NEWSWATCH

INDIAN ENVIRONMENTAL ASSOCIATION

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Reg. No. 11-108841 dtd. 17 June 1997

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From the President's Desk:





Dear friends and members of IEA, **the Indian Environmental Association**

Greetings from me and the entire IEA Board

October heat is catching up. Recently I had been to Nagpur and I found a welcome change. The city has planted many trees on both sides of the road. Plus there are a lot of open spaces. So Nagpur looks cooler than earlier. Of course it is still hot compared to other cities. The point is to plant more trees.

Now that IFAT is over, we look forward to Exhibition by Envirotech at CIDCO exhibition hall Navi Mumbai. If you all recollect, IEA had held a round Table Conference last year in association with Envirotech on the subject of CETP.

IEA is planning to hold a Round Table in association with Envirotech at this venue. The subjects discussed, debated and suggested are as follows:

1. Sludge treatment including drying
2. Application of Solar Energy for large ETP / CETP and ZLD plants
3. Environmental Infrastructure

We must select one based on your response.

I request all of you to provide suggestions for any more topics of the oncoming Round Table.

IEA has been invited as a supporting organization at the upcoming Envirotech Exhibition at CIDCO.

Do take the advantage of this exhibition, which has been wholeheartedly been supported by IEA

Of course IEA members get special preference and heavy discounts.

IEA Round Table is free for all members.

Many of you must be knowing the famine that affected Maharashtra, especially Marathwada region, happened in 1972. some of the young colleagues may not know. Now the scenario is almost repeating in 2026 after 54 years. The rains were scanty this time. Forget about water for agriculture, there is no water for cattle and at a few places, even for drinking and human consumption.

Kindly suggest how we can help the farmers of Maharashtra. Continuous research is required in this field in the quest of newer Water and Wastewater Treatment Technologies which is the need of the hour.

Do contribute to the NewsWatch on current Environmental issues. You may email the articles, and newspaper cuttings to indenvassociation@gmail.com

To cover the cost of the NewsWatch publication, we have decided to accept advertisements related to the Environmental field in the NewsWatch. Do enquire for the same on the above e-mail ID.

Yours truly

M A Naik
President IEA



Newswatch at a glance

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Mud On The Boots



Recycling Alone Is Not Circular Economy

By Dr.Prasad Modak
Managing Director Environmental Management Centre Pvt Ltd and Director Ekonnect Knowledge Foundation, Book writer, Blogger.

The global circularity rate fell to 6.9 percent in 2025, down from 9.1 percent in 2018, despite recycling activity growing across that same period[i]. Recycling has had a decade of rising investment, rising regulation, and rising applause. The world has grown less circular regardless. This issue is not a new argument. It revisits four pieces written on this author's own blogs between 2016 and 2018, each circling the same discomfort from a different angle. A decade on, with far more policy machinery in place, the conclusion still has to be restated. See references in the section of Further Reading.

Residues Have Regulators. Resources Often Do Not.

There is a structural reason recycling keeps absorbing the attention circular economy was supposed to redistribute. Environmental governance, in India and almost everywhere else, grew up regulating what comes out: emissions limits, effluent standards, waste disposal rules. It did not grow up regulating what goes in. Residue limits are a technical, measurable, prosecutable question. Resource limits, extraction caps, consumption ceilings, resource pricing, are a political question. No ministry has ever been eager to own it[ii], unless scarcity forces the issue, and that scarcity is itself usually the result of the uncontrolled consumption no one capped. Resource Management Act in New Zealand was another story.

Decades of that asymmetry built an entire enforcement architecture around the tailpipe: monitoring networks, inspection regimes, penalty structures. Nothing remotely comparable exists at the intake end.

In this contex, the question is no longer how to green Sahara, but what caused the lands along its margins to lose their capacity to sustain life in the first place. And as the ecological foundation begins The original three Rs sit exactly on this fault line. Reduce and Reuse point upstream, toward consumption and design, where institutional muscle is thin. Recycle points downstream, toward the residue, where the muscle already exists and the paperwork already knows what to do. Circular economy's addition of three more Rs, repair, refurbish, remanufacture, was an explicit attempt to drag attention back upstream. Mostly, the attempt keeps losing. Ask most state or national programmes to point to their circular economy work. More often than the framing deserves, what gets pointed to is a recycling target.

