

Managing Wastes and Sustainability in the Era of Growing Urbanization in India

Rachna Arora*

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is an enterprise owned by the German Government. GIZ implements sustainable development through international cooperation, on behalf of Germany and other partners. With a global footprint in over 120 countries, GIZ leverages its regional and technical expertise for local innovation. In India, GIZ works majorly in Indo-German Bilateral Projects in areas of energy, environment, climate change and biodiversity, sustainable urban and industrial development and sustainable economic development. The Government of India has launched numerous important initiatives to address the country's economic, environmental and social challenges, and GIZ is contributing to some of the most significant ones. For example, it supports key initiatives such as Smart Cities, Clean India Mission and Skill India. GIZ, in close cooperation with Indian partners, devises tailor-made, jointly-developed solutions to meet local needs and achieve sustainable and inclusive development. Dr. Arora from GIZ India shares her insights with Team IMI Konnect on the different issues around environment and sustainability with a focus on resource efficiency and circular economy.

IMI Konnect: *GIZ is well known as a provider of international cooperation services for sustainable development across the world. Can you sensitize us on the GIZ Projects in India and your role in it?*

RA: GIZ is an implementing agency of the German Government working primarily on bilateral projects. The Federal Ministry for Economic Cooperation and Development (BMZ), the Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) as well as the Federal Ministry for Economic Affairs and Energy (BMWi) are the main commissioning parties of GIZ in India. Other clients include Indian public sector clients, the European Union and foundations. In India, our thematic areas are energy, environment, urban development and economic development, which focuses on private sector development and social protection. In particular, I focus mainly on issues related to industrial environment and sustainable urban development. Worldwide GIZ is

working across 120 countries focusing on sustainable development issues depending on country specific arrangements. In India, we work closely with the Ministry of Environment, Forest and Climate Change, Government of India (MoEFCC, GoI), on several issues relating to environment, sustainable industrial areas, resource efficiency, Waste to Energy and climate change, mitigation and adaptation and natural resources. We also work with several other Ministries, Urban Local Bodies, state governments and Niti Aayog, Government of India. For last 6-7 years, waste management has become an important issue. Now waste is recognised as a by-product and it is no longer simply 'a waste'. The terminology has a completely new role to play in the fields of circular economy and resource efficiency.

IMI Konnect: *How is GIZ related to the climate change programme in India?*

*Deputy Team Leader & Coordinator, European Union – Resource Efficiency Initiative (EU – REI), India, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

RA: GIZ is involved in multi-pronged planning and strategy designing for the central as well as the state governments and had supported in developing a number of State Action Plans related to climate change for respective states. Considering waste management, GIZ has also supported India (MoEFCC, GoI) in developing the framework for Nationally Appropriate Mitigation Actions (NAMA) on waste management which also addresses the aspects around secondary resource utilization. Please check GIZ India website (www.giz.de/india) for details about the programme.

IMI Konnect: *Considering waste management goals, how are the GIZ projects playing a role in the country?*

RA: In the last few years, we have witnessed the rise of circular economy practices around the world including Germany. Circular economy stands for a regenerative system in which businesses adopt models with close loop recycling and raw materials are extracted from the waste stream by re-use, recycling and recovery. Circular economy also supports transition from linear models to circular approaches wherein concepts around design, remanufacturing and sharing models calls for innovation around supply chain. The idea is common to India also, but we lack policies and programmes which support the entire lifecycle of the process. It is very difficult for Indian businesses and international businesses operating in India to implement this type of principles and practices because the entire eco-system is not aligned on this aspect.

Currently, GIZ is working on a European Union funded Resource Efficiency Initiative for India, in

cooperation with Niti Aayog and the MoEFCC, GoI, focusing on various aspects like developing policy guidelines to provide a level playing field for businesses to develop innovative models. GIZ also works with the private sector and think-tanks which come up with relevant reports and analysis through material flows in priority sectors for the Indian economy covering issues around methodological frameworks, policy analysis, identifying opportunities, barriers, promoting successful business cases and best practices worldwide. Managing wastes such as mining waste, construction and demolition (C&D) waste, electronic waste etc. is a big challenge - be it the government, consumer or the industry. If we look at post-consumer wastes like end of life electronics, end of life vehicles- these are all complex wastes and municipalities are not equipped enough to handle these kinds of wastes which is a mix of ferrous, non-ferrous and hazardous metals. For instance, e-wastes contain precious metals such as gold, silver, palladium, copper etc. which can be recycled, along with toxic elements like lead, cadmium, brominated flame retardants (BFRs), mercury etc. Hence it is very important to recycle e-waste in the right manner to avoid harmful effect on environment and human health. GIZ through its national and international knowledge and experiences supports the GoI in developing policies, monitoring and implementation of guidelines, technology transfer, business partnerships and capacity development among the key actors at the national, state and municipality level for effective management approaches.

IMI Konnect: *What are the specific actions taken by*

¹Swachh Bharat Abhiyan (SBA) or Swachh Bharat Mission (SBM) is a campaign in India that aims to clean up the streets, roads and infrastructure of India's cities, smaller towns, and rural areas.

