

PROPOSED POLICY FRAMEWORK FOR INTEGRATED WASTE MANAGEMENT



**Swati Singh Sambyal
Programme Manager
Waste Management
Centre for Science and Environment
New Delhi, India**

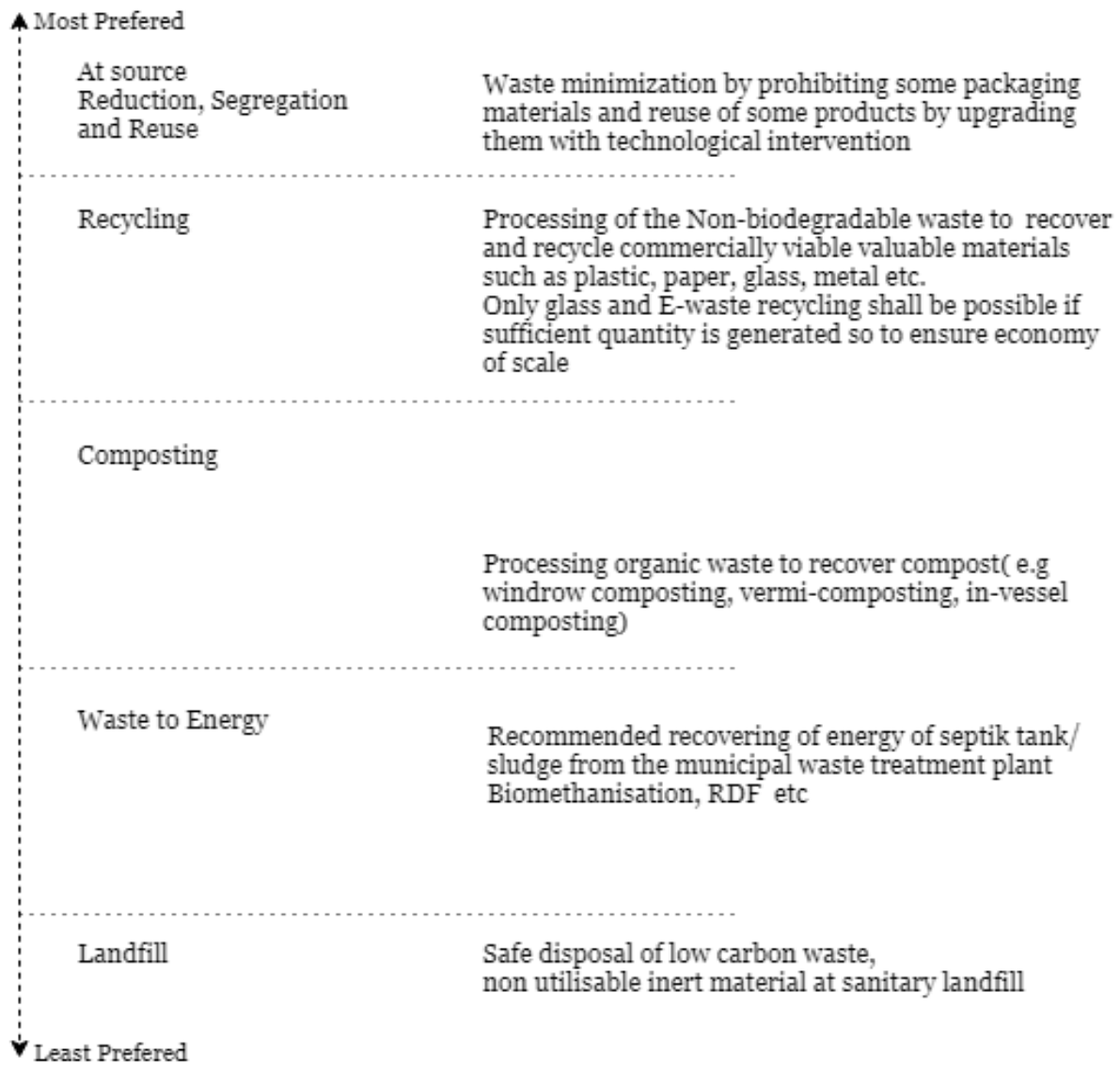


Guiding principles to adopt integrated waste management

- ***No littering.***
- ***Minimize generation of waste.***
- ***Reduce, Reuse and Recycle***
- ***Practice segregation***
- ***Storage of segregated waste in different bins/bags.***
- ***Handover segregated waste to authorized waste collectors, recyclers and waste collection agencies.***
- ***Process biodegradable waste by adoption of composting and other decentralised technologies wherever applicable.***
- ***Pay monthly user fees to local bodies or any other persons authorized by the local body for sustainability of solid waste management.***
- ***Fines and penalties for littering and non-compliance.***