Extended Producer Responsibility is the clearest test of whether that attempt is working. EPR is the one instrument circular economy relies on specifically to reach back to the design and production stage, past the point recycling can touch. The honest question to ask of any EPR regime is not whether it exists. It is how much of it has actually changed what gets designed to last, built to be repaired, or made from fewer materials, against how much has simply become a compliance fee that pays for somebody else's recycling. The evidence leans toward the fee.

A Zero Waste Europe-commissioned study found that on average only 45 percent of product waste, by weight, is even covered by existing EPR schemes, with just 18 percent collected separately[iii]. The study concluded that current schemes have been largely ineffective at driving eco-design. The reason is structural, not incidental. EPR fees for packaging, electronics, and textiles are typically set as a small, flat, market-share-based charge, too low relative to a product's overall cost to meaningfully shift a designer's choices[iv].Researchers trace this flaw back to Germany's earliest EPR systems in the 1990s. Eco-modulated fee structures are only now, three decades later, attempting to correct it. EPR was meant to make a manufacturer feel the cost of a product's end of life at the point where redesign and repairability are still live options. For most of its history, it has instead made the manufacturer feel the cost of recycling. That buys compliance, not redesign. It channels producers' money toward exactly the instrument this issue keeps finding governance already knows how to administer.

Select EMC Projects: Recycling and Circular Economy

A sample from Kaleidoscope, EMC's 30th-anniversary case study archive. Upstream of recycling and addressing the system as a whole:

- Gujarat Circular Economy Action Plan, Gujarat Pollution Control Board, 2023 to 2024
- Resource Efficiency, Circular Economy and EPR technical assistance to the Ministry of Environment, Forest and Climate Change during India's G20 Presidency, 2023
- Framework and Guidance for a Centre of Excellence on Circularity in India, UNEP PAGE, 2023 to 2025.
- Strategic Action Plan for Resource Efficiency and Circular Economy in India, EU REI and NITI Aayog, 2019, across Steel, Aluminium, E-Waste, and Construction and Demolition Waste.
- Sustainable Plastic Management Project, World Bank, Bangladesh, 2020 to 2022

Downstream, where recycling itself is the subject:

- Preparation of a Bankable Plastic Waste Recycling Project, Bangkok, with Mahidol University, 2024
- Mapping of Aluminium Supply Chains in India, Material Flow Analysis for a personal-care brand, 2023
- Environmental and Social Due Diligence of Several Plastic Waste Recycling Companies

The full archive, and more on Kaleidoscope, is at www.emcentre.com

Not All Recycling Deserves the Virtue It Is Given

Recycling also carries a second, more uncomfortable complication. It is not uniformly good, and treating it as a blanket moral obligation obscures that. An often-disputed but hard to dismiss 2014 study put a number on it: once the water, energy, and transport cost of recycling each material is honestly counted, the economically and environmentally optimal recycling rate sits closer to 10 percent of discarded goods than 100 percent[v]. That rate is concentrated almost entirely in metals and select grades of paper. Glass and several plastics are sometimes better placed in a landfill than a recycling stream.

Whatever one makes of that specific number, the underlying point survives scrutiny. Recycling economics are material-specific, volatile, and highly contextual. They are not a single dial that only ever needs turning up. The same complication shows up in method, not just material. Western cities have been shifting from source-segregated collection toward single-stream collection, co-mingling waste and sorting it later with machinery, because it raises headline recycling rates and lowers collection cost. Importing that model into a country where source segregation still depends on an informal workforce sorting mixed waste by hand changes who bears the contamination risk. The answer is rarely the household that failed to segregate. A recycling target hit by shifting cost and hazard onto waste-pickers is not the same achievement as one hit by generating less waste to begin with. And don't forget, the cost of recycling depends a lot of costs of collection.

