



सत्यमेव जयते

Government Of India

Indian Experience on 3R (Recycle, Reduce & Reuse)

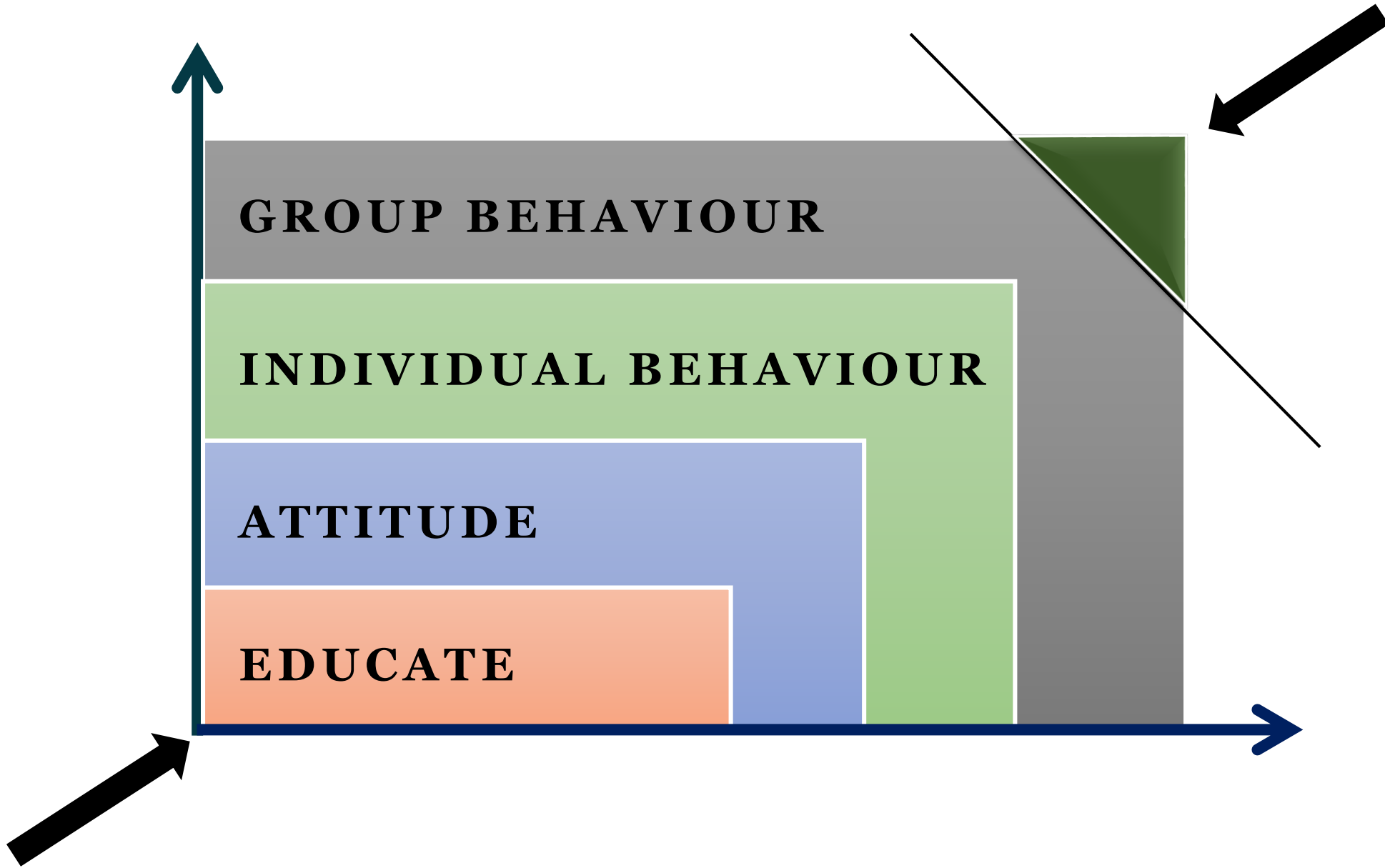
Mr. Rohit Kumar
Joint Secretary (Policy & IT)
Ministry of Rural Development
Government of India
Email: jsppm-mord@gov.in

You cannot protect the environment unless you empower people,
you inform them, and you help them understand that these
resources are their own, that they must protect them

- **Policy, Plan, Strategy, Technology, Law,**
enforcement: fine
- **But, more importantly:** to make the people at
large realise, it is a problem, it is **their problem**
& they have to resolve this
- **Effective IEC**
- **“Mass Movement”**

***Wangari Maathai:**
recipient of Nobel Prize
on 2004 for “sustainable
development,
democracy and peace”*

Behavioral Matrix





Mass Movement like Swachh Bharat Mission (SBM): led by Hon'ble PM himself: SBM Rural (> 65% of population)*

