

CityLab | Environment

Even Garbage Is Using Blockchain Now

Pilot projects that use innovative data collection to encourage recycling and responsible waste management are underway in Argentina, India and the U.S.



The startup RecycleGO plans to use blockchain to track plastics recycling in Lagos, Nigeria. *Photographer: Nyancho Nwanri/RecycleGO*

By Chris Malloy

March 18, 2021 at 9:40 AM MST

Save

Translate

6:10

Where does our trash go after it leaves the curb?

There's no easy answer. Most plastics and other waste aren't recycled; instead, they end up in landfills – or worse. But their journey is often difficult to track. There are billions of moving parts along the chain, including collectors, processing centers and even many types of refuse.

Pilot projects in the U.S. and abroad are trying to add accountability to this process with the adoption of blockchain technology that will allow both waste managers and citizens to peer into garbage collection with a more all-seeing eye.

Bloomberg CityLab

Mamdani's NYC Pied-A-Terre Tax Temporarily Blocked by Judge

Art Deco Bathhouses Showcase the Glory of NY's Public Beaches

Hong Kong's Iconic 'Cha Chaan Teng' Diners Are Going Global

How Much Space Should Golf Get in a Growing City?

Blockchain, a decentralized ledger for linking information, can handle vast amounts of data and is often deemed immutable, as it is very difficult to alter completed digital entries. It underpins various cryptocurrencies, including the now-surging Bitcoin, and has become the cornerstone of Web 3.0 – the next, post-Big Tech phase in the evolution of the internet. Though many of its applications are in early developmental stages, blockchain is being used to innovate fields from banking and real estate to art and now, waste management.

Crypto for Trash

In Campo Viera, a town in northeastern Argentina, an entrepreneur named Ivan Zubilewicz has created a cryptocurrency that he hopes will improve local waste collection. Like Bitcoin and other leading cryptocurrencies, JellyCoin – scheduled to be released locally this month – is built on a blockchain.

Zubilewicz says he has long sought ways to shift human behavior for the planet's benefit; when he came across blockchain technology in 2015, he says, it was "like a divining rod." He realized what was possible, namely a waste-collection incentive. "The idea sort of came from this desire to look at people's habits, to change the way that people interact with the resources they're using," Zubilewicz says.



The JellyCoin logo. *Image courtesy of Ivan Zubilewicz*

To provide a modern, community-driven incentive that might change behavior, JellyCoin, whose value is initially pegged to the Argentinian peso, was slowly born. In Argentina, as in many other countries, regulatory framework for cryptocurrency hasn't fully developed. Still, Campo Viera will soon be adopting JellyCoin in a limited capacity, one that will facilitate waste collection.

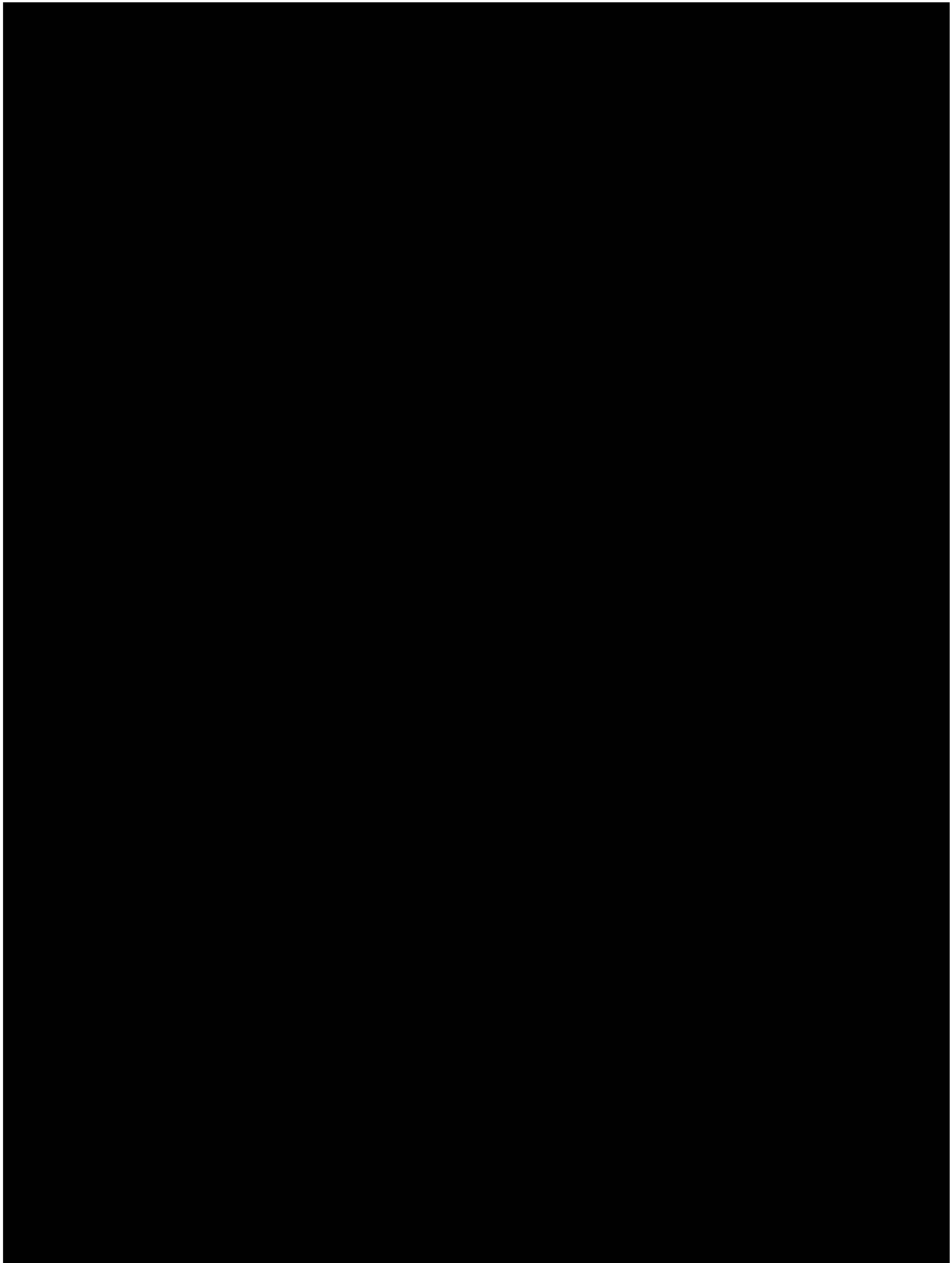
Some waste collection in the country is done by cartoneros – people who sort garbage, including cardboard and plastic for recycling, which they bring to centers. JellyCoin, soon to be issued to collectors through an app, would provide compensation for this citizen waste collection, including for how far collectors have traveled. Zubilewicz says that JellyCoin would be used at first to make certain payments to the city, such as for real estate taxes, and potentially for a wider spread of transactions in the future.