Pure Inputs, Not Just More Recycling

There is a third complication, sharper than the first two, and it has nothing to do with upstream governance. Much of what gets recycled is not clean enough to recycle safely, and almost nothing in the system is built to check. Black plastic is used for television and computer casings specifically because the colour hides scorch marks. It also conceals the brominated flame retardants added for fire safety. When that plastic is shredded and recycled alongside ordinary waste streams, there is no reliable way to separate the flame-retardant-laden fraction from the rest. Peer-reviewed testing across more than a dozen countries since 2018 has repeatedly found brominated flame retardants, some already banned by regulators for over a decade, turning up in children's toys, hair accessories, kitchen utensils, and food-contact items made from recycled black plastic. One widely reported 2024 study found a children's toy at close to three percent flame retardant by weight[vi]. None of that plastic was recycled carelessly, in the sense of being poorly sorted by colour or polymer type. It was recycled exactly as the system is built to recycle it.

The chemical history of the material was simply never part of what gets checked. No widely enforced standard for recycled content requires it to be.

That leaves a manufacturer free to call the resulting product green, without triggering any disclosure a parent, retailer, or regulator could rely on. The lesson generalises past flame retardants: a system that recovers material without screening what is inside it is not closing a loop. It is laundering contamination through one more cycle and calling the result sustainable. There is no substitute, in a genuinely circular material flow, for insisting the inputs are pure and safe to begin with. That is what makes the recycling that follows both economical and safe. Economical, because a contaminated stream eventually has to be discarded, downcycled, or landfilled at a loss. Safe, because clean inputs are the only way a recycled product can be trusted not to carry its donor product's chemistry forward into a child's mouth. This however requires support of policies, fiscal incentives and innovations.

Why Recycling Always Wins the Room

There is, finally, a less flattering explanation for recycling's dominance, one easier to see at a party than in a policy document. Picture reduce, reuse, and recycle as three factions at a gathering. Recycle is reliably the largest, the best-funded, and the loudest, because, unlike reduce, it asks nothing of the person who already bought the thing[vii]. It converts cleanly into an industry, with entrepreneurship, employment, and innovation narratives attached. Institutions, investors, and livelihoods all depend on the waste stream continuing to arrive. Reduce has no comparable constituency. A world that buys less is a world that needs less recycling capacity, and no interest group organises itself around wanting less of its own business. Most of the circular economy strategy work this practice has been drawn into over the past three years, at state and national level alike, has had to design around that asymmetry deliberately. None of it has found a way to assume it away.

The asymmetry shows up in language before it shows up in budgets. A policy document that promises to reduce consumption is making a claim about behaviour it cannot fully control, one it will be judged against for years. A policy document that promises a recycling target is making a claim about infrastructure it can procure, inaugurate, and photograph within a single budget cycle. Given a choice between a commitment that is hard to verify and a ribbon-cutting that is easy to schedule, most institutions, not only in India, choose the ribbon.

What Moving Upstream Actually Looks Like

None of this argues for abandoning recycling. It argues for noticing when a programme has quietly substituted the easy instrument for the hard one. A plan that touches design standards, producer responsibility written back to the manufacturing stage, financing that outlasts a single grant cycle, and an institution with a standing mandate rather than a project end-date, is doing something a recycling target cannot. That holds regardless of how ambitious the tonnage goal attached to it happens to be. The tell is usually in what the plan is willing to measure. A programme that reports tonnes recycled is reporting activity. A programme that can report virgin-material demand avoided, or the volume of waste that was never generated in the first place, is reporting the thing circular economy actually promised. That number is far harder to produce, which is precisely why so few programmes attempt it.

Purity belongs on that same list of harder numbers. A plan that can report what fraction of its recycled material stream has been screened for legacy contaminants is measuring something a tonnage target cannot see at all. Most do not report it, for the same reason most do not report virgin-material demand avoided: nobody has made it the number the programme is funded against.

The Honest Assessment: We need the Integrators

If the diagnosis above has a prescription, it is not a better sorting technology or a stricter recycling target. It is a different kind of professional. Circular economy, almost by definition, cuts across territory no single actor owns: a producer's design studio, a regulator's residue-focused inspection regime, a municipal collection contract, an informal waste-picker network, a recycler's shop floor, and the financier deciding which of these gets capital.Each of these actors optimises locally, for its own mandate. None is positioned, or incentivised, to ask whether the system as a whole is closing a loop, or simply moving the leak further downstream.