No of Toilets Built

**92.3 mn
(98%)**

Since 2nd Oct 2014

No of ODF Districts

605

No of ODF Villages

554 K



**Solid Waste Management:
In more than thousands of villages..**



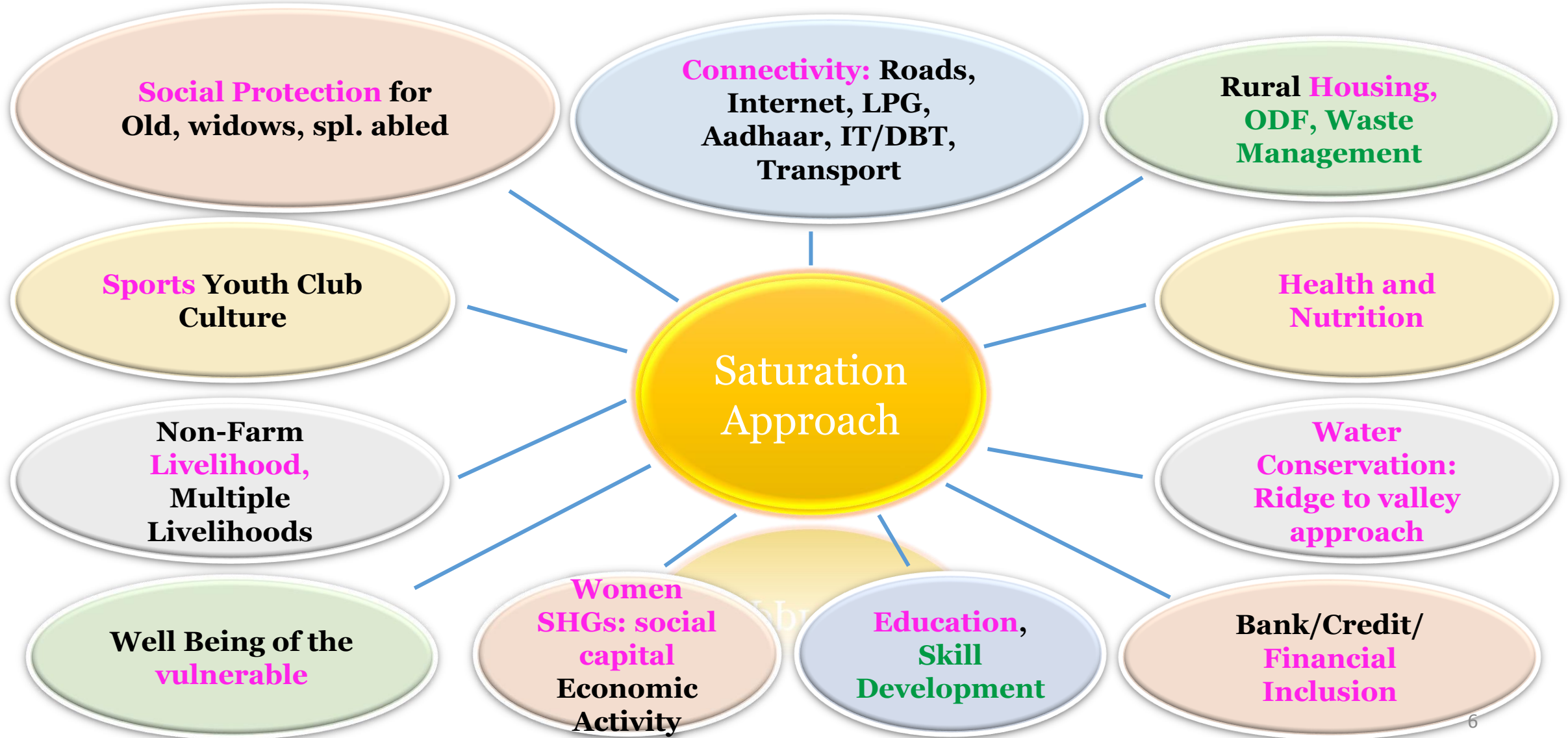
*Source: <http://sbm.gov.in/sbmReport/home.aspx>

3 “Rs” and SDGs

- **3 R is just not about Reduce, Recycle & Reuse of waste**
- **But, it is also of Governance issues: keeping in view of the resource constraint**
- **linked to address 1st the basic needs of the rural people, which is the priority from common man’s perspective...as compared to 3 “Rs”**
- **i. e. to address the Rural Poverty**
- **3 Rs: Reduce Poverty, Reduce Inefficiency, Reduce wastage of Resources**

“R” Reduce Poverty: Multidimensional Poverty

No more just the income criterion





“R”educe Inefficiency: Good Governance Framework



Ensure collaborative, transparent and timely delivery of public services towards better outcomes from the implementation of its programmes

Service Enablers

1

Fourteenth Finance Commission Grants

2

Co-operative Federalism

3

Convergence of resources at the cutting edge level with the Panchayati Raj Institutions (PRIs) as the fundamental institution

4

Evidence based intervention through SECC 2011
(<https://secc.gov.in/reportlistContent>)

5

Accountability through use of:

Information Technology

Remote Sensing

Social Audit



“R”educe wastage of resources: Evidence based Planning: GAP Analysis



Mission Antyodaya Program – Gap Analysis - *Planning through GPDP/Convergence of resources*

Sector wise gaps in villages/ Gram Panchayats

Ministry of Panchayati Raj
Gram Panchayat Development Plan
STATE: ANDHRA PRADESH > DISTRICT: CHITTOOR > DEVELOPMENT BLOCK: SRIKALAHASTI
GRAM PANCHAYAT: KODANDARAMAPURAM [197780]

पंचायती राज

Villages: Subbanaidu -Khandriga [595869]

Domain	Parameter Description	Village Status	GP Status	Strength	Moderate Gap	Critical Gap	Suggestions
Health and Sanitation	Is the village Open Defecation Free	Yes	Yes				Build and use toilet. Gram Sabha should penalise those who make GP unclean.
	Community Waste Disposal System	Yes	Yes				MGNREGA can be used to create waste disposal system.
	Availability of Community bio gas or recycle of waste for production use	Yes	Yes				
	Availability of drainage facilities	Closed Drainage	Closed Drainage				Village drain planning. MGNREGA can be used .
	Availability of PHC/CHC Sub Centre	Sub Centre	Sub Centre				
Agriculture, allied and livelihood	Availability of Veterinary Clinic Hospital	No	No				
	Availability of Govt. Seed Centre	No	No				
	% households engaged exclusively in Non-Farm activities	52	52.00				Contact the Block Mission Manager, National Rural Livelihood