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Waste Management in India - challenges and opportunities.

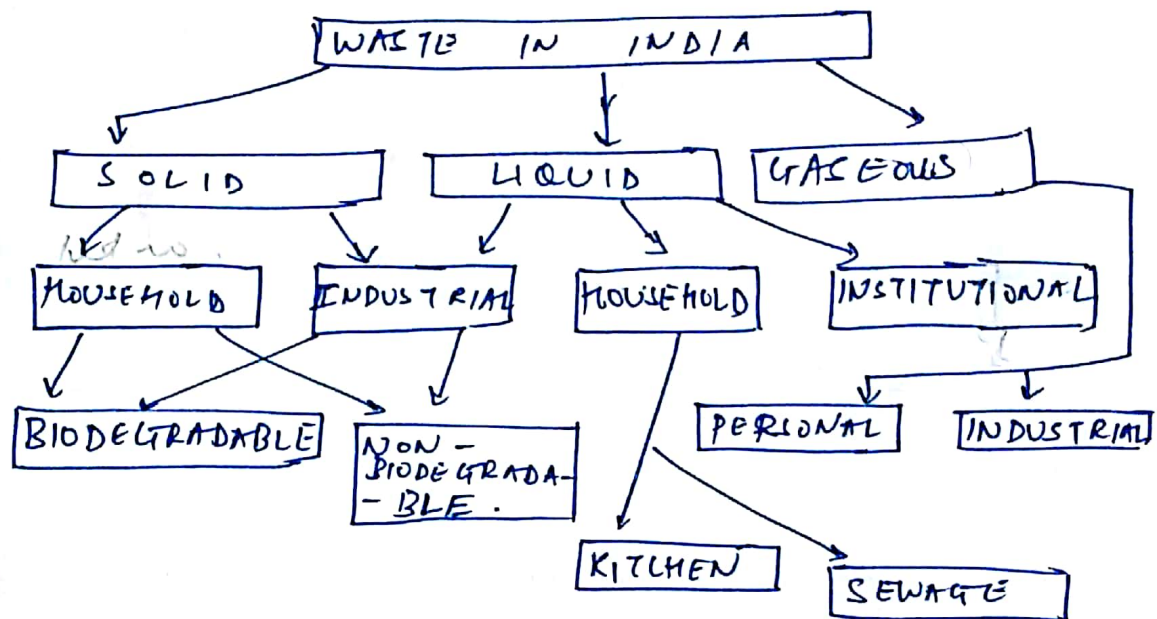
Recently, Ghaziपुर landfill in National capital region had a landslide. This caused both deaths and nuisance in society. India struggles with not only solid waste but also open defecation - more mobile phone owners than people with access to toilets. Who amongst us hasn't had to brave and overflowing sewer and a revolting stench. Stench of piling garbage is common too in almost every neighbourhood.

Can a country aiming at the high table of global leadership ⁱⁿ rely ignore its own ethos of 'cleanliness is godliness'. In this essay we shall explore the challenges of waste management in India, their negative fallouts.

Further we will proceed to look at

opportunities to address and efforts
by government followed by some
suggestions.

Before we delve deeper let's
understand the structure of waste
and management in India.



Waste management in India is primarily
responsibilities of local level governments.

Cycle includes collection, processing, disposal.

Regulatory supervision is by state and
central governments. Legal framework

is provided by legislatures with overarching
ideas by constitution itself. Few other
stakeholders are individual, society and
informal sector. It is in each stakeholder

that challenges and opportunities for reform lie. (3)

As mentioned before India suffers from a 'chronic waste problem'.

At individual level it stems from the 'taxpayer hubris' which people have.

Their attitude of 'not in my backyard' hence 'government's problem' complicates

matters and absolves of any self-imposed accountability. This is further worsened

by 'poor awareness' of segregation processing and negative / positive consequence of ^{choosing} litening / proper waste management.

At the society level, this compounded by 'pollution-purity' notion derived from caste system. This along with 'social sanction for open defecation'

and manual scavenging creates challenges for proper waste management. Patriarchy again reduces role and voice of women demanding better sanitation.

'Poor segregation of waste at source' coupled with the

'broken windows syndrome' has led to apathetic acceptance of littered public spaces. People/society have adopted the 'chalta hai attitude' and accepted wastes as part of life. Beyond that our society is seeing 'rapid urbanisation' which will cause per capita waste to rise from 0.4 kg per capita now to estimated 2.5 kg per capita by 2045. This along with decline of ethos of repair, recycle and conserve, to be replaced by materialistic possession of goods and consumerism poses further challenges.

