



SCALING ACCOUNTABILITY:

Lessons from 5 Years of Verified Plastic Collection

As funding for plastic waste collection and recycling grows, so does the need for cost-effective accountability and traceability systems that can scale with investment. Drawing on CleanHub's five years of experience developing high-quality plastic collection credits, this paper provides real-world examples and recommendations for ensuring the social and environmental integrity of plastic collection projects.

We invite corporates, donors, and governments to join us in developing harmonized data standards and sharing emerging monitoring technologies to enable responsible sourcing, effective policy implementation, and investment for global impact.



Scaling investment in an opaque industry



Over the last decade, plastic circularity efforts have shifted from volunteer initiatives to business necessity. Plastic is a reputational risk, and increasingly, governments are refusing to pay for cleanup. New policies—extended producer responsibility (EPR), recycled content standards, and the global treaty—put pressure on corporations to increase plastic waste recovery and recycling.

Money is following this shift. [Development funding for waste management doubled from 2019-2023](#) and [private investment in plastic circularity hit \\$30 billion a year](#). A global plastics treaty [could increase that 10-fold](#). But this money flows into an opaque and localized industry. 60% of the world's plastic is collected by informal workers. Fraud and worker exploitation are common, but hard to detect.

Companies, governments, and donors often lack the tools to effectively monitor the impacts of their funding, which creates risks:

- *Paying without protection:*
Will EPR programs effectively reduce plastic pollution, or will companies pay into systems without guarantee of reducing branded waste in the environment?
- *Recycling supply chain blind spots:*
Can companies verify the integrity of recycled plastic supply chains? Do they have data to evaluate safety amid rising concerns about chemical additives?
- *Private capital trust gap:*
Can governments demonstrate enough transparency to attract private investment? Particularly in emerging economies—major growth markets that have received only [6% of private investment](#)?

Closing the Trust Gap:

Lessons from the voluntary credit market

The voluntary plastic credit market offers lessons on how to address these risks.

Credit developers need to demonstrate verifiable outcomes to have a marketable product—often implementing accountability mechanisms that traditional waste management systems can lack.

This has accelerated innovation in AI-assisted monitoring and traceability systems alongside the development of regional expertise. Plastic credit mechanisms are already being integrated into compliance frameworks in India, Brazil, and the Philippines, showing how verification systems work in emerging markets where informal workers are essential.

This accountability infrastructure can extend far beyond credits, supporting verification in EPR programs, development finance, and private investment.

Building on CleanHub's five years of experience developing high-quality plastic waste management projects across Asia, East Africa, and Latin America, this paper outlines systematic monitoring and verification approaches to tackle the fundamental challenges that erode trust in plastic waste management projects.

These inform recommendations on harmonized data standards and emerging monitoring technologies to enable responsible sourcing, effective policy implementation, and investment for global impact.

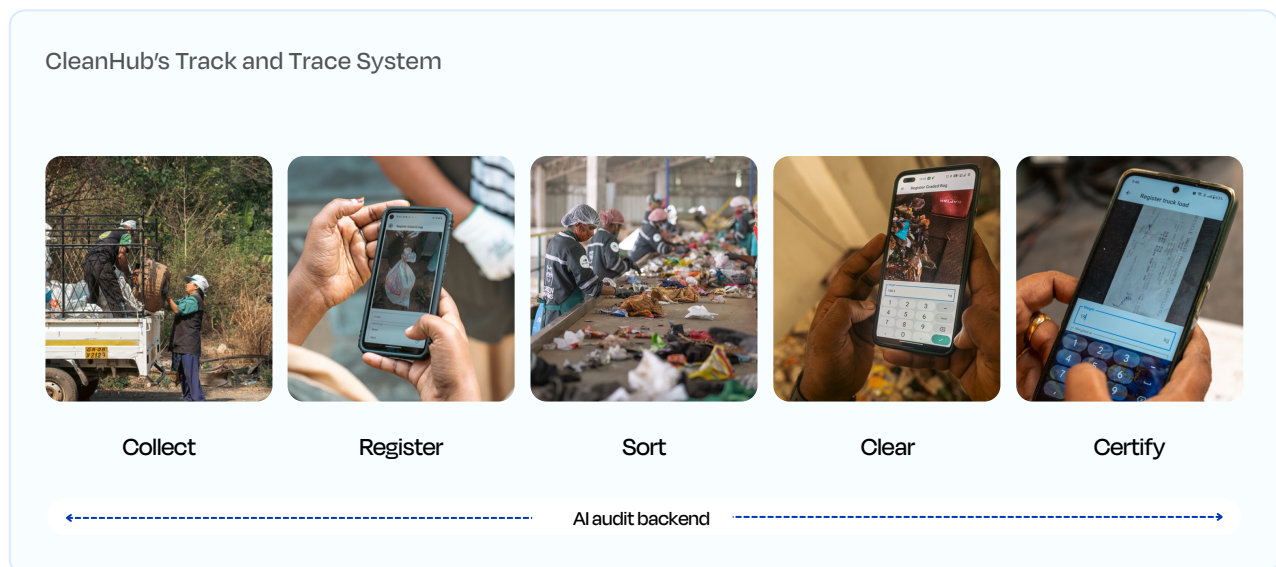


Challenge 1

Verifying Collection and Processing Outcomes

Waste management value chains are vulnerable to fraud because activities are highly localized and only a fraction of materials return to company supply chains. Common issues include illegal dumping, double-counting, and fraudulent reporting.

CleanHub's "Track and Trace" software provides the digital infrastructure for monitoring each project - giving our in-country teams the data they need to manage projects effectively:



Solution 1:

AI-powered photo verification at every step.

