



OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

THE ROLE OF INFORMATION, EDUCATION AND COMMUNICATION (IEC) IN SUSTAINABLE SOLID WASTE MANAGEMENT

Shubhra Puri

*Founding Director, Gurgaon First, Gurugram, Haryana, India
purishubhra@gmail.com*

Abstract: For a long time, we have lived in denial as far as solid waste management is concerned. It suffered from the syndrome “Out of sight, out of mind” and we thought that waste was “just waste”. Today, we recognize the fact that waste is not just waste but a resource. We recognize that waste is “our problem” as its effects pollute our groundwater and the air we breathe and cause various vector diseases. We also recognize that not just authorities but all stakeholders including common citizens have a role to play in waste management.

The Swachh Bharat Mission (SBM) that is currently underway is the biggest program globally that is trying to bring an attitudinal or mindset shift in people. The role of Information, Education and Communication (IEC) in bringing a transformational shift in attitudes of people cannot be denied. Citizens need to understand the waste basics, the role of various stakeholders as well as have knowledge of waste solutions in composting and recycling to be able to feel empowered and inspired to make the qualitative shift. Education and information brings about empowerment. The right communication strategy is the critical key. This can happen through TV commercials, inspirational radio jingles, waste books, portals, trainings and awareness workshops, painting and music competitions. The role of school children, youth and waste champions is critical. Waste management needn’t be looked at as a burden, but as a responsible thing to do. Waste champions need to be rewarded for championing the cause. Finally, a holistic IES strategy that encompasses all stakeholders to act responsibly holds the key.

Keywords: *Swachh Bharat Mission, Municipal Solid Waste, Composting, Recycling, Urban Local Bodies*

I INTRODUCTION

One of the by-products of economic growth, industrialization and urbanization has been increasing quantities of waste, so much so that waste has become an environment threat. India is urbanizing at a brisk pace. As per 2011 census, 30 per cent of India resides in urban areas. Large metro cities contribute to 27 per cent of the total waste.

Waste comprises primarily of municipal solid waste (MSW) comprising residential and commercial waste; Industrial waste, Construction & Demolition (C&D) waste, sewerage (wastewater), bio-medical waste and e-waste. The primary focus of this paper is MSW. The total MSW generation in India is about 70 million tonnes in urban areas. It is increasing by 5 per cent every year in the last decade in volume terms. The per capita generation is 450 grams per person per day and is increasing by 1.33 per cent per annum. Being part of public health and sanitation, waste as per the

Indian Constitution, falls under the “state list”. Its management is entrusted to the Urban Local Bodies (ULBs). In fact, waste is one of the most important obligatory functions of the ULBs and invariably most of them find themselves lagging in discharging their duties due to lack of financial and institutional bandwidth.

Bulk of solid waste (70 per cent) is compostable. Another 20-25 per cent is recyclable. Ideally, only 5-10 per cent should go to the landfill. However, as per a Planning Commission’s report, only 19 per cent of total waste generated is treated, the rest arguably goes to dumping sites or landfills leading to problems of health and environmental degradation. To be sure, most Indian cities are lagging in the minimum standards of collecting, transporting, treating and disposing waste. Still though limited, but common practiced waste disposal processes in India include composting, bio-methanation and incineration of Refuse Derived Fuel (RDF) pellets for power generation. The Municipal Solid Waste

(Management and Handling) Rules 2016 is the recent policy on solid waste management. Besides, there have been progressively stricter norms for the sector and public interest litigations and the rulings of the courts (Supreme Court) are also on the rise.

Launched on October 2, 2014, the Rs 620 billion the five-year Swachh Bharat Mission was created to tackle waste management, cleanliness and sanitation on a national level. Midway into the scheme, substantial gains have been made in solid waste management. It is perhaps the biggest attitudinal change programme currently underway globally. The *Swachh Sarvekshan* ranking of cities has helped start a healthy competition among cities towards improving sanitation.

Waste management indeed needs a deeper level of commitment and upliftment of collective consciousness of the society given the socio-cultural realities. It also needs a multi-stakeholder approach involving NGOs, authorities, RWAs, gram panchayats, corporates and ordinary citizens to reduce, reuse and recycle. Segregation of waste at source, increasing reuse and recycling and motivation to keep the city clean and waste dump free are some of the behavioral shifts that are needed to happen.