Waste Management Hierarchy





Propose Policy Outlines to Strengthen Existing Waste Management System in African Countries

- Waste Minimisation or Source Reduction
 - *Banning of carry bags*
 - *Restriction of the thin film packaging*
- Avoid Littering



Strengthening collection to support segregation

- Principals to Segregate Waste
- Role and Responsibility of a the Generator in Order of Priority
- Inclusion of the Informal Sector

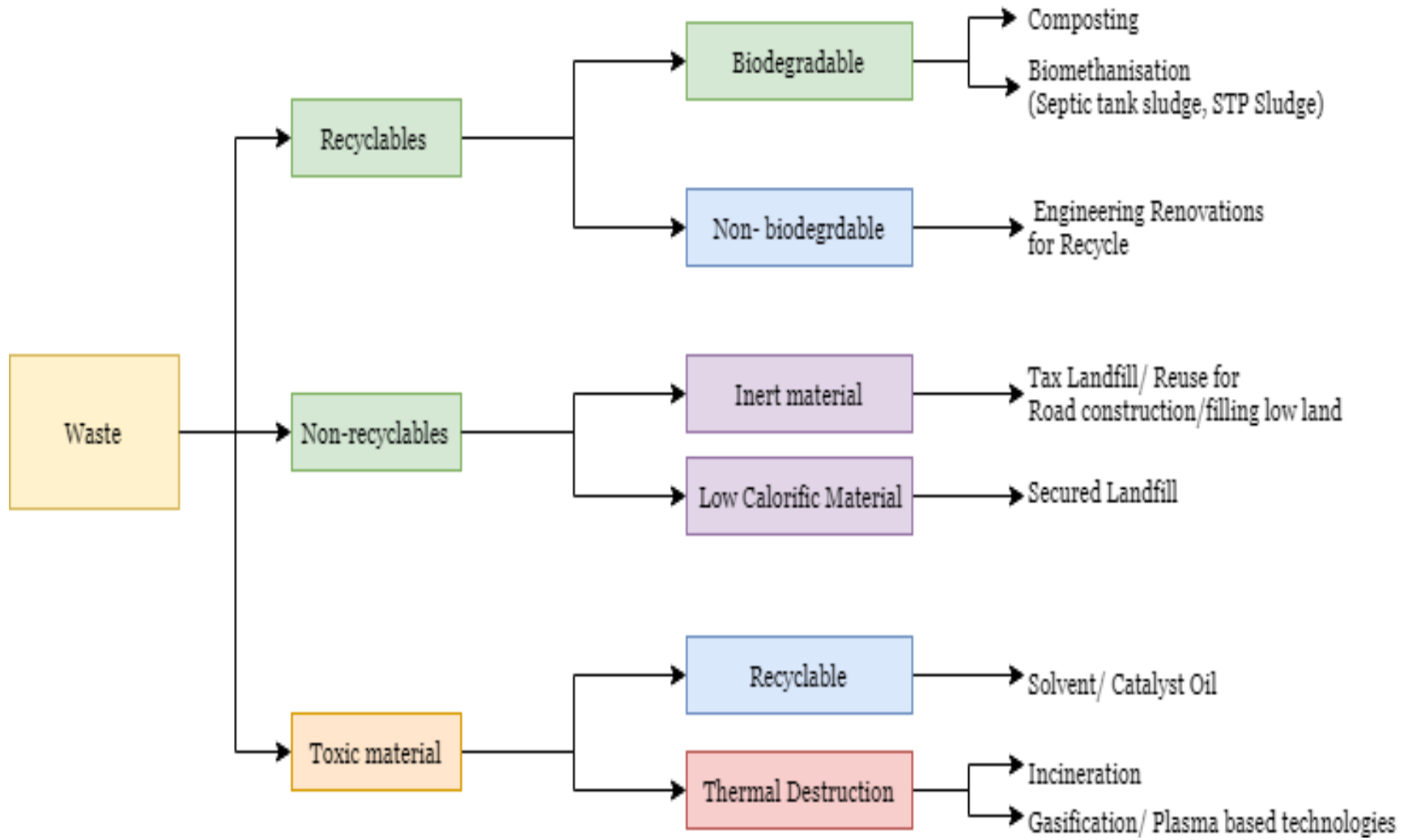


Principals of Segregation

- Organic or bio-degradable wastes (called wet waste)
- Recyclable or non-biodegradable wastes (called dry waste)
- Domestic hazardous wastes



Segregation of waste on the basis of the characterisation and the end use





Role and responsibilities of the generator in order of priority

User's category	Responsibility
Individual/Approved Colonies	To compulsorily segregate into wet, dry and domestic hazardous waste
Gated communities/flats	To segregate at source, create systems to treat wet waste at source, channelize dry waste to recyclers, only inert and non-recyclable waste to be collected from these areas by Municipality or Town Councils
Star hotel or equivalent hotel	To segregate at source, compulsorily create systems to treat wet waste at source, channelize dry waste to recyclers, only inert and non-recyclable waste to be collected from these areas by Municipality or Town Councils
Eating joints, Restaurants, Cafes, Sweet Shop, Coffee House, etc. generating >20 kg of waste/day	To segregate at source, wherever possible, create systems to treat wet waste at source, channelize dry waste to recyclers, only inert and non-recyclable waste to be collected from these areas by Municipality or Town Councils
Restaurant, Guest Houses, Hostel etc.	To segregate at source, create systems to treat wet waste at source, channelize dry waste to recyclers, only inert and non-recyclable waste to be collected from these areas by Municipality or Town Councils