Waste workers photograph trash bags and scales from collection points to materials recovery facilities (MRFs). Plastics are photographed again after sorting and baling. Weight receipts from haulers and final processors are verified by an AI "auditor" that tracks material weight and analyzes images for inconsistencies with precision beyond human capability.

Solution 1:

In a project in Tanzania our AI auditor flagged that photos of plastic bales were being uploaded at unusual frequency, and noted identical dust patterns in the uploaded photos; this revealed an attempt to report the same materials multiple times.



Solution 2: **Cross-verification from multiple partners.**

We require weight and documentation from waste collectors, haulers, and recycling/disposal facilities to verify materials are truly waste and prevent illegal dumping or burning.

The AI auditor checks for unexplained volume changes or inconsistencies, comparing data from different partners. Any discrepancies are flagged for staff to review with partners.

Solution 2:

In Indonesia, a waste aggregator tried inflating volumes by purchasing new, off-spec packaging from a local producer and passing it off as "collected waste."

The AI auditor detected the increase that didn't match regional patterns.



Solution 3:

On-going operational data collection is critical for traceability, particularly for recycled plastics. The “Track and Trace” system records waste origin (e.g., in compliance with recycled content safety requirements) and maintains chain of custody records from collection through final disposal or transformation into recycled pellets.

This ongoing data record is less susceptible to gaming than one-off audits. Further, governments and facility operators value this data generation—in regions with limited waste infrastructure, our system often provides the only available data to inform infrastructure planning, policy decisions, and efficient operations.



Challenge 2

Ensuring safety and fair treatment of workers

Waste collection across the Global South relies heavily on informal workers who face exploitation and unsafe working conditions. Growing attention to worker rights has driven initiatives like the [Fair Circularity Principles](#) and the [Responsible Sourcing Initiative](#) to establish protective standards.

Protecting these workers is essential: they're critical to collection efficiency, labor violations create major reputational risks, and better working conditions reduce poverty. Doing so cost-effectively is critical—or these improvements will not be durable or replicable—and requires a systematic approach.

Solution 1:

Local expertise for credible social monitoring.

While our team has developed strong digital infrastructure for accountability, we prioritize local staffing and expertise to monitor and validate social outcomes.

Our in-country leads work alongside periodic social auditors and AI monitoring. Their local expertise and ability to engage with facility operators and workers are critical to ensure compliance is grounded in reality.

Solution 1:

In India, our third-party audit flagged that an MRF manager was holding workers' passports—which often signals forced labor.

Our country lead's interviews with the workers, however, revealed they had requested this secure storage themselves due to unsafe conditions in the nearby refugee camps where they lived.



Solution 2:

AI-supported social compliance monitoring.

Photos from waste collectors include images of workers themselves, checked against registered IDs to verify identity and detect child labor. The system conducts periodic reviews of social compliance indicators and sends regular reminders to facility managers about training and safety.

Solution 3:

Focus on continuous improvement and aligned objectives.

We view social compliance not as a box-checking exercise, but as an ongoing process of building trust and capabilities. We conduct formal audits at project launch and every two years thereafter, treating them as development roadmaps rather than pass-fail assessments.

Changes are implemented gradually based on worker priorities, and we increase our investments in partnerships where facility operators demonstrate commitment to improvement. This ensures durability: social compliance is embraced when operators see tangible benefits—better funding access, lower turnover, and more professional operations.

Solution 3:

An audit at a partner facility in Kerala revealed that staff found closed footwear uncomfortable due to heat and humidity and were reluctant to wear it daily.

Our team conducted outreach to workers and facility managers, educating them about safety concerns, particularly during loading and baling operations. Working with the MRF team, we identified acceptable closed-toe shoes that staff would actually wear.



From Proof of Concept to Industry Standard

These examples aren't isolated. Over 5 years, working across 3 continents, we've shown that cost-effective verification and monitoring is possible.

It requires data standardization across geographies and leveraging digital infrastructure alongside knowledgeable regional staff. Central to this is buyer demand. When project funders demand consistent standards, data, and monitoring tools, project operators adapt to them.

This creates a virtuous cycle: lower costs for operators, better data for funders, and higher-quality projects overall.

Building on our experience, we welcome corporate, donor, and government partners interested in working to develop the data and monitoring infrastructure that enables the plastics circular economy to scale.

Together, we could develop:

1. Harmonized data standards for plastic collection and recycling projects:

Establish shared data formats and evidence requirements across plastic collection/recycling projects to reduce reporting burdens and enable automated verification.

2. A shared technology stack for monitoring and verification:

Technology and AI for traceability and monitoring is changing fast, creating opportunities to reduce on-going costs by sharing existing tools, software, and approaches for monitoring and verification.

Monitoring and verification are critical components of good public policy. Over time, these voluntary data standards and monitoring approaches will serve as vital inputs to national and international plastics policy frameworks and outcomes-based financing mechanisms.

Together, we can build the data infrastructure for a circular plastics economy: where transparency builds trust, technology enables inclusion, and traceability underpins planetary-scale investment and impact.

To join our coalition of changemakers, contact Joel Tasche, CEO, joel@cleanhub.com.

About CleanHub

Over the past five years, CleanHub has partnered with over 500 brands to keep plastic out of the ocean. We incentivize low-value plastic collection and data-driven, efficient material recovery facilities (MRFs). Our network of proven waste management and community engagement partners in coastal India, Indonesia, Tanzania, and Guatemala collects 10,000 tons of plastic per year.

Accountability is central to our approach: CleanHub's ISO-verified "Track and Trace" technology provides accountability to brand partners for every ton of waste—from collection to recycling or disposal—with rigorous social compliance monitoring and operations support to ensure improved pay and dignified working conditions for local waste workers (in accordance with SA8000, Fair Labor Association, and Ethical Trading Initiative standards).

Contact us



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For Clean Oceans