II ROLE OF INFORMATION, EDUCATION AND COMMUNICATION (IEC) IN WASTE MANAGEMENT

The objective of Information, Education and Communication (IEC) is to inform, educate and inspire people to realise their roles and responsibilities, and benefits accruing from investing in right waste management practices. This is built around the pillars of awareness and motivation. It should reach all communities including schools, colleges, hospitals, hotels, offices, market places, malls, residential colonies as well as villages. It should also reach out to all kinds including children, women, men, youth, and elderly persons.

The role of IEC is very critical in sustainable waste management. Right from the level of the ministries (Ministry of Housing and Urban Affairs and Ministry of Drinking Water and Sanitation) to the municipality a top down robust IEC strategy needs to be devised and budgets should be allocated to it. Barriers to waste management could be a knowledge-level barrier, an attitude-level barrier or a practice level barrier. For instance, citizens may not have the adequate knowledge or may feel that waste management is not their job or may think it is an additional burden for him.

III KNOWLEDGE IS EMPOWERMENT

If people feel empowered through the right information, they have greater willingness to act rightly and responsibly. Training modules, workshops involving all stakeholder groups could be held where consistent messages

built around five critical elements should be given. These are:

Understand the waste crisis:

The stakeholders need to understand the impending crisis that is looming due to waste. They should be aware of how waste manifests in ugly forms such as choked rivers and water bodies, choked sewers, overflowing landfills, overloaded trucks with stinking garbage, garbage dumps and open burning of waste. Besides, they should be aware of the health issues such as vector diseases including malaria and dengue, increasing respiratory allergies in children and senior citizens due to waste burning. In addition, it is important that they are aware of the fact that waste pollutes both ground water through the leachate and air through release of methane.

Table 1 Role of Different Stakeholders

Stakeholders	Roles & Responsibility
Government	Making rules and laws, preparing guidelines, provide financial support
Pollution Control Board	Advise Government and review their proposals
Municipal Authorities	Collect, transport, treat, and disposal of waste; plan for waste treatment facilities, finance solid waste management system
Waste Contractors	Interface between citizens and local bodies, facilitates in creating awareness
NGOs/ Citizen Initiatives	Mobilise communities for decentralized treatment, conduct awareness workshops, training and capacity building
Corporates	Promote awareness among employees, undertake CSR projects in waste
Education Institutions	Implement the 3R (Reduce, Reuse and Recycle), initiate waste management, conduct awareness campaigns
Citizens	Keep surroundings and work places clean, segregate waste at source, initiate household composting, dispose garbage in designated places, practice the 3Rs of waste management, modify shopping habits to reduce packaging waste.

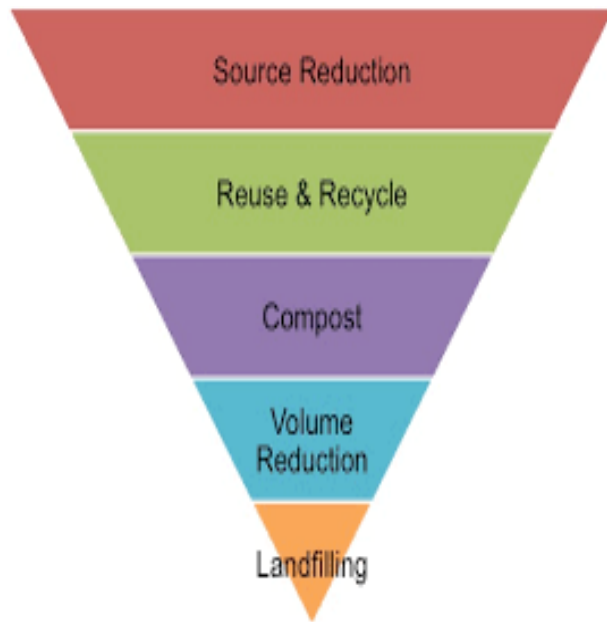
Understanding the role of all stakeholders:

It should be clearly understood that all stakeholders have a role to play in waste management and not just the government. The Government has to make rules and see that they are implemented while regulators have to monitor and set standards. Municipalities have to discharge their function to transport, treat and dispose waste. The NGOs have to spread awareness while the citizens have to segregate waste, initiate composting and see that the surroundings are kept clean.