GIZ on waste management practices in India? What are your greatest concerns on the same?

RA: When we talk about EU funded, Resource Efficiency Initiative for India, we are not concentrating on solid waste management only as GIZ is working on several initiatives for waste management (refer to <https://www.urban-industrial.in/>). We are working on issues like resource security, scarcity and end of life management issues in sectors like mobility, photovoltaics, e-waste, plastic waste, buildings and construction since they are currently consuming large quantities of abiotic materials. The materials used in these sectors are either imported or domestically mined to meet the metal demand for our growing infrastructural needs. This is where role of secondary resources like e-waste, plastic waste, mining wastes, red mud, C&D wastes etc. is crucial so that we can meet our growing demand of resources through better management of these waste streams. In India, an entire informal economy of traditional waste-pickers (*kabadiwalas*) collect wastes in the right manner. They can be strengthened to enhance better segregation and utilization of waste, generated at source. For instance, models like *Swach* and *Protoprint* in Pune, need to be scaled up so that the informal workers are included in the waste value chains.

Very recently, Maharashtra banned plastics completely putting lot of pressure on the traditional industries such as the packaging industry especially the food and beverage and other multi-layer packaging industry. More and more cities are now banning single use plastics but we also should have alternative arrangements and for that we have to look forward to a circular economy. We have to understand that banning is not a solution and we need to find out alternative measures with no or

lesser use of virgin materials. However, GIZ's primary area of concern now is manage waste materials specifically post-consumer wastes like electronics wastes, end of life vehicles, or the industrial wastes where the industry and government can together come up with innovative policy frameworks and business models.

IMI Konnect: *Would you like to highlight any specific environmental project undertaken by the players in the Indian industry that would contribute to the advantage of the circular economy practices?*

RA: Currently large proportions of the C&D wastes are used as filler material for low lands or dumped in the city outskirts. The recycled C&D wastes can be used to make products like paver blocks, kerb stones etc. which are used in construction industry. So, this type of green products are already available in our market and anyone constructing a commercial building or residential building can use more bricks/pavers etc. using C&D wastes so that the usage of red bricks made from virgin products is reduced. Through use of a by-product, the environmental impact of using a virgin product is also reduced which is the basic concept of a circular economy. Pilot projects on collection, segregation and processing of C&D wastes into useful building materials are already under progress in Delhi and Ahmedabad. Nonetheless, keeping in mind the newly notified "C&D Waste Management Rule 2016", expansion of the project all over the country is the need of the hour.

IMI Konnect: *While talking about rules and guidelines, what are the prevalent rules on e-waste disposal in India?*

RA: E-waste (Management and Handling) Rules 2011 was notified to support safe disposal and

environmentally safe recycling of e-wastes through the concept of Extended Producer Responsibility (EPR) wherein producers of Electrical and Electronic Equipment (EEE) are responsible both financially and physically for its collection, recycling and recovery. In 2016, the MoEFCC, GoI, notified another version of the e-waste rules which specified mandatory targets for the producers and manufactures, so that the monitoring of e-waste and EPR can be verified through an effective compliance and enforcement. The rules talk about shifting the responsibility of recycling to the original producers, who should actually take care of the end-of-life product. The mandate also divides the responsibility of safe disposal on every stakeholder involved in e-waste management including the State Pollution Control Board, the producers, the collection centres, the dismantlers, the recyclers and the consumers. Unfortunately, till now the level of awareness about the rules and its related implications is really limited. While this genre of wastes is generated in every household and in every office but we as consumers- both bulk consumers and individual consumers- are uninformed about its proper disposal. Thus, the major challenge is to understand how one should approach these kinds of issues which are so closely related to consumers.

IMI Konnect: *Talking about awareness, how would you evaluate the current level of awareness on waste management among the players in the Indian industry?*

RA: As mentioned above under the e-waste Rules 2016 manufacturers, producers, importers of EEE are not only responsible for safe recycling but also for creating awareness for their product take back policies. In practice, the websites of these companies might be providing the required information but on ground collection and channelization mechanism is not well established and lacks transparency. GIZ has

been working on behalf of the EU and German government funds for creating an awareness among the industry, consumers as well as the government for environmentally safe disposal of e-waste and better implementation of the Rules, 2016. However, the producers need to take more responsibility when it comes to the effective collection mechanisms for reaching to consumers through schools, residents associations or civil society for safe disposal of e-wastes. There is also lack of awareness when it comes to right handling of wastes at the industry level. A large section of business units, public and private sector entities does not have proper disposal policies for obsolete IT products or e-wastes and dispose them to the scrap dealers. Since last two years, under the 'Digital India' campaign, the Government is organising mass awareness campaigns on e-waste disposal in Tier I and Tier II cities in a phased manner.

