



**Circular economy and informal waste management in India - a contradiction?**

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## **Background**

India's economic growth, combined with a pace of urbanization and population increase that's above Asian's average, is changing the consumption pattern of a wide range of resources, including materials, energy, land and water, on an unprecedented level. Substantial quantities of solid waste and waste waters are produced, air pollutants, greenhouse gas, contaminated water and water losses as well as inefficient land use are negative symptoms of the economic growth which threaten the prosperity and sustainable development in India.

Efficiency of resource use in production and services remains low by global standards and is generating high levels of waste or non-productive outputs per unit of product or services. India's economy is thus throwing away some part of scarce resources without utilizing their full value. In addition the consumption pattern of an increasing consumer class is directed towards a substantial increase in packing waste and short living consumer goods as well as inefficient use of material, energy, land and water. As a result, India runs the risk that demands from its population can't be fully served in the future and that its economy slows down due to short comings of raw material, energy and water.

There is no doubt that one can produce more value with fewer inputs, to lessen our impact on the environment, and to consume in a more sustainable fashion. We can use more efficient alternatives instead of many of the current resources, and we can boost recycling, for example. But to achieve the objective to become more resource efficient, millions of firms, consumers and public institutions need to be mobilized. Prices need to change to better reflect environmental and social costs: this would improve the economic system, providing the right incentives and price signals for producers and consumers are set. The environmental quality of products and services must become more transparent to consumers and institutional buyers, e.g. through a market relevant eco-label. Most importantly, coherent public policies must be put in place to enable such a reform and push it forward.

To achieve sustainable economic development in India and to allow the successful implementation of a low carbon strategy for inclusive growth, inefficient patterns of resource use need to be improved without questioning the right of India's population towards an increased living standard. But the question remains if India has the political will to introduce adequate and innovative tools (incentives, laws, market mechanism) and if India can build on visionary stakeholders and foresighted entrepreneurs (producers, dealers, recyclers) that encourage, support and implement the required change towards a resource efficient economy that coincides with the basic principles of a Circular Economy.

## Circular Economy, Waste Management and Recycling

According to the Financial Times Lexicon “a Circular Economy should see a departure from the current "take, make and dispose" approach that underlines much of modern civilization. Instead, in the Circular Economy model, durable goods would be designed so that they could be repaired rather than replaced and biological materials would be managed so that they could be returned to the biosphere without contamination”. The definition talks in principle about goods but not about actors and their roles.

The Ellen MacArthur Foundation describes a Circular Economy “that seeks to rebuild capital, whether this is financial, manufactured, human, social or natural. This ensures enhanced flows of goods and services”. The system diagram below illustrates the continuous flow of technical and biological materials through the ‘value circle’.