An App for Garbage

A similar community-driven effort is taking shape in Bengaluru, India, spurred by a nonprofit group called CITAG (Citizen Involved & Technology Assisted Governance).

“We have a lot of issues with solid waste management, so we wanted to look at how to use blockchain technology to introduce a grievance redressal mechanism,” says Shobha Ananda Reddy, CITAG’s secretary and an environmental scientist.

Her municipal government, Bruhat Bengaluru Mahanagara Palike, has an app that regulates waste management (and more). On the app, people submit complaints when waste collection goes awry – for example, if garbage is never picked up, or if “black spots” form, meaning public areas where trash accumulates, whether from citizen dumping or collector neglect. Though the system is sound in theory, Reddy and CITAG believe that the app and city waste collection can be improved.



A so-called black spot on Jakkur Main Road in Bengaluru, one of many despite regular garbage collection. *Photo courtesy of Shobha Ananda Reddy*

“Government introduced this system of geotagging,” Reddy says. “Any officer who removes the black spot, he will take a picture and timestamp and then upload it on the app.” However, there is a problem with officers

saying the issue has been resolved when it actually hasn't, and the possibility of changing past entries lingers.

CITAG is in talks with government to outfit the app with blockchain. Reddy says that this would mean “any changes will require three levels of approval.” Tampering with logs would become a non-factor; the record of citizen grievance filings and collector-marked pickups would be more accurate and complete. This would also provide higher-ups with data, Reddy says, on “who is performing and who is not.”

