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Solid Waste Recycling in India

by

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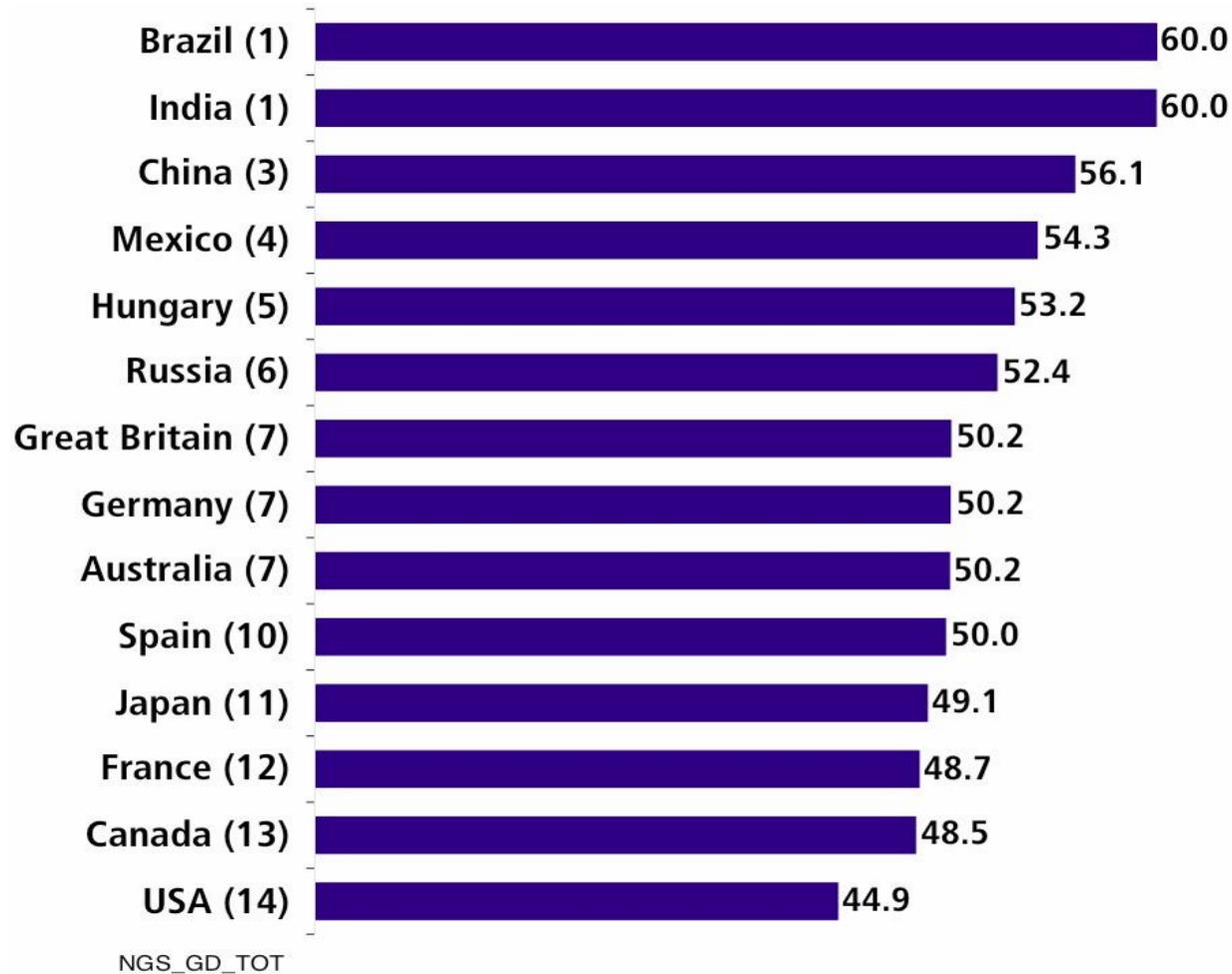
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- **Recycling is critical for reducing the environmental pressures.**
- **India has a significantly higher rate of recycling in MSW compared to major developed countries:**
 1. USA – 30%
 2. Germany- 47.3%
 3. Japan- 53%
 4. India-70%
- **Figures indicate average rate of recycling, excluding re-use.**
- **The GHG Emissions intensity from waste generation is**
 1. USA-23
 2. UK -10
 3. Germany -8
 4. India-4



Overall Sustainability Index: Greendex





Projections: Waste Generation

- In 1951 only 17.3% of the population was urban i.e. only 62 million.
- By 2021 it will be over 41% with over 550 million people.
- Per capita waste generation increasing by 1.3% per annum.
- With urban population increasing between 3– 3.5% per annum, yearly increase in waste generation is around 5% annually.
- India produced 69 million tons of MSW annually in 2006 (NAPCC).
- Collection efficiency ranges between 50% to 90% of the solid waste generated.



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•Urban Local Bodies spend around Rs.500/- to Rs.1500/- per ton on solid waste management

- of this 60- 70% is on collection ,
- 20%- 30% on transportation
- minimal on treatment and disposal of waste.

•Typical composition of MSW:

- Compostable/ Bio-degradable 30%- 55% ;
- Inert materials 40% - 45%
- Recyclable materials 5% - 10%



Present Status of Waste Management

- **Primary collection, storage and segregation at source needs to be streamlined**
- **Regulatory framework needs to be enforced to avoid**
 - domestic / trade waste being thrown on streets
 - construction debris left unattended
 - bio-medical waste disposed in municipal waste stream
 - industrial waste disposed off in open area
- **Waste transportation done in open vehicles**
- **Design & location of municipal waste storage depots inappropriate**
- **Street sweeping not done regularly**
- **Waste processing partially practiced in 35 ULBs only**
- **Rag pickers collect recyclables from municipal bins/ dumpsites and litter the waste all over**



Reasons for Improper Management

- Inadequate planning for waste management while planning townships
- Proper institutional set up for waste management, planning and designing in urban local bodies
- Technically trained manpower
- Community involvement and awareness creation mechanism
- Expertise and exposure to city waste management using modern techniques/ best practices
- Indifferent attitude of ULBs to levy user charges and sustainability
- Possible Waste Management Option

Waste Minimization

Waste Processing (Resource Recovery)

Sanitary Land filling

Material Recycling

Waste Transformation



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Initiatives by Government of India

- **Bio-Medical Waste Handling Rules, 1998 Notified**
- **Municipal Solid Waste Management Rules, 2000 Notified.**
- **Reforms Agenda (Fiscal, Institutional, Legal)**
- **Technical Manual on Municipal Solid Waste Management**
- **Technology Advisory Group on Municipal Solid Waste Management**
- **Inter-Ministerial Task Force on Integrated Plant**
- **Nutrient Management from city compost.**



Main Issues

- **Absence of segregation of waste at source**
- **Lack of technical expertise and appropriate institutional arrangement**
- **Unwillingness of ULBs to introduce proper collection, segregation, transportation and treatment/ disposal systems**
- **Indifferent attitude of citizens towards waste management due to lack of awareness**
- **Lack of community participation towards waste management and hygienic conditions**
- **Lack of funds with ULBs**



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Recommendations

- **Outsourcing of all activities under Solid Waste Management Services recommended by 12th Finance Commission for using grants**
- **ULBs to concentrate on segregation of waste at source**
- **Waste processing like composting, bio-methanation should be done through public-private partnerships/ private sector**
- **Final disposal viz. sanitary land filling to be done under public private partnerships/ private sector**
- **Bio-medical waste to be managed by Central Bio-Medical Waste Management Facilities.**



THANK YOU