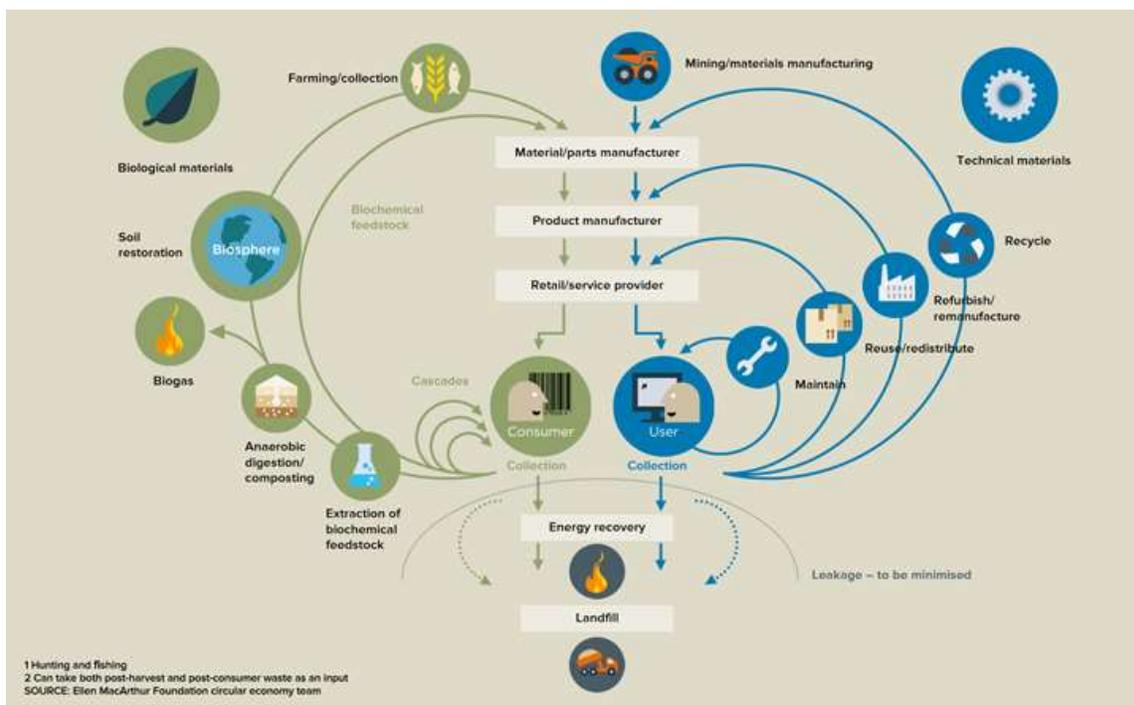


Fig 1: Interactive system diagram: The Circular Economy an industrial system that is restorative by design (Ellen MacArthur Foundation, 2013)

The system considers already the complex interaction between the different actors but at the same time illustrates that we have to move away from today’s “recycling” which generally downgrades materials, leading to eventual waste and continuing high demand for virgin materials.

A Green (or Circular) Economy has been recognized by the Rio+20 summit as “one of the important tools available for achieving sustainable development”. It is emphasized that Green Economy should “contribute to eradicating poverty as well as sustained economic growth,

enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth's ecosystems". Such a transition towards a green, circular and inclusive economy requires major efforts both on a national and international level, and inter-institutional and inter-sectoral cooperation and exchange of experiences is key to support the process. This definition goes even a step ahead and considers the social and human factor as an important element to be looked at while talking about a Green or Circular Economy.

This aspect is most relevant for India, as more than one million people find livelihood opportunities by engaging in waste collection and recycling, through systems that are well organized, though informal in nature. However, local pollution is often caused by recycling activities, and in general, the health of recycling workers and waste collectors is threatened by unhygienic and sometimes hazardous working conditions. Waste workers from the informal sector often face hostility and harassment.

As in other emerging economies, the amount of municipal and industrial waste produced in India is increasing constantly but the recycling quotas and the recycling effectiveness do not develop at the same pace. The use of secondary raw materials in the manufacturing industries remains low (close to 20-30%), and downcycling is still the most common approach. India is still far away from closing the material loop and the substantial increase of raw materials required to satisfy the consumer's aspiration will put even more pressure on the fragile eco-systems while exploiting minerals and metal ores.

The most relevant group in waste management in India is the informal sector. It is reported that about 80% of the entire waste system is handled by informal workers. Women are playing an important role but are usually lowest in the waste management hierarchy especially of MSW as daily paid labourers.

Looking into data of material flows in the recycling sector one realizes that there are hardly no true statistics for recycling in India. In literature India is considered as one of the most efficient nations in recycling. But on which data are those statements based? And are accurate data not the basic requirement for assessing what policies could be pursued to improve resource use efficiency?

Cooperation of GIZ (Gesellschaft für Internationale Zusammenarbeit) with the informal sector in E-waste recycling in India revealed that recycling quotas in this sector are at a low margin of 30%. Can this be considered as forward looking and as a pillar on which a Circular Economy can build on?

## The Automotive Sector as an Example

Following the phenomenal expansion of the Indian automobile market over the last two decades, the end-of-life (ELV) management of vehicles must gain new centrality in debates about the environment, material efficiency and the labour and social dimensions of a Circular Economy.

The formal sector is until today hardly engaged in ELV management in India and almost 100% of recycling activities are carried out by informal groups without applying basic principles of resource efficient recycling. To set the agenda towards developing an innovative but appropriate framework for efficient use of secondary raw material in the automotive sector, GIZ jointly with the Indian Ministry of Environment, Forests and Climate Change (MoEFCC), and other partners from the public and private sector evaluated the still untouched area of end-of-life vehicles in India.

While the informality of the end-of-life vehicle (ELV) sector in India is judged to be inadequate to meet the challenges of the next decades, very little is known about how this sector currently operates. This poses a fundamental obstacle in devising effective policies, reinforcing the stigma attached to informal economy of material recovery as inefficient, undignified and polluting, in spite of its significant (if imperfect) contribution to national welfare.