Understanding the waste hierarchy:

Stakeholders should have a general idea of the waste hierarchy that aims to reduce waste while maximizing resource conservation. The most preferred option is at source reduction and the least preferred reduction is landfilling. A site visit to the landfill is also possible. They should also understand the why is it so and how of it.

The Inverted Waste Hierarchy Triangle



Understanding the various forms of waste and how they can be treated, recycled and disposed;

Stakeholders should also know the various waste types and how they can be treated, recycled or disposed. They should know the three broad categories for segregation i.e. biodegradable or kitchen waste (waste type 1); recyclable or dry waste (waste type 2) and hazardous or special waste (waste type 3); and also practically segregate or do not mix these three types of waste. They should further know that while vegetable waste (waste type 1) can be composted; newspapers and cardboards (waste type 2) can be recycled and that needles (waste type 3) need to be carefully disposed. They should know that plastic bags are neither recyclable nor compostable.

Knowledge of different vendors and options for individual and community composting/recycling

Different types of composting such as leaf composting and aerobic and anaerobic forms of composting should be briefly explained and also how it is done. They should be given some knowledge of different reliable vendors of composting and recycling for both household level solutions and community level solutions. They should also get reliable suggestions on who could be more suitable given the cost, space, technology and O&M considerations.

Knowing these five elements, the stakeholder will be reasonably empowered to not only make changes at his individual, household- level but also inspire his community to take relevant steps for sustainable waste management. The education should be motivational and inspiration. The municipalities have a critical role to play in inspiring citizens, RWA presidents, sanitation workers, NGOs as well as even ragpickers.

IV PRINCIPLES OF EFFECTIVE COMMUNICATION STRATEGY

The communication should be simple and direct keeping the local cultural context in mind. Linkage between poor sanitation and health must be brought out. The message must be acceptable to the people, with a strong emotional appeal. Communication should be built on people’s participation, consistency, transparency and integrated communication. Proper funds need to be allocated to each intervention. A top down approach involving MLAs and councilors, RWA presidents, panchayats, religious leaders, youth clubs and citizens is a must. Broadly, an IEC campaign should focus on behaviour change communication and inter personal communication.

For effective implementation of the IEC campaign, it is important to understand whose behaviour pattern needs to be changed and which behaviour needs to be changed in what direction. Hence it is necessary to know what do people already know and do in terms of solid waste management and what is their view of how waste should be managed as well as also how much importance do they attach to it. A focus on children and youth as agents of change is a must. Extensive use of influencers and natural leaders is recommended. The communication should reach all communities in a city including schools, colleges, hospitals, hotels, offices, market places, malls, residential colonies as well as villages. It should also reach out to all kinds including children, women, men, youth, and elderly persons.

V KEY WAYS AND VEHICLES OF COMMUNICATION

Use of print, electronic media as well as social media needs to be undertaken in spreading awareness. Some of the ways of communication are:

- At the national or mass level, TV commercials and radio advertisements could also be played from time to time.
- Handbooks, leaflets and brochures that help feed key information needs and are also inspiration should be distributed.
- Motivational hoardings catering to Swachh Bharat and posters at critical locations of the city such as DC office, courts, government departments, metros and public transport places could be put.
- Since waste management involves attitudinal change, one-to-one meetings could be held aimed at key influencers in the families and communities.
- In schools, malls and corporates, waste pledges could be undertaken.
- A city-based waste portal can be designed and uploaded for all the critical information related to waste.
- A city centric waste management book could also be published and circulated to all stakeholders.
- Waste trainings to sensitize about waste management could be held.
- Focus group discussions with clubs and mahila mandals and meeting with influencers could be conducted.
- Use of street plays and puppet shows in markets, villages
- A special communication strategy should be drafted for children in schools and the youth in colleges. Solid waste management need to be incorporated in school's curriculums. NSS, Scouts Guide and NCC could be involved. Painting competitions, music competitions and debates could be held on themes of waste management. Schools can start waste training programmes at the primary and medium levels. They can have "green ambassadors" to spread awareness within school and outside school.
- Lastly, waste champions in the city should be recognized and rewarded.
- Hospitals and medical practitioners need to be involved to tell about the ill-effects on health.