What circular economy work keeps turning out to need, far more than another recycling technology, is an integrator. This is someone able to sit across design, regulation, finance, and the informal economy at once. An integrator translates between stakeholders who do not share a vocabulary, let alone a mandate, and holds the whole material flow in view, rather than just the single stage they happen to specialise in. A recycling engineer optimises a sorting

line. An integrator asks a different set of questions. Why did the material arrive at that sorting line in that condition? Who upstream could have prevented it? Who downstream is absorbing the consequence? Who needs to be in the same room to change any of it? That role barely exists as a formal job title, which is itself revealing. It is close to the skill this issue keeps finding missing: in ministries that regulate residues but not resources, in EPR schemes that fund collection but not design, and in recycling streams that move material without ever asking what travelled with it.

Recycling alone is not circular economy. If it were, the circularity numbers would be going up, not down.



For Young Professionals Entering the Field

The professional this field is short of is not a recycling specialist but an integrator. That is someone able to work upstream and downstream at once, across regulators, producers, financiers, and the informal economy, rather than inside a single stage of the material flow. Keep that in mind reading the seven questions below. They are, not coincidentally, close to the questions an integrator learns to ask before anyone else in the room thinks to.

First, does the instrument regulate intake, extraction, consumption, and design, or only residue, waste and emissions? Most existing governance capacity sits on the residue side.That tells you where a new programme will default under pressure, unless it is deliberately built not to. Second, for any EPR scheme, ask what share of fees actually funds eco-design, durability, or repair services,against what share simply pays for collection and recycling. If the fee is a flat, market-share-based charge, it is very unlikely to be changing what gets designed.

Third, do not treat a material's recyclability as self-evidently good. Check the water, energy, and transport cost of recycling that specific material before setting a blanket target. The honest answer varies enormously by material. Fourth, before calling a recycled product safe or green, ask what standard, if any, screens the input stream for legacy contaminants. The absence of an answer is itself the finding. Black-coloured plastic deserves particular suspicion. Fifth, ask who bears the cost when a recycling rate rises: formal collection systems, or an informal workforce absorbing the contamination risk of someone else's convenience? Those are different achievements wearing the same statistic.

Sixth, remember that purity of input is not a side concern to circularity. It is a precondition for it. A contaminated material loop is neither economical to keep recycling nor safe to keep using. Seventh, before you specialise, ask whether the next skill you build makes you a better recycler or a better integrator. The second career is scarcer, harder to train for formally, and the one this field is actually short of.
Mud on the Boots is published every Thursday by Environmental Management Centre Pvt Ltd. We have 5,000+ subscribers.

Waste Innovation Stories

When Plastic Becomes Infrastructure

What if plastic waste could do more than simply leave the recycling bin?

In Kenya, recycled plastic is being transformed into durable fencing posts and plastic lumber—creating a practical alternative for some applications traditionally served by timber.

The concept is simple:

Plastic waste → collection → processing → durable products → longer material life.

Instead of allowing discarded plastic to remain in the environment, recyclers can turn it into products designed for years of use.

The benefits can extend beyond waste reduction. Recycled-plastic posts can resist issues such as rot and termites, while reducing reliance on timber for certain fencing applications. Kenya even has a standard specifically covering plastic fencing posts made primarily from recycled plastics.

But the bigger lesson is about how we think about waste.

A material becomes "waste" when we no longer have a useful system for it.

Circular economy thinking asks a different question:

What could this material become next?

From discarded plastic to infrastructure, Kenya is demonstrating how waste can be redesigned as a resource.



,Sustainable water management through decentralised greywater reuse in Asia

Greywater reuse projects are gaining ground in many parts of the world where pollution, scarcity and competition create friction around dwindling freshwater sources. Whether water is captured, cleaned and reused in residential properties, commercial centres or industrial units, the idea is the same: use less freshwater, reduce volumes sent to wastewater treatment plants.

