



MSWM sector in India..... learnings from GIZ experience

Vaishali Nandan

Senior Advisor

GIZ



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- ❑ Our mandate is to support the German Government in achieving its development objectives.
- ❑ We provide viable, forward-looking solutions for political, economic, ecological and social development in a globalised world.
- ❑ GIZ has operations in 130 countries.
- ❑ We support the Government of India in the fields of Environment, Energy and Sustainable Development.



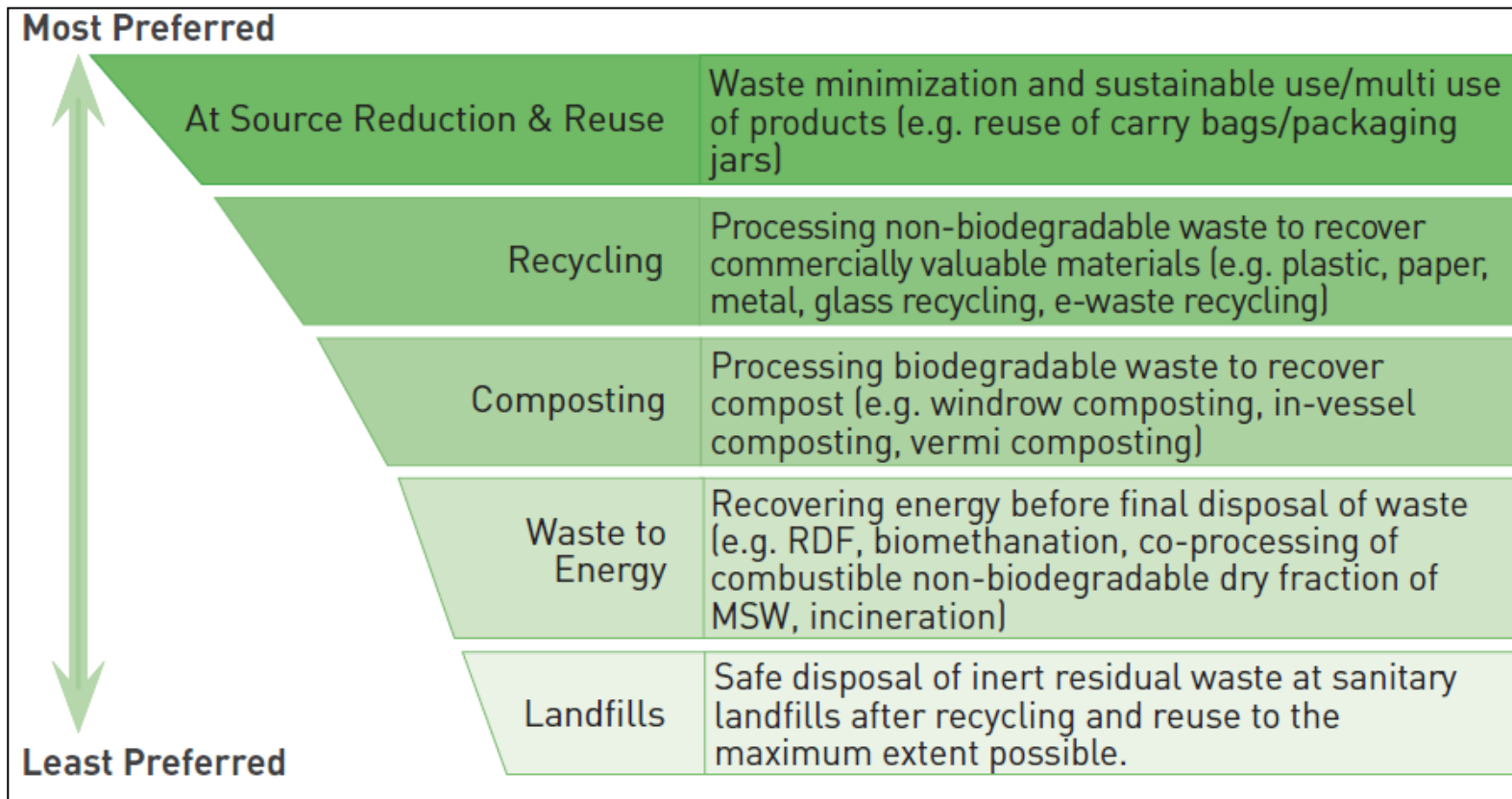


Experience of GIZ in MSW sector



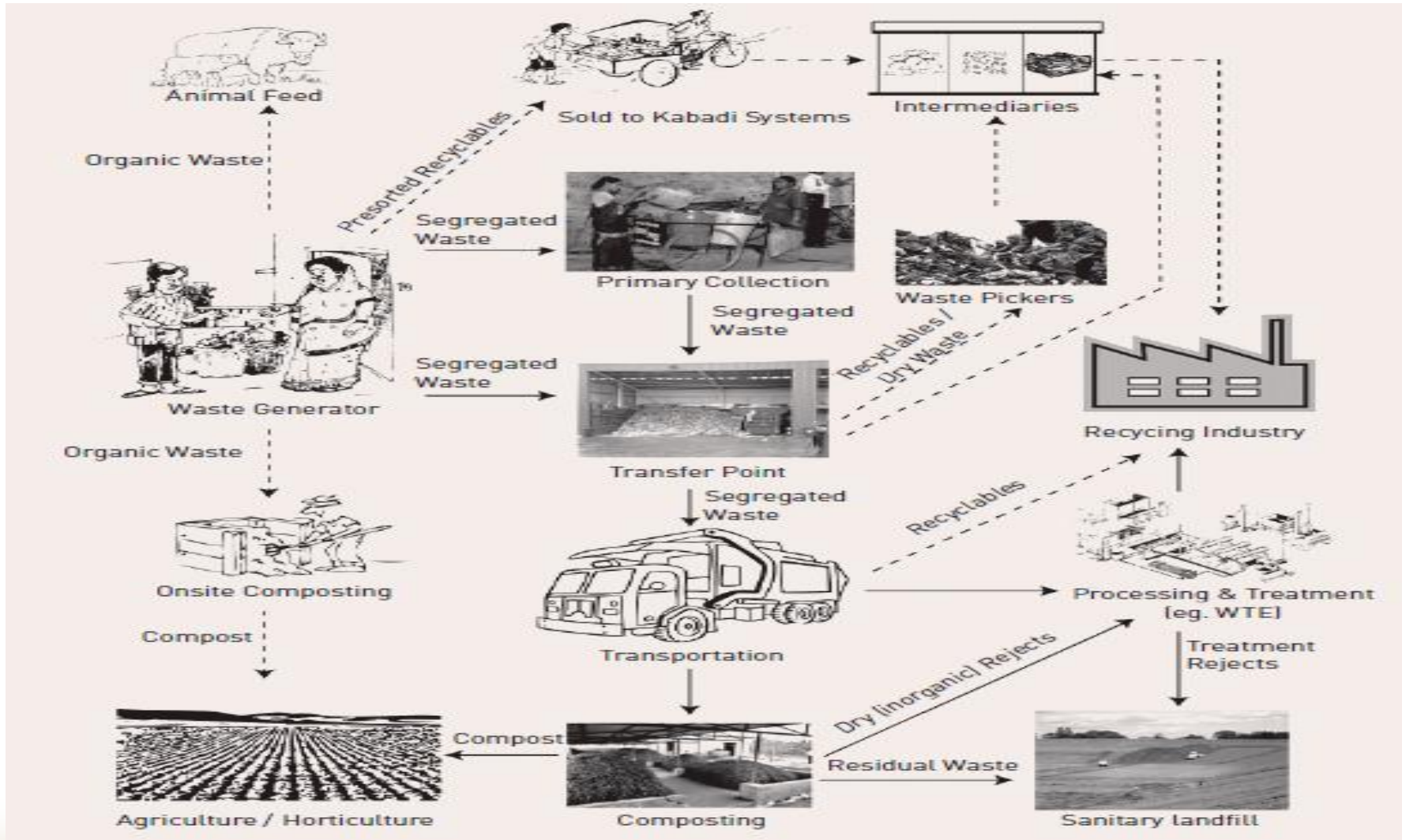


Indian Solid Waste Management Hierarchy



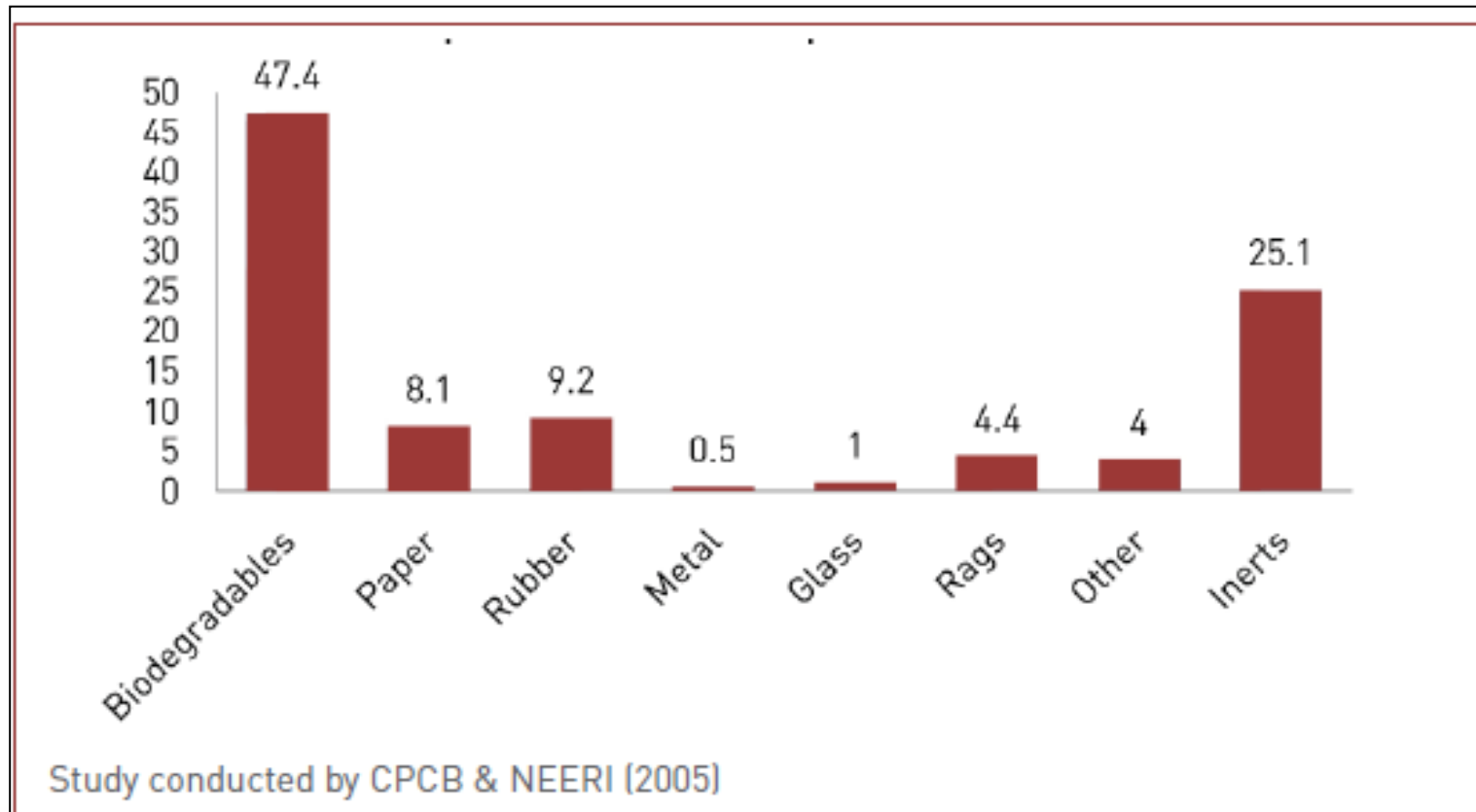


Different forms of Material Recovery in India





Typical Composition of MSW





Common Technologies in India

Composting: windrow and vermi-composting

- **Why?** Soil is carbon deficient, so burning of biomass in fields is preferred to put back the carbon in the soil
- **Regulation:** MSWM Rules; Fertilizer Control Order (FCO) 2009 & 2013
- **Product:** sale of compost to fertilizer plants – ratio of 1:3 bags