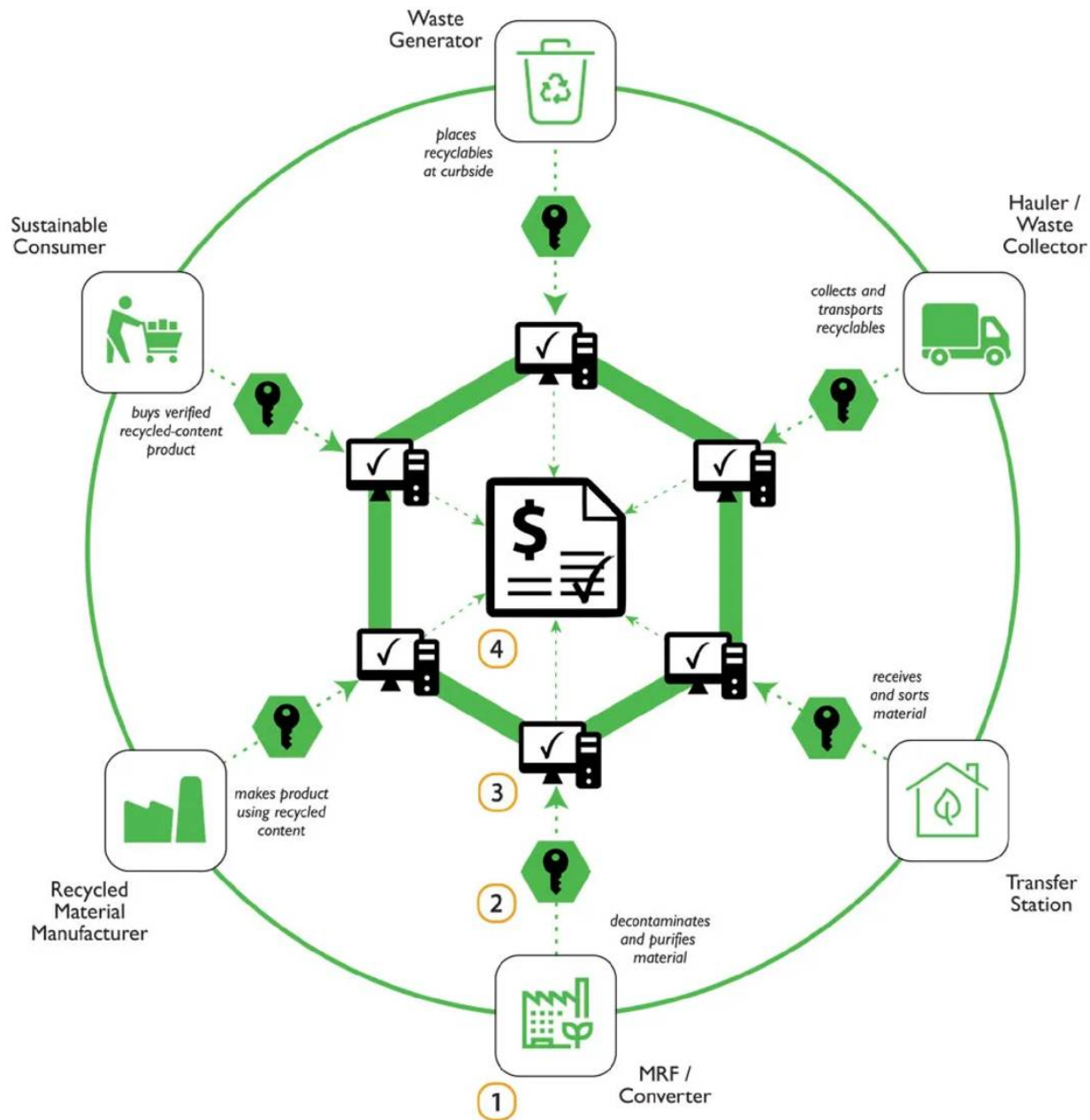
CITAG's blockchain is in pilot mode. The group hopes to bring a fuller version to their whole municipality in the coming weeks.

QR Code Cleanup

Other blockchain-driven waste projects are looking to have a broader reach. RecycleGO, a five-person startup based in New York, is targeting communities around the world. The company aims to integrate software and technology into recycling, evolving it beyond what Chief Executive Officer Stan Chen calls a “very antiquated industry.” Chen notes a disparity: The world produces 400 million tons of plastic a year but can only recycle a small fraction. As a second-generation recycling professional, he believes change must be systemic and sweeping.

“What the world needs is scalable solutions, broad scalable solutions in terms of tracking, in terms of attaching data to human activity, in terms of really allowing social impact behavior to be monitored, measured and credited,” Chen says.

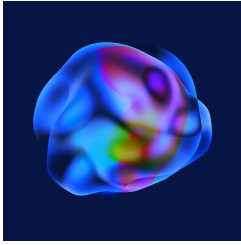
How It Works: Recording Recycling Activity on the Blockchain



- 1 Recycling activity occurs and data is collected.
- 2 The activity data is protected by hashing encryption and represented as a "block".
- 3 The blockchain nodes validate the block and the activity recorded.
- 4 The block is added to the blockchain ledger, verifying the recycling activity.

Image courtesy of RecycleGO

This month, RecycleGO will be gauging, through a series of projects, what might be broadly possible with blockchain. In Miami, the company has plans to oversee a beach cleanup. QR codes on plastic bottles will be scanned, and bottles will be added to and tracked on a blockchain as they are broken down into raw materials and turned into merchandise.

[Signed Up](#)

By continuing, I agree to the [Privacy Policy](#) and [Terms of Service](#).

RecycleGO also plans to roll out a similar, larger effort in Nigeria. Plastic bottles and the bales into which they are bundled will receive QR codes. When scanned, these codes will disclose the chain of custody as the materials move through recycling. In Ghana, blockchain will be used to track fishing nets lost in the ocean, called ghost nets, as they are collected, baled, and turned back into nylon nets.

Like Zubilewicz in Argentina, Chen hopes to change human behavior. Like Reddy in India, he believes that more data – linked, organized, and protected via blockchain – can streamline waste collection. Putting recyclables on-chain, he says, is a giant step toward a new, better system of recycling – one that might allow industry leaders to imagine more efficient systems.

“Once we build an ecosystem, then we can really start building a community that changes how we look at plastics, single-use plastics, and what we do after we use it,” Chen said.

The ultimate goal, he says, is “100% recycling” – with a boost from blockchain.

– *With assistance from Scott Squires*



 Save

Contact us:

[Provide news feedback or report an error](#)

Site feedback:

[Take our Survey](#) 