Continued

Street Vendor	
a) Without structure (roadside)	To segregate waste into wet and dry and transfer the waste every day to the nearest municipal litter bin or in a collection vehicle designated by the Municipality or Town Councils.
a) With structure	
Commercial offices, Government offices, Banks, Insurance offices, Coaching Classes, Educational Institutions per unit.	To segregate at source, push for decentralized treatment composting/ biomethanisation, channelize dry waste to recyclers, only inert and non-recyclable waste to be collected from these areas by Municipality or Town Councils.
Meat, Fish and Poultry Shops	Slaughter waste from meat, poultry and fish shops shall be stored separately in a bin and transferred every day to the nearest municipal litter bin or in a collection vehicle designated by the Municipality or Town Councils.
Other shops	To segregate waste into wet and dry and transfer the waste every day to the nearest municipal litter bin or in a collection vehicle designated by the Municipality or Town Councils.



Decentralised Waste Management

- Reduce burden of handling large volumes of waste
- Reduction of cost of transportation
- Allow for lower level of mechanization than the centralized solution
- Provide job opportunities for the informal workers and small entrepreneurs.
- Can be tailor made for the local waste stream, climate, social and economic condition.



Channelisation of Recyclables

- Recycling facilities of plastic/paper to optimal point to attain economic scale
- Collection of E-waste to collection centre/ dismantling facility through EPR
- Low volume waste(glass/metal) allowed to be exported for recycling
- Import and Export Policy
 - Import waste for recycling/ recovery only
 - Export waste for recycling with low volume waste through EPR