Beyond these religious rituals of society like 'dumping of dead bodies' in rivers, ashes and other religious idols in waters cause poor waste management. Toilets are not seen as essential part of our social infrastructure. For instance, temples, mosques etc. religious places do not generally have toilet. Even if they do, they are built far away.

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This same problem was seen in Delhi Metro which built toilets only after Court orders.

At organisation level, problems lie with poor funds with local self governments. This leads to systemic problems - like poor collection, processing unsafe disposal. Poor maintenance of drains leads to clogging, overflowing.

Not only funds but human power shortage produces reliance on informal ragpickers - who have not been formalised. This coupled with low tech-infusion leads to manual scavenging in pits. Poor technology leads to poor real time data and evidence based policy is absent.

Further, presence of multiple parastatals, development authorities reduces accountability. Vertical as well as horizontal regulatory arbitrage leads to one loser only - the average

citizen. The bodies like central/state pollution control boards, pollution control committees give often conflicting guidelines and lead to confusion. This is exploited by industries to delay implementation / violate rules with impunity. Above all poor political will shows up as seen in CMC reports showing unused funds.

This has led to a massive challenge of waste and its costs to our country. Considering solid wastes UNEP report notes that we produce 62 million tonnes (mt) wastes per annum but collect only 43 mt and process 12 mt. Rest lie around in landfills as hosts for pests - mosquitoes, flies and dogs. This leads to spread of diseases, dog bites and groundwater pollution by leachate and often fires.

We produce 72 million litres per day of liquid waste but after processing capacity of 38% we discharge

about 38 million litres daily into water bodies untreated. Toxic condition of Ganga at Kanpur, Musi at Hyderabad, Yamuna at Delhi are there for all to see

Further coming to gaseous wastes 13/20 most polluted (globally) cities are in India as per WHO report. PM pollution is constantly in severe category - leading to 1.8 million deaths annually (University of Washington report). This leads to 8% loss of GDP (WHO report).

We are faced with newer challenges of plastic waste growing 2.5 times faster than GDP and e-waste. As per United Nations University study we produce 5% of global e-waste despite being only about 3% of global GDP. These trends are reverse in case of China and USA.

So, considering these does that mean we are doomed to live in squalor - a reputation that characterises our global

image now? No we are reversing the tide.
Plenty of opportunities are there.

At individual level we need to educate people to prevent as well as dispose responsibly. Environment should be seen as public asset and sustained accordingly. Governments' Environment, education awareness training scheme does that. Children need to be targeted.

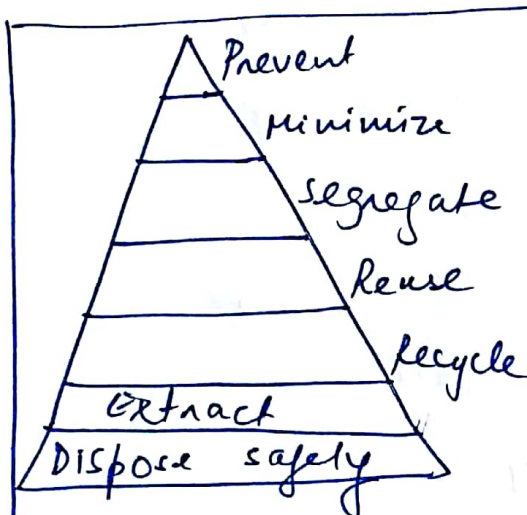


Fig. - Waste Management Priorities

People should be educated to segregate biodegradable / recyclable non biodegradable wastes at source.

With urbanisation in India yet to happen

(35% in cities only)

We can save ourselves

from waste intensive growth to revive minimalistic ethos of repair reuse recycle that characterise India.

Society needs to be educated to give up open defecation and end manual scavenging - a bane in lives

of taking our poor down to the gutter. Schemes like Swachh Bharat Mission provide opportunity for low cost sanitation like twin pits for rural areas and in house pour flush latrines in urban areas. This along with sanitation as aimed in AMRUT could end overflowing drain menace.

Society needs to give up caste based notions. With rise of educated youth opportunity lies to eliminate such discriminatory practices. Government needs to play its part by rehabilitation schemes and laws for manual scavengers and their families.

Government has brought out several rules - e-waste, construction and demolition waste, plastic waste, biological and hazardous waste and municipal solid waste - management rules. Stakeholder education, enforcement as well as idea of 'polluter pays' and 'extended producer

responsibility could increase transparency,
reduce 'regulatory arbitrage' and reduce
fiscal burden of governments to process
wastes. Further revision of municipal
contracts - payment based on mass dumped
in landfill create perverse incentive - needed

Government should also focus
on formalisation of rag pickers - as per
UNEP report they reduce cost of municipalities
by 14%. They should be provided with
insurance, protective equipment as well
as cooperativisation.