VI WHAT SHOULD BE THE COMMUNICATION STRATEGY?

Instead of asking people to segregate the waste, the communication should be simply not to mix the different types of waste. This way they understand that all they have to do is simply to not mix their daily waste from different sources. All kitchen waste can be collected separately and composted. The benefits of composting such as generating compost for your gardens, growing organic fruits and

vegetables at household level and removing waste dumps, reducing health problems and vector diseases at the community and city level should be discussed.

The communication strategy could also be linked to India in the olden times when we produced less waste, shared clothes and books within family and friends and gave vegetable waste to the cattle's etc. should be discussed. Its only in the recent modern times we have invested plastic, shied away from using second hand things and started becoming a consumerist society Indian society was very particular about hygiene and sanitation and all we need is to revive the same culture once again.

Lastly, it is important to communicate that discussing and acting responsibly on waste management is the right as also the cool thing to do. Waste management should become a fashion with people gifted home-made compost or plants grown on home-made compost as Diwali gifts.

VII MONITORING IEC PROGRESS IS THE KEY:

This is important as any behaviour has the potential to lapse into old and easy practices. Behavioral change investments need to be sustained over a period of time to convert a behavior into habit. Monitoring will help address the gaps in strategies, investments and also results.

ACKNOWLEDGEMENT

I am indebted to several people to improve awareness about the role of IEC in waste management. This includes NGOs such as Centre for Science and Environment, Institutes such as National Institute of Urban Affairs and municipalities such as Municipal Corporation of Gurugram. Perspectives from waste champions of different localities in NCR have also been extremely helpful. Lastly, the dynamic team of Swachh Bharat Mission has helped in honing my understanding of challenges in IEC in waste management.

REFERENCES

- [1] Gurgaon First 2017, Gurugram Handbook for Waste Management Edition 2015-16- A Handbook on Waste Management: issues and solutions and key stakeholders in the industry, Gurugram
- [2] City Sanitation Plan, Gurugram Draft Report, Municipal Corporation of Gurugram
- [3] <http://saahaszerowaste.com/home>
- [4] <https://ecofemme.org>
- [5] <http://swmindia.blogspot.in/2012/01/municipal-solid-waste-msw-generation-in.html>
- [6] <http://saahas.org/wp-content/saahas/uploads/2015/02/SWMindia9.pdf>
- [7] <http://moud.gov.in>

[8] <http://wastelessindia.org>

[9] <http://cpheeo.nic.in>

[10] <http://www.teriin.org/projects/green/pdf/National-Waste.pdf>

[11] <http://www.swachhbharaturban.in/sbm/home/#/SBM>

BIOGRAPHY

Shubhra Puri is the Founder of Gurgaon First (GF), an initiative that promotes sustainability in Gurugram through workshops and research books. GF has so far conducted over 36 public conferences and workshops and published 3 handbooks for Gurugram. The workshops have been on topics such as Gurgaon as a Smart City, Water and Waste management. Gurugram Environment Conclave and Eco Green Initiatives. GF's workshops are well-attended (average is over 200 participants) and brings together diverse stakeholders including corporates, the local administration, citizen groups, RWAs, schools and other educational institutions, NGOs and the media of the city. GF recently published *Gurugram Handbook of Waste Management* that was launched by Rao Inderjit Singh, Minister of State, Ministry of Urban Development, under the Swachh Bharat Mission. An MBA, Ms Puri has been a journalist with 20 years of experience in research and writing in the infrastructure sector. She started her career with The Economic Times and was Editor-content at Power Line and India Infrastructure magazines.

SSWM-17

National Conference on Sustainable Solid Waste Management

Organized by:

**Department of Civil Engineering,
Amity School of Engineering & Technology
Amity University Haryana**