Disposal of only Inert Fraction

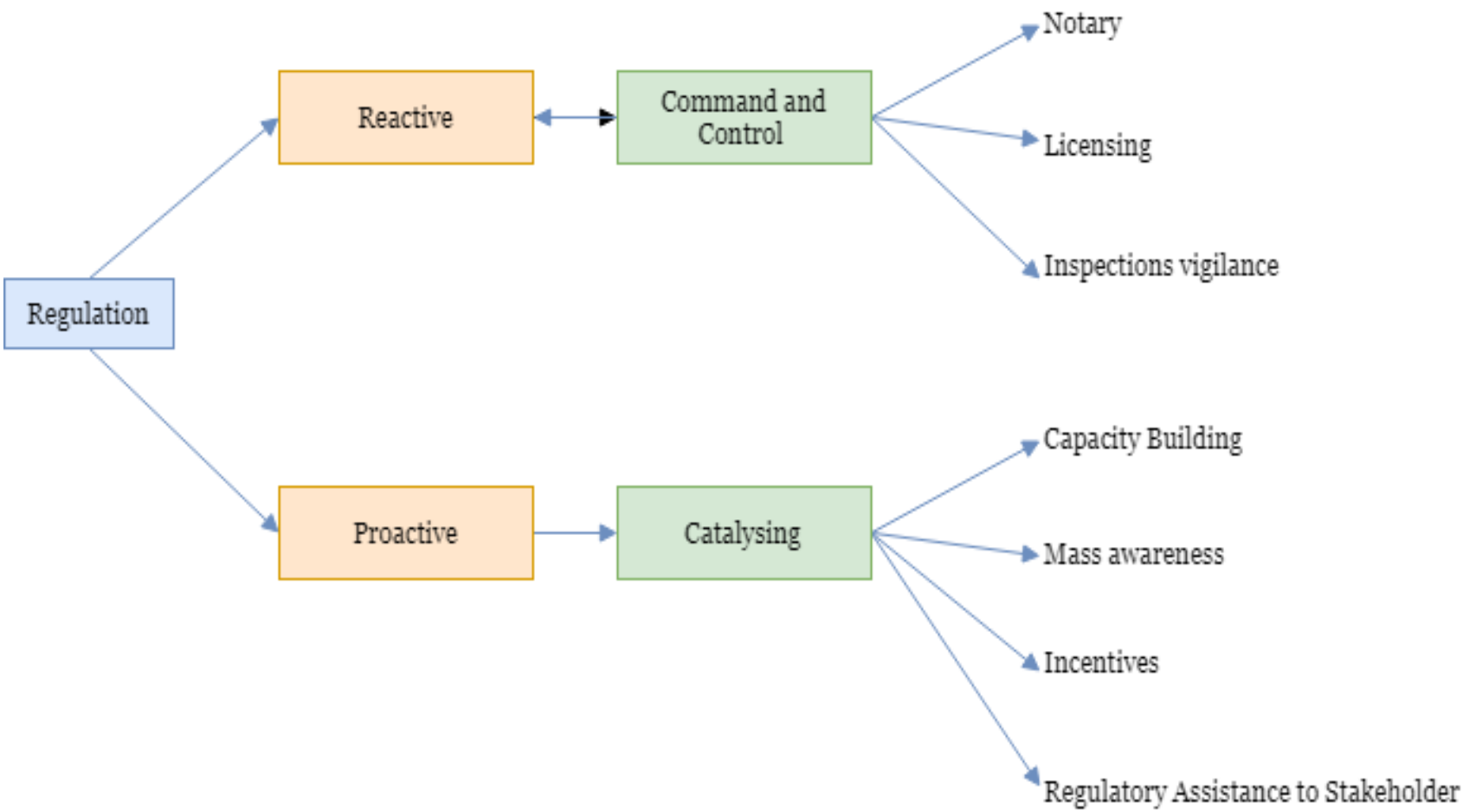
- Disposal of Inert Waste to Engineered Landfill
- No Waste Dumping
- Avoid Waste to Energy Plant
- Impose User Fee and Penalties



PROPOSED REGULATORY FRAMEWORK FOR INTEGRATED WASTE MANAGEMENT



REGULATORY APPROACH FOR WASTE MANAGEMENT





WASTE SPECIFIC OR INTEGRATED WASTE MANAGEMENT THREE FACTORS THAT GOVERN THE TYPE OF LEGISLATION

- Level of Urbanisation
- Level of Industrialation
- Level of Capacity in terms of Economy, technology and Manpower



SITUATION ANALYSIS

CASE 1- Countries with Higher Level of Urbanisation, Industrialisation and higher level of capacity in terms of economy, technology and manpower

- Waste of such countries are complex
- Higher quality waste is generated in each type of waste such as hazardous waste, biomedical waste, E-waste, Plastic waste, Municipal Waste etc.
- Technical and economical capacity IS High