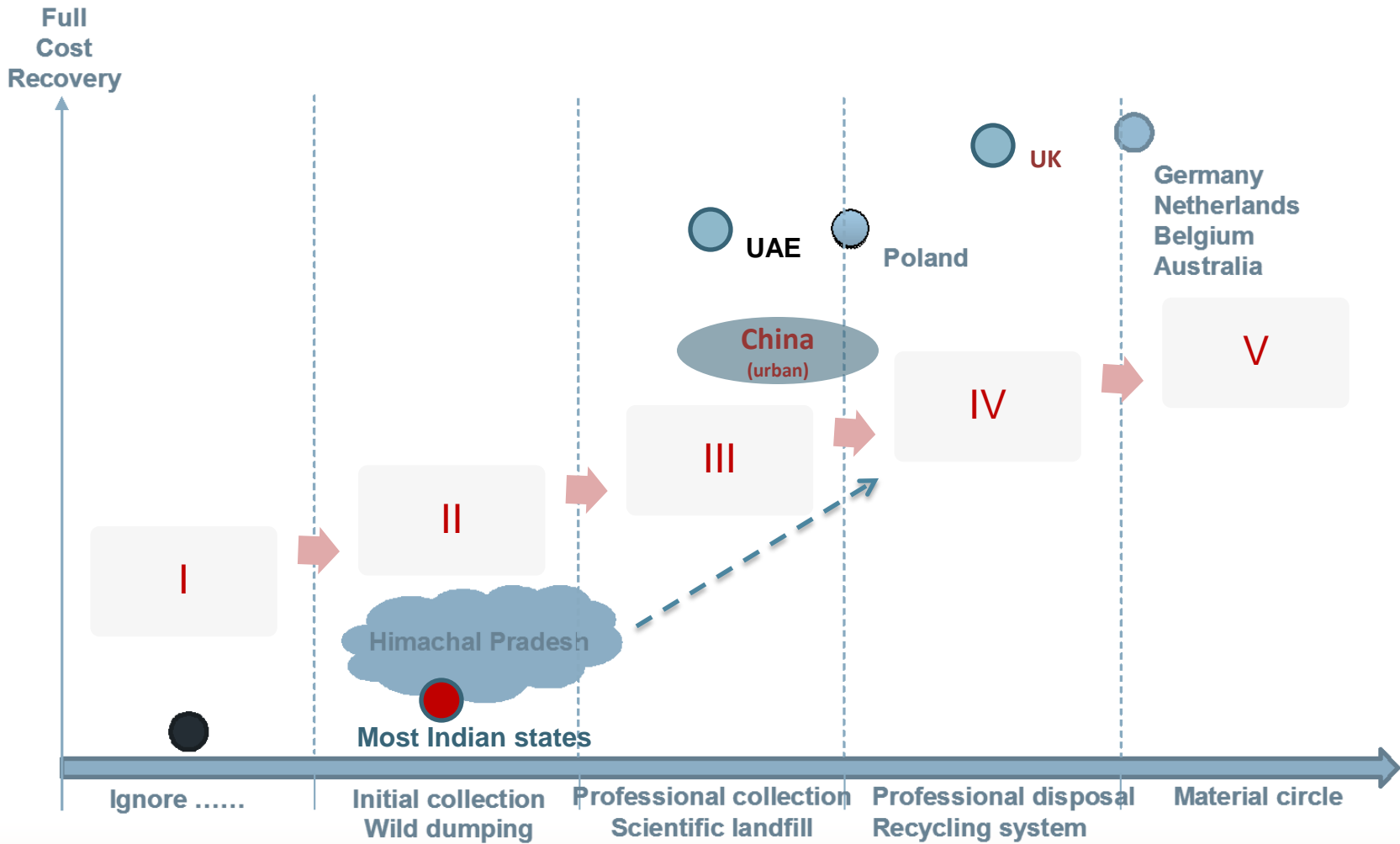
Waste to Energy:

- **Bio-methanation** – organic waste
- **Refuse Derived Fuel:** raw, fluff, pellets- co-processing in Cement industry/ power plants; emission norms-EU standards
- **Incineration**– Emission standards EU norms, subsidy for power purchase announced by Ministry of Power announced recently