Coming to solid wastes, ideas
like city composting could reduce bio-
degradable wastes and produce biogas.
Biogas could help reduce our import
bill and emission of CO_2 (403 ppm in
India as per WHO). Sewage treatment
plants could produce 8 million Ltr cylinders
per annum by 2022. Further, solid

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waste that cannot be degraded
could be incinerated using ideas
like refuse derived fuel for energy
as done in Japan. Japanese technology
could ~~help~~^{also} reduce production of dioxins.

Plastic wastes could be used in
roads which could reduce cost and
boost durability of road being built

Conservation could be boosted
by conservation atlas. Along with cooperative
competitive federalism, this could bring
about the utilisation of waste to fertilizer,
energy ideas as done in Alleppey
Kerala by local resident welfare associations

E-waste could be used to
extract \$55 billion worth of precious
metals. This could reduce import
costs and provide jobs to people.

LOTUS scheme of Delhi tries to do
the same with sewage. Social entrepreneurs
in the sector should be promoted.

Further, processing models like those in Singapore could be developed - to recycle and reuse as much as 70% of waste as done there. Norway's model of renting container buying ingredient could reduce packing wastes.

Coming to water wastes we could reduce 20% diseases by proper sanitation. \$1 invested in sanitation produces \$5.5 benefit for economy and saves 10 work person days. Interception Collection, and treatment needs to be universalised. Missions like Mamuni ganga and Jamuna Action plan need to be implemented with WRI. Point Non point, industrial and domestic wastes need to be collected and processed.

Coming to air wastes, awareness via NAAQ - is an opportunity to involve people. Continuous emission monitoring and graded action plan and BS VI

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provide opportunity to handle air pollution. Further, diesel particulate filters and catalytic converters could reduce vehicular pollution. Air Ambience Fund, zero effect zero defect scheme could reduce air pollution by industries.

Further as we chart the high growth trajectory we need to realise that circular economy could be the future of inclusive growth and development. Natural capital needs to be realised as a public good. This is seen in our constitution as articles 21, 48A, 51(c). Let us vow by words of the father of our nation to be our own scavenger - in air, water and solid wastes. Let us learn cooperate and collaborate to make India the cleanest country of the world.



Language should not be a barrier but a facilitator

August 1947 saw the birth of two countries in south Asia. One was based on ideas of inclusivity, democracy, cultural plurality and its celebration. It got that tag of 'an impossible experiment', 'unity in diversity'. The other was based on 'two nation theory'. Language forms an essential component of a definition of a nation. Little did the other country realise that it had two nations within itself. Non-accommodation and suppression of Bengalis by west led to break up of the other country in 1971. This is the story of how India emerged stronger after independence while Pakistan got divided. The key difference was seeing language as a facilitator or as a barrier.

Even though we have no choice over our mother tongue we develop deep connect with it. This is a paradox of accident of birth. In this essay we shall see how each one's connect with mother tongue can be a barrier in living with others. What would be the fall outs? How could this be a facilitator and what good would this usher?

Connect with our language manifests in our community, culture, aspirations, moral bearing. The stories we hear and ideals we learn, values we aspire for are all somewhere through the medium of language (s) we speak. Language connects us with the world outside. Thus, needless to say language is a part of who we are. This causes differences between people of different mother tongues.

When these differences emerge in social domain - they lead to linguistic chauvinism. Majority tries to prove the superiority of their language. Using its numbers it tries to relegate the language of minority to personal sphere. This causes loss of social capital between communities - as seen in caste system.

In education this deprives the students who do not understand the medium of instruction. This affects their grasping of knowledge and future growth prospects. This creates disparity in access to economic opportunities, public employment - thus creating barriers, inequality for socio-economic mobility of minority.

Further, even if they do prosper as migrants in some other areas, they are subject / target of violence by linguistic majority. This majority sees itself deprived of

economic prospects due to minority.
This phenomenon is seen in 'Sons of
Soil' theory. Further, due to linguistic
barrier, inter region trade gets
disrupted- this leads to low economic
growth for both regions.

Further, not only economic-
social domain, but also political
domain sees division. Linguistic majority
uses its language card to mobilise
votes or capture political dominance. While
minority is excluded from political office
as well as mobilisation. Political institutions
once again are geared to relegate minority
community and their language to background.

Access to public services like
police, healthcare, judicial grievance
redressal also gets affected due to
linguistic barriers. Pity is that even
if minority uses the language of majority
discrimination persists due to phenomenon
of othering. This is seen in countries

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like Bangladesh and Sri Lanka (Punjabi speaking v/s Bengali speaking and Tamil v/s Sinhala).