WASTE SPECIFIC LEGISLATION TO BE PREFERRED



PREFERED WASTE SPECIFIC LEGISLATION

S no.	Type of waste	Legislation
1	Municipal waste	Municipal solid waste management and handling legislation
2	Hospital waste or waste from health care facilities	Biomedical waste management and handling legislation
3	Plastic waste	Plastic manufacture, sale and usage legislation
4	Hazardous waste	Hazardous waste management, handling trans-boundary rules
5	Batteries waste	Batteries management handling rules
6	E-waste	Electronic and electrical waste management and handling rule



SITUATION ANALYSIS (Continued)

Case 2- Countries with moderate higher level urbanisation but low level of Industrialisation and techno-economic capability.

**Preference
Integrated Waste
Management
Legislation**

- MSW is predominant
- Plastic and biomedical waste moderate
- Other waste low in volume



INTEGRATED WASTE LEGISLATION TO BE PREFERRED



SITUATION ANALYSIS (Continued)

Case 3- Countries with low level of urbanisation and industrialisation and techno-economic capability



Integrated Waste Management Legislation



APPROACH TOWARDS STRUCTURE OF REGULATION

- **Identification of Stakeholders**
- **Duties And Responsibilities of Stakeholders**
- **Legal Provisions**
- **Import And Export of Waste**
- **Funds/Budget**



WASTE SPECIFIC STAKEHOLDER AND THEIR DEGREE OF PARTICIPATION

Waste	Municipal Waste	Plastic Waste	Biomedical Waste	E- Waste	Hazardous Waste	Battery Waste
Stake holder						
Individual household	+++	++	+	+	-	+
Bulk Consumer						
- Heath Facilities	+	++	+++	++	+	+
- Offices/ Banks	++	++	-	++	-	+
- Institutions	++	++	-	++	-	+
- Commercial establishments	+++	++	-	+	-	+
- Hotels	+++	+++	-	++	-	+
- Restaurants and Eateries	+++	+++	-	+	-	-
Dealer						
- Medicine	-	-	++	-	-	-
- Plastic Packaging	-	++	-	-	-	-
- EE Equipments	-	-	-	++	-	-
- Battery Waste	-	-	-	-	-	++
Retailer						
- Medicine	-	-	+	-	-	-
- EE equipments	-	-	-	+	-	-
- Battery	-	-	-	-	-	+
Recycler	++	+++	+	++	+	++
Facilitator	+++	++	+++	+++	+++	-
Industry	+	++	+	+++	+++	++
Regulator						
- Federal	+	+	++	++	+++	+++
- Local	+++	+++	+++	++	+++	+
Informal Sector	+++	+++	+	++	-	+



BROAD CLASSIFICATION OF STAKEHOLDER

- **Waste Generator**
- **Regulator**
- **Facilitator**



Three Tier Regulation

■ **At Federal Level**

- National Advisory Council- Policy, planning, Inter-ministerial coordination, budget and funding.
- National Environmental Management Agency- Development norms, guidelines, notification, data collection(National inventory) and evaluation, appellate.

■ **At Provincial/ Regional/ District Level**

- Authorisation and inspection of common facility
- Empowered for direction, legal action including fine.



Three Tier Regulation(continued)

- **At Local Level- Local Authority**
 - Collection of municipal waste including C&D waste
 - Management of decentralised facility
 - Facilitating recycler/ dismantler
 - Framing bye-laws



GENERAL STRUCTURE OF THE REGULATION

- Preliminary- Short title, extent and commencement definition
- Responsibilities and duties of the waste generators
- Duties and Responsibilities of the facilitators
- Duties and Responsibilities of regulators
- Import and Export of waste
- Funds/ Budget
- Legal Provisions



Duties and Responsibilities of FACILITATOR

S.No.	Facilitator	Duties/Responsibilities
1.	Composting plant	Establish the plant at designated place as per the directions of local bodies/town council
2.	Plastic Waste	Get authorisation from district authorities
3.	Dismantler of waste	Get authorisation from district authorities
4.	Common biomedical waste facility	Get authorisation from NEMA as per the protocols of the Ministry of Health
5.	Import/Export of waste	Get authorisation from NEMA



Thank You