GIZ and Chintan prepared study<sup>1</sup> in early 2015, following up a previous 2012 publication that delved into ELV management in and around Delhi. The latest effort draws a broader and more systematic picture of the ELV sector in India by looking at five other major automotive production hubs, with thriving ELV markets: Kolkata, Chennai, Pune, Jamshedpur and Indore. Highlighting systemic links and nation-wide challenges, the report offers key insights to design a regulatory and legal framework that accurately reflects the economic, social and environmental reality of the Indian ELV landscape.

The report identifies a number of critical trends:

- In 2015, the total number of vehicles estimated to turn into ELVs is 8.7 million vehicles. By 2025, it is estimated to go up to 21.8 million vehicles with a projected increase of 250%. Recycling activities are dominated by the informal sector and despite missing data it could be observed that recycling quota are not yet fully exploited.
- In spite of its capacity to continuously adapt to changing material flows, important changes in the technology and manufacturing standards used by vehicle manufacturers since the late 1990s have become a challenge for the ELV sector. This is particularly significant in light of ELV operators' limited access to professional development opportunities and financial opportunities for business expansion and development.

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<sup>1</sup> GIZ, Chintan: The Story of A Dying Car in India: Part II, June 2015 (draft version)

- All stakeholders of the ELV sector are eager to be included in a future formal ELV industry, and formalisation is seen as much instrumental to developing businesses as to enforcing environmental standards and higher material efficiency targets. Traders and dismantlers, most often running established family businesses, require new space and financial inclusion to keep being competitive; original equipment manufacturers (OEMs) are eager to enter the used parts market and support quality control mechanisms in them; disposers of vehicles call for regulations that minimise environmental risks while legitimising the economics of ELV trade; distributors and service centres see in the used part market an important economic opportunity too, which is currently beyond their access.
- Legislative and regulatory void, more than the violation of existing norms, is behind the most hazardous practices in the Indian ELV sector. Whenever legislation has been enacted, as in the case of batteries and used oils, the sector has proved largely willing to comply. The lack of standard operating procedures, of a licencing system and of responsive concerned authorities regarding the handling of ELV waste remains a major issue.

### **Conclusion and recommendations**

- We have to streamline and harmonize the language when talking about the ambitious objectives of a Circular Economy and the implementation of a resource efficient recycling system managed by the informal sector.
- Complex waste streams in e.g. E-waste and ELV recycling have to be documented and illustrated and critical points be identified where capacity development and technical orientation is required for the informal sector. This holds especially true when talking about recycling of precious materials and rare earths metals.
- Only a further strengthening of the capacities of the informal sector and access to financial schemes will allow India to make use of its enormous human resources presently employed in the waste sector and to increase recycling quota for materials. It is still a long way to go to close the loop in material consumption in India and to direct its fast growing economy towards a circular one.
- Women represent a substantial workforce in India but their capacities are only partly utilized. Special programmes to empower women in the entire waste management and recycling business will help to further strengthen the social and professional recognition of the informal sector. The transition from informal to formal will not take place without the full recognition of the work power of women.
- Support – through legal recognition, the allotment of space for auto markets and financial inclusion – an upgrade of ELV businesses to combine business sustainability with environmental and social sustainability. In particular, it is recommend to establish an ELV licencing system, allot space for dismantling outside urban centres and transform existing markets in space for ELV parts’ retailing; facilitate ELV operator’s access to mainstream financial tools like business development loans and insurance.

- Leverage the existing national ELV trade network to enforce a 100% ELV take back policy across the national territory. In particular, it is recommended to identify procedures and actors for the de-registration of ELVs and to lighten the administrative burden on the ELV sector, including by giving dealers the role of facilitators in the processing of de-registration applications- similar to the processes involved in the registration of new vehicles.
- Enforce clear occupational safety and environmental standards in the ELV sector, design a monitoring system and standard operating procedures for dismantling and handling of hazardous waste. This to be in coordination with manufacturers who ought to produce manuals in vernacular languages.
- Leverage the convergence of interest between manufacturers, disposers, dismantlers, traders and dealers to strengthen the capacity of the sector to increase material efficiency rates, including by systematically including representatives of these groups in policy drafting. This should be based on the fundamental notion that each player in the economic automotive chain shares the responsibility for establishing an enabling environment for the ELV sector to thrive with maximum gains and minimum hazards.