also functioning as a learning hub for industry, policymakers, and academia.

The foundation is in place: a 15-year Memorandum of Understanding with AACMA, an allocated 7-hectare site, a completed architectural redesign and 3D model, a first round of GIZ-financed technical assessments now under review, and established working relationships with AACMA, Federal EPA, and Addis Ababa EPA. What remains is resolving the site's infrastructure gaps, completing a second round of technical assessments, engaging private investors for individual facilities, and moving from design to construction and operation — the work this paper's next edition is intended to report on.

References

Addis Ababa Cleansing Management Agency (AACMA). (2024). Addis Ababa City integrated solid waste management strategic master plan (2024–2043). Addis Ababa City Administration, Federal Democratic Republic of Ethiopia.

Ethiopian Environmental Protection Authority (2025). National Circular Economy Roadmap. Addis Ababa: Federal Democratic Republic of Ethiopia. https://www.epa.gov.et/images/PDF/National%20Circular%20Economy%20Roadmap%20of%20Ethiopia.pdf

Federal Democratic Republic of Ethiopia (2025). Ethiopia's Third Nationally Determined Contribution (NDC 3.0). Available at: https://unfccc.int/sites/default/files/2025-09/Ethiopia%20NDC%203.0%20Final.pdf

United Nations (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. Sustainable Development Goals 9, 11, 12, 13, and 17.

Contact the Authors

Hussen Ahmed, Managing Partner — hussen.ahmed@soilandmoreethiopia.com

Messay Sintayehu, Program Manager — messay.sintayehu@soilandmoreethiopia.com