IMI Konnect: *So, in the last 10-15 years- did you see any noticeable change in the e-waste management scenario in India?*

RA: Yes, it has changed a lot. The first ever report on e-waste, released by Toxics Link, was published in India in the year 2004 which drew a lot of attention for the Government of India to enact. The report discussed how toxic products were imported and dumped in ports in the name of charity and donation. The policy frameworks have also evolved in the country from 2009 to 2011 to 2016 but the on-ground implementation still needs to find a better approach since the 80-90 per cent waste does get channelized to the informal sector workers. Since 2006 we have been supporting the Ministry of Environment, Forest and Climate Change (MoEFCC) and Central Pollution Control Board for developing policies and guidelines for effective management of e-wastes which was first notified in

2011. We have also worked closely with the State Pollution Control Boards, private sector, urban local bodies etc. for enhancing their awareness on e-waste Rules and its implementation. For better collection mechanisms, we had supported different cities to develop collection models led by informal sector workers, civil society, social enterprises etc. so that consumer led collection models for door to door collection of e-waste can include the informal sector workers. Some of the formalized informal sector workers have also set up private limited companies focusing on e-waste collection and its dismantling. Now Ministry of Electronics, Information and Technology has developed technologies for the extraction of the precious metals from the printed circuit models. They are looking at partnerships with the informal sector units (for example in Moradabad cluster) to make this technology available to them for better recycling operations, which does not cause environmental and health risks.

IMI Konnect: *According to you which particular sector within waste management has the highest potential to become most successful?*

RA: Instead of sector, I would like to focus on the value chain itself. As I have already mentioned, the government has to be more inclusive in terms of covering the informal sector under its ongoing waste management programmes for skill development, better segregation and value added services that they provide through their networks and outreach. Government has to come up with innovative models implemented in cities like Pune (*SWaCH*) or Delhi (*Chintan*), Chennai (*Banyan Nation*) or Bangalore (*SAAHAS*), where the local governments have included the informal sector as a part of waste management chain. In cities of Pune or Bangalore, municipalities provide separate space for storage

and segregation of e-wastes where collectors authorised by State Pollution Control Board can collect and store e-wastes. India can also consider country examples like Mexico, Peru or even some cities from Africa where they are trying to integrate the informal sector into efficient waste management practices. Although government has come up with *Swachh Bharat Abhiyaan* in a big way, it is majorly concerned with sanitation. However the Government needs to concentrate on waste management and circular economy principles where the inclusive approaches can yield better results than only waste disposal mechanisms like waste to energy or landfilling etc. We are still struggling to find out a sustainable model to handle complex wastes like electronic waste, construction waste etc. It is worth mentioning here that developed countries like US, Germany, Austria, Belgium etc. appreciate the Indian manual models of e-waste dismantling than technology-oriented shredding since we can utilize the human resources through skill development, segregate the components better and recycle and recover with higher efficiencies, where we engage people instead of machines who have the expertise on that. The informal sector plays a major role in reducing the climate change impact by segregating the waste material and recovering them efficiently in a much better way. It is also felt that proper interaction and exchange would be mutually gainful for both the sectors of waste management, the formal and the informal so that waste downcycling can be reduced. I find it very difficult to visualize India in next five to ten years handling all the complex wastes in a right manner if this integration between the formal and informal sector is not done in a holistic manner.

IMI Konnect: *Do you think electronic waste management has more potential to be formalized in*

terms of waste management and may have more success rate?

RA: The electronic products sector is growing with rising urbanisation and consumerism leading to a concomitant rise in e-waste as well. The decision makers have to think about inclusive models incorporating the informal sector; as size-wise they are not viable to compete with the formal organisations. It is very difficult to operate waste-to-energy (WtE) plants in this country since our waste fractions are very different from developed countries and also with the presence of the informal sector workers makes it less viable for the formal economy. Thus instead of creating similar infrastructural issues, as WtE, we will have to look at the entire EEE life cycle stage in India to consider the options for resource efficiency and circular economy for its better production, design, consumption and end of life management. The 'Make in India', 'Digital India' and 'Swachh Bharat' programmes need to mainstream an approach for e-waste management wherein it is considered as a resource and urban mine rather than a complex waste. Also EPR as a principle provides opportunities for brands and manufacturers to think about sustainable materials, remanufacturing, ease of dismantling and recycling and better resource recovery. In the long run, if we want to achieve a successful electronic waste management system, we still need to create awareness amongst the consumers.

IMI Konnect: *How has been your experience in working with the government? What has been its major advantages?*

RA: The government has a very large-scale outreach and access to people. If business houses develop something green or sustainable, only the

government has the mechanism of transforming the entire market with its sheer power of determining availability of a certain product. Green products cannot generally enter the market in regular manner, may be due to its price or maybe it does not fit into government's usual procurement scheme. At the end of the day, a business house runs with a profit motive but the government is not constrained to consider that aspect. We at GIZ have a mix of national and international experiences in these kind of bilateral projects between India and Germany, which mainly evolve around agreed focus areas as mentioned earlier. The areas of cooperation i.e. energy and environment reflect Indian Government's commitment towards addressing the issue of climate change and achieving growth in an environmentally sustainable manner.

The views expressed are personal opinion and not of GIZ India.