Sanitary Landfilling



Five phase model for MSWM: Position of India





RECYCLING STATION

No Mixed Items
Only Pre-sorted Non-Biodegradable Items that are recyclable

- 1
- 2
- 3
- 4
- 5
- 6
- 7









Ground reality in most ULBs

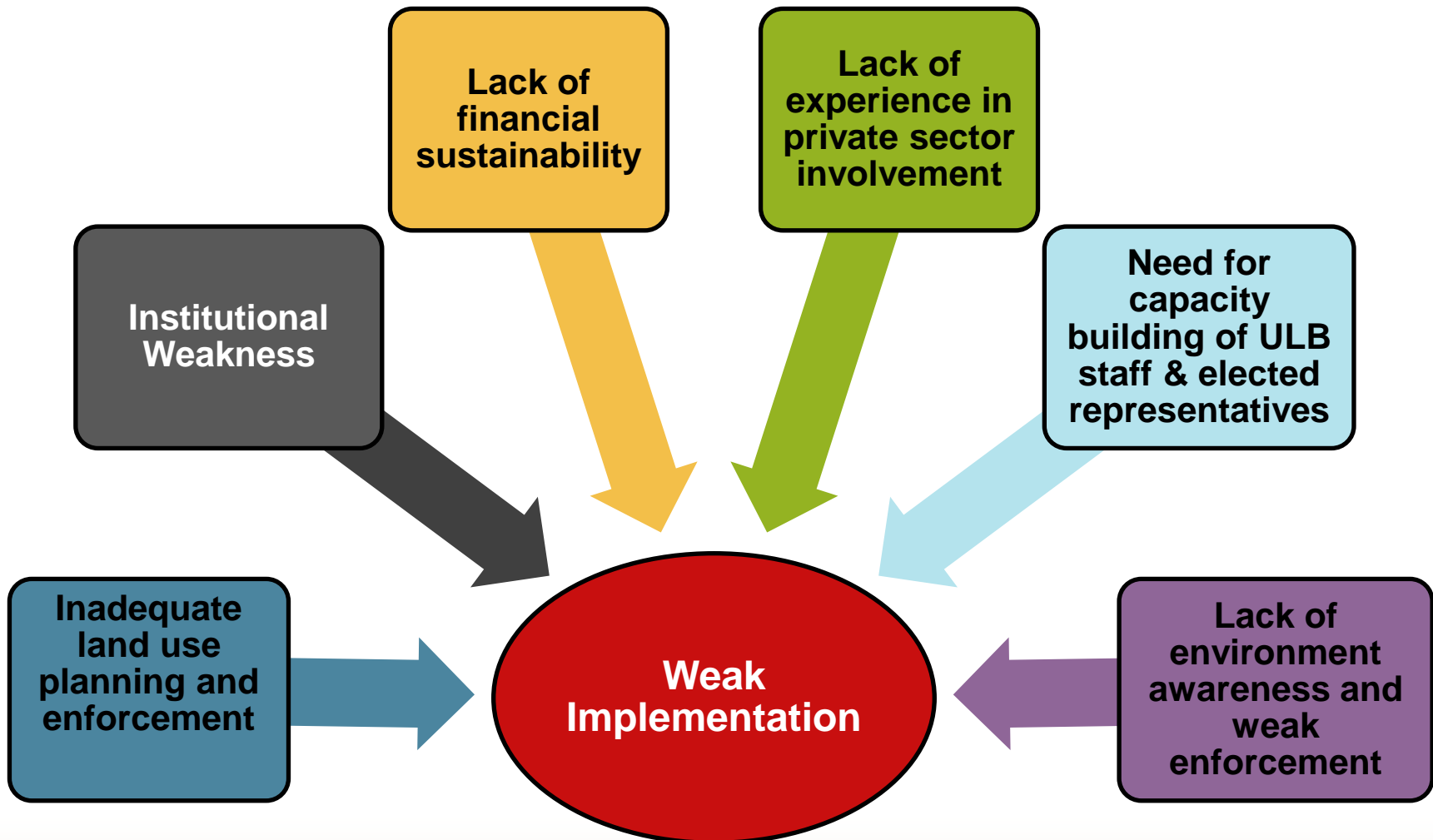
ULB's need more qualified staff to manage complex change processes!



Solid Waste Management, Water Supply, Sewerage, Storm water drainage, Transportation, Health, Double Accounting etc.....



Reasons for Weak Implementation





Gaps/ Opportunities?

Requirement of good, working examples of proper management of municipal waste – for entire chain, in every state – PPP mode

Equipment - tested and proven in Indian conditions, locally available O&M for adoption in India eg. vehicles - transportation and street sweeping, collection equipment, machinery...

Skill/ Training requirements

- **State:** Technical and Monitoring skills
- **ULB:** Technical, Managerial and functionary skills eg. contract management

Data generation and Monitoring - Equipment and mechanisms



Gaps/ Opportunities?

Consultants and Private Players - tie ups

- proper planning at state & city levels
- DPR preparation
- Provision and monitoring of services

Technical institutes, Universities – tie ups

- Ensure availability of locally Trained Technical Personnel in MSWM
- Need for research in the field of MSW

Extended Producer Responsibility initiatives



PM Narendra Modi during a surprise visit to the Mandir Marg police station in New Delhi, Thursday. PTI



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Schemes of GoI:

- Swachh Bharat Mission
(all 4041 cities)
- Smart Cities Program
(100 cities)
- Heritage Cities Mission
(12-15 cities)



Thank You

vaishali.nandan@giz.de