



Startups Creating Value from Waste

Innovation in India's circular economy is emerging from farmers, citizens, community groups and grassroots entrepreneurs. In rural areas, these innovations can create new value, while generating employment and additional income. The article highlights the need to move beyond generating ideas towards their wider adoption and scale. Stronger linkages among State Governments, innovators, communities and the private sector can help validate, finance and scale locally developed solutions, strengthening rural value chains and supporting a more sustainable rural economy.

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India's circular economy conversation is often framed around waste: how much we generate, how much we recycle and how much we divert from landfills. But in rural India, the opportunity is much larger. It is about how we use resources, create livelihoods and build local economies that can grow without continuously consuming new resources.

The country already has many of the ingredients required for this transition. There are startups converting waste into products, entrepreneurs building decentralised solutions for water and energy, farmers experimenting with new models, and citizens taking action to restore local ecosystems. What is missing is not necessarily innovation. It is adoption at scale.

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This is where State Governments can play a decisive role. The next phase of India's circular economy should therefore move beyond asking, "What innovations exist?" to asking, "How can governments become early adopters of innovations that already work?"

Rural India – An opportunity for Circular Economy

Reduce – Reuse – Recycle

We have focused only on the cycle, but not on how this cycle works as an ecosystem. A circular rural economy should not be reduced to recycling. It should focus on creating a system where one economic activity becomes the input for another.

Agricultural residue can become energy or bio-based material. Food waste can become animal feed or compost. Wastewater can be treated and reused. Old equipment can be repaired and refurbished. Plastic can become a raw material rather than an end-of-life problem. Waste becomes an input. An environmental problem becomes a business opportunity. And resource recovery becomes a source of rural livelihoods.

For rural India, this is particularly relevant because resources are dispersed and livelihoods are closely linked to agriculture, livestock, natural resources and small enterprises. A farmer who can sell agricultural residue has an additional source of income. A local entrepreneur who aggregates it creates a business. A processing unit creates employment. A startup provides the technology and connects the value chain to markets.

Circular Economy Approach



Source: Ministry of Environment, Forest & Climate Change

The circular economy therefore has the potential to become not just a climate or environmental agenda, but also a rural economic development strategy.

Innovation is already happening

India currently has more than 25,000 startups working across domains ranging from technology to climate. Of these, 1100 are dedicated to working on the circular economy and have raised multiple rounds of funding from VCs and investors. Such an ecosystem demonstrates that circular business models can work and can be investable and scalable.

Indian innovators are already working in the rural sector through circular economy projects, including Phool.co, Recity, Lohum and Recykal, among others.

Recity Network, for example, has built technology-enabled models for waste management and circularity, combining waste collection, traceability, recycling, community engagement and the formalisation of waste-worker networks. Its work demonstrates that the challenge is not simply collecting waste; it is building an entire system that can move material from households and communities into productive value chains.

Phool.co, on the other hand, identified a culturally specific waste stream—flowers discarded after religious offerings—and turned it into a marketable resource through its "flowercycling" model, while creating livelihoods for women from marginalised communities.

Other startups, such as Saahas, have worked on decentralised waste management, composting, biogas, resource recovery and rural sanitation, demonstrating how local waste streams can be managed closer to the point where they are generated.

The upcoming battery and electronics ecosystem is generating another set of opportunities. Companies such as RecycleKaro are working on recovering valuable materials from electronic and battery waste, turning what is increasingly becoming a major environmental challenge into a resource-recovery industry.

These examples matter because they challenge a common assumption: that circular economy solutions are still largely theoretical.

Green Economy – A citizen movement

The recent story of Surendra Singh Choudhary, popularly known as Bittu Tabahi, and the Ajnar River



Building a Stronger Rural India

People | Prosperity | Progress | Sustainability



**Additional
income for
farmers**



**Business and
employment for
local entrepreneurs**



**Value chain
linkages and
market access**



**Climate, environmental
and rural economic
development**

in Biaora, Madhya Pradesh, provides a different but powerful example. Choudhary's efforts to clean the polluted river gained widespread attention through social media. What began as an individual's intervention became a larger conversation around the condition of a local river and the responsibility of citizens towards their environment.

Indian citizens are increasingly becoming sensitive towards the environmental condition of the places around them. They are willing to document problems, organise, volunteer and demand action. Social media has made local environmental problems visible far beyond their immediate geography. Many stories of citizen-led movement like Save Aravalli in Rajasthan and Delhi or Chita Andolan in MP have been making headlines sensitising about climate action and impacts.