Not only does this decrease costs, it also reduces the amount of water being discharged from plants. It helps to build sustainable and resilient water management solutions in a world where we need to account for every drop used. While residential systems are growing in popularity, their uptake tends to be driven by individual needs and requirements – a notable exception being the Netherlands – but what if greywater was considered on a regional basis? This was the theme of a recent paper published in the Journal of Environmental Management, which looked at the benefits of widespread greywater recycling across Asia. In this article, we will explore those benefits as set out in the paper and share examples

from around the world where greywater reuse systems are already demonstrating their benefits.

Greywater resue: some facts and figures



When we talk about greywater, what do we mean? Greywater refers to wastewater from activities such as bathing, showering, handwashing, laundry, dishwashing, and other, often domestic, water usage. However, these do not include anything that might contain harmful pathogens, such as toilet water (blackwater).

Greywater is ideal for non-potable usage, such as for flushing toilets or for garden irrigation. According to the U.S. Environmental Protection Agency, greywater accounts for as much as 50 per cent of all residential wastewater. This means it can contribute significantly to water conservation efforts. Saving half of all freshwater consumption from every household or office building would have a huge impact on water availability and aquifer recharge.

In Western Australia, a study revealed that the average Perth householder produced around 100 litres of greywater every day, and that 42 per cent of the city's water supply was used for irrigating lawns and gardens. When usage stats are displayed in black and white like this, you begin to see how valuable greywater recycling and reuse could be, and how much fresh, potable water could be saved every day. If you then extrapolate these figures to include office blocks, commercial hubs, shopping malls, civic buildings, education facilities and applicable industries, then it becomes difficult to understand why greywater recycling and reuse hasn't become national policy around the world.

The state of water in Asia

According to the Asian Development Bank (AWDO), in the 12 years to the end of 2025, more than 60 per cent of Asia and the Pacific's population, about 2.7 billion people, was 'lifted from extreme water insecurity'. However, it warns that these 'hard-won gains' are threatened by accelerating environmental decline and a major financing gap.

Long-term water security in the region is threatened by many factors: extreme weather events, rising sea levels and saltwater intrusion, deterioration of ecosystems such as wetlands, rivers and aquifers, rising demand from a growing population, urbanisation and the growing thirst of digital infrastructure.

In Thailand's Eastern Economic Corridor, 43 data centres have been approved for construction since the start of 2025. The impact on water availability and quality of such expansion is not yet known: a study commissioned by the Office of the National Water Resources, which will feed into policy recommendations and development options based on the potential and constraints of local natural resources (i.e. water), is due to be completed by 2027.

Competition for fresh, clean water looks likely to increase. Demand around the world is growing while reserves are falling. It is in this context that recycling and reuse, including greywater reuse, is becoming not just important, but vital.

Indeed, the AWDO estimates that €3.4 trillion – €215 billion a year – will be needed to meet the region's water, sanitation, and hygiene (WASH) needs alone. If nothing else, the economic case for greywater reuse becomes compelling.

Greywater and a more resilient Asia

In the paper, Anh Tuan Ta, Ngo Anh Dao Ho and Van-Nghia Tran argue that greywater has high potential for reuse in decentralised treatment systems in Southeast Asia (ASEAN). According to the authors, greywater accounts for between 50 and 80 per cent of household water in the region, making it an untapped resource for helping to manage resources amid growing water scarcity caused by rapid urbanisation, population growth and climate change.

Decentralised greywater treatment remains 'limited, fragmented, and uneven across countries' despite growing interest, the authors argue, while centralised domestic wastewater management remains inadequate in many areas.

Wider adoption of greywater recycling systems is constrained by regulatory gaps, limited monitoring capacity, institutional fragmentation, and public acceptance challenges. Another point to note is that the paper is one of the first to address greywater recycling in the region, which points to the fact that it hasn't really been given any real impetus by researchers or governments. Indeed, a literature search conducted by the authors only revealed three papers, none of which proved particularly useful for a regional approach to greywater reuse as a resilience strategy.