Further, even modernisation has created a fragmentation. Somehow English speakers have come to be perceived as cultured advanced. Those speaking hindi/vernacular are seen as backward. This manifests in generation gap, social networks, friend circles as well as economic prospects. Once again, navigating internet, government services all have become domains of fragmentation and barriers.

Even cultural domain sees barriers. Those educated in traditional/classical languages - Sanskrit/Tamil/Prakrit have access a whole new world of learning and vice versa. This creates intellectual, social barriers both - inter and intra community.

language as a barrier manifests in yet another domain. The divyangjan who cannot speak or hear get isolated from the rest of us. Those who cannot see are often deprived of education, employment, productive life. This, despite not any fault of their own - but of society which renders them disabled by creating barriers at every stage.

Let us see how these barrier affect all of us. Social-political dominance creates fear psychosis and resentment among minorities leading to crime, violence, protests. This was seen briefly in India in 1980s during facts by Potti Srinamulu and student agitation in Madras, Bombay etc. often breaks up countries too.

Economic exclusion put opportunity cast on economy. It prevents people from achieving this fullest potential.

Violence in society also deters investments - barriers to growth.

Cultural domination once again lead to loss of minority cultures and the treasures of learning therein. Very often it entails substantial economic costs too - thus acting as barriers research, intellectual, recreational and economic.

Isolating the linguistically falling behind leads to distress as seen in elderly - leading to overall reduction of happiness in society.

However the very language can also act as facilitator for social inclusion, economic growth and cultural intellectual exchange.

By accommodating different linguistic communities one can create space for security and growth for all.

Indian innovations like 3-language formula in school education, inclusion of languages in UPSC exams show how education can provide for facilitation. Vernacular education in primary schools as emphasised by Gandhiji could help facilitate learning as well as cultural preservation.

Political innovations like use of link language in India and freedom to states to use their chosen language for intra state administration - shows facilitation with convenience. Use of local language or translations using technology - subtitles etc. could ensure political mobilisation too.

Political accommodation of linguistic cultural aspirations by state reorganisation is what saved India from balkanisation. This has also ensured equitable growth to some

extent by homogeneity in administration. (9)

Further, today delivery of
e-governance services in local language
content has enable facilitation for
citizen centric inclusive governance
for last man.

Cultural domain can see
preservation celebration of linguistic
diversity. In India constitution
Articles 16, 29, 30 provide rights
against non discrimination and cultural
preservation for linguistic minorities.

This has facilitated flowering and
peaceful coming together of different
cultures. This also facilitates give
and take between languages and
mutual enrichment. Hindi for
instance has words from sanskrit,
english etc.

Constitution also provides

for recognition of languages in states,
official status in schedule 8, right
to address government officers in
native language. There is a provision
for special linguistic officer for
minorities to ensure safeguards are
implemented. Thus, providing adequate
security to speakers of all languages and
facilitating them to access governance.

Languages have rich treasures
of literature which is now being used
by researchers to delve into ancient
knowledge of humanity. This could
reveal several lessons for facilitating
better life for all. Also Sanskrit
is being used by NASA and is
appreciated for its simplicity in
coding - facilitating research. Learning
new languages facilitates development
of brain as well as tongue - new

research has shown.

Further coming to international domain languages have facilitated inclusive governance. This is why Arabic has been given the status of official language - despite its low numbers of speakers - but owing to importance of inclusion of Arabic region.

Languages can also help extend soft power. Overcoming the language barrier, could lead to exchange of music, cinema etc as seen in appreciation of Dangal (translated) by Chinese President Xi Jinping.

Similarly fame earned by Korean-pop is musical entertainment values despite different language.

Overcoming language barrier by learning new language could also help to promote tourism.

by skill training of four guides
and exchange of cultures.

Thus, language if seen
as a medium for dominance over
'others' could act as barrier and
divide human across social political
economic cultural lines. This
could lead to violence as well
as loss of humanity world over.

However accommodation in
Spirit & welcoming other languages
by effort to learn could help facilitate
inclusive growth, intellectual welfare
as well as progress of humanity
for a better tomorrow.

Need of the hour is to
widen our horizon and respect
for every other culture. We have
been directed to do the same in

Article 51A of our Constitution.

Countless historical precedents implore us to do the same. Government through inter state council, zonal councils, Sahitya Akademy and national language director and mission to conserve languages of tribes plays its part.

We need to play our part by viewing languages and cultures as treasures of humanity, conserve, facilitate and promote their spread for a secure today and better understanding of past would lead humanity to a better tomorrow.