This creates an entirely new opportunity for public policy. What if citizen initiatives could be connected to startups working on waste collection and recycling? What if river stretches became living laboratories for water-quality monitoring? What if local youth were trained as environmental entrepreneurs? What if recovered waste became an input for local enterprises? What if government departments used these initiatives to build long-term river stewardship models?

It is actually the right time to recognise that citizen action can be an early signal of a problem and sometimes an early prototype of a solution.

Can States become early adopters?

India has invested significantly in building an innovation and startup ecosystem. There are incubators, accelerators, challenge programmes, government funds and innovation missions. But the journey often stops at the same point - Pilot successful. Scale difficult.

A startup can prove that its technology works. But proving that a government system will adopt it is another challenge altogether. For circular economy startups, this is particularly significant because their markets are often fragmented. Their customers may be municipalities, panchayats, FPOs, rural enterprises or government institutions. Their solutions may require changes in procurement, infrastructure or operating practices.

This is why State Governments need to move from being programme implementers to innovation adopters. One such example is of the Ministry of Housing and Urban Affairs' Swachhata Startup Challenge, implemented with IIT Kanpur, which has supported Indian startups working across waste management and sanitation. The first cohort of 30 startups reportedly treated 300+ lakh litres of wastewater, managed 63,000+ MT of waste and created more than 2,000 jobs; a second cohort of 32 startups is now being supported.



It becomes important for state governments to work within the local ecosystem and scout for innovations that come from the community. The government should follow the approach of :

Government identifies challenge → innovators propose → government tests → solution is validated → government adopts → market enables scale. This is particularly important for indigenous solutions.

India should not automatically equate innovation with importing technology. Indian startups often design for precisely the conditions that make rural deployment difficult: low cost, decentralised operations, unreliable infrastructure, fragmented markets and limited technical capacity. These solutions should be given the opportunity to become reference models for other states and emerging markets globally.

Champions of Community Innovation

India's circular economy is also being shaped by a growing group of business leaders who are willing to back grassroots innovators and community-led solutions. Their role is important because they bring something that early-stage innovators often lack: networks, credibility, capital, mentorship and access to markets.

Leaders such as Anand Mahindra have repeatedly used their public platform to identify and support grassroots innovators, particularly those developing practical solutions to everyday problems. The Mahindra Group's initiatives around rural innovation, including support for grassroots entrepreneurs through the Mahindra Rise ecosystem, demonstrate how private-sector networks can help promising ideas gain visibility and commercial opportunity.

Similar models have emerged through corporate foundations, impact investors, philanthropists and technology leaders who identify innovations outside traditional startup ecosystems and help connect them to capital, markets and institutional support.

This is particularly relevant for the circular rural economy. Many of the most useful innovations may not initially look like conventional venture-backed startups. They could be a farmer developing a low-cost agricultural machine, a community finding a way to reuse local waste, a rural entrepreneur building a decentralised water solution, or a women's collective creating value from discarded materials.

The private sector is increasingly recognising the value of these innovations. Government should do the same. State Governments could create formal mechanisms to identify such innovators, bring them into state innovation programmes, provide testing environments and connect successful solutions with public procurement and financing.

The objective should not be for government to replicate the role of philanthropists or business leaders. Rather, it should institutionalise the pathway that these individuals have demonstrated: find promising grassroots solutions, validate them, provide resources, connect them to markets and help them scale.

The next frontier is therefore a partnership between citizens who identify problems, innovators who develop solutions, business leaders who help them scale and governments that create the enabling ecosystem.

The way forward: From a culture of pilots to a culture of adoption

India has spent the last decade building the foundations of a strong innovation ecosystem. The next decade can be about making innovation part of how governments actually solve problems. The circular rural economy is an ideal space to begin because the problems are visible, innovators are emerging, communities are increasingly aware and the economic opportunity is substantial.

The transition will not come from one large national programme. It will come from hundreds of local experiments between startups and FPOs, citizens and panchayats, universities and districts, businesses and state governments.

India's next opportunity is therefore not simply to become a country with more startups working on circular economy solutions. It is to become a country where governments actively create markets for those solutions, citizens participate in their adoption, and successful indigenous innovations become models for the world.

The real test of India's innovation ecosystem will not be how many ideas it can generate. It will be how many good ideas it can turn into everyday systems. From innovation to adoption. From pilots to scale. From waste to value. □