While the authors suggest technology does not prevent a major obstacle, they do point out that many areas lack adequate domestic wastewater management systems or administrative systems to prioritise greywater recycling and reuse. In this context, sustainable nature-based systems, such as constructed wetlands, may play an important role. Perhaps they could also help boost public awareness and perception.

In a world where water reuse is becoming a necessity rather than a bonus, building nature-based greywater recycling systems that exist in a wider ecological landscape would also take the burden of implementing greywater recycling away from the individual.

What systems are already in place across Asia?

CityUHK has made greywater recycling and reuse a core component of its green campus environmental performance criteria. Greywater is used for irrigation purposes, such as watering plants, and as part of the process being undertaken to replace the staged central chiller plant.

A treatment system filters and disinfects water from wash basins and discharged water from equipment cooling in the university's laboratories – the system also condensates water from air-handling and fan coil units in offices.

In total, the system turns 70 m_3 of grey water into clean water on a daily basis, which equates to the daily water consumption of approximately 500 people. As the university notes, the benefits of using greywater include preserving natural resources and saving money on its annual water bill.

Another university investing in greywater recycling is King Mongkut's University of Technology Thonburi (KMUTT) in Thailand. It has used greywater recycling across seven buildings since 2010 as part of the university's green policy.

Greywater is collected from restrooms, laboratories, and washing areas before being treated via filtration and disinfection units. Once cleaned, the water is reused in non-potable applications such as landscape irrigation, toilet flushing, and general cleaning purposes, as well as for construction activities and bike cleaning.

In terms of statistics, the university's greywater recycling initiatives are impressive: 80 per cent of water was reused across the campuses in 2025 (the 2024 target was 25 per cent). More impressively, this equates to a c.60,000 m^3 annual reduction in potable water consumption. Once again, the university states lower utility costs and mitigation of the environmental impact from freshwater extraction and wastewater discharge as benefits.

Greywater projects around the world

Victoria, Australia

Greywater recycling was introduced by the Australian state of Victoria in 2025 as part of its Water Cycle Adaptation Action Plan 2022-2026. The plan identified 21 actions that will aid climate change adaptation across the water cycle system across the state, including rainwater harvesting, research into sustainable sources, such as rainwater and stormwater, tree planting, and more.

The Victorian Advanced Grey Water Recycling System trial is a collaborative project led by Intelligent Water Networks (IWN), the Victorian government, Barwon Water, Greater Western Water, South East Water, and the Netherlands-based company Hydraloop.

In total, seven greywater recycling units were installed in settings across the state to assess the system's potential for wider deployment. At the time, it was Australia's first advanced greywater system.

As part of the plan, Barwon Water was installing three units in caravan parks along the Surf Coast and Great Ocean Road, including Australia's first large-sized unit at the Torquay Foreshore Caravan Park.

The trial was designed to assess the technology's viability for at-home use, with Greater Western Water installing Victoria's first in-home system.

A demonstration site is also being used at the Gordon Technical and Further Education (TAFE) Institute in Geelong. This site will feature a greywater recycling unit operating in a purpose-built bathroom and laundry.

At the time, Victoria's Minister for Water, Gayle Tierney, told local media: "This trial shows Victoria's water sector embracing new ideas and working with our TAFEs to build the technology needed for the future."

She added: "New ways to reuse the water from our sinks and showers will have positive impacts for all Victorians – every litre of water we can recycle is one less litre of water coming out of our waterways."

BRIEF NOTE ON THE IEA AGM HELD ON 30TH SEPT 2026

IEA AGM held on 30th Sept 2026 was attended by Dr Kantawala, Mr D P misra, Mr Yogen Parikh, Mr Madhukar Naik, Mr Pramod Shah, Mr Nayan Khambati and My Hemant Vyas

Previous minutes were read and approved.

Mr Lalit Vashishta has more or less shifted to New Delhi and IEA found it difficult to approach him for signatures on IEA returns, files and important papers. His resignation was tabled and accepted by the members in the AGM.

It was decided to induct Prof Shyam Asolekar after approaching him for his acceptance.

It was decided to participate in HITEX - Hyderabad and Envirotech at CIDCO Navi Mumbai.

The meeting ended with thanks to the chair

Madhukar Naik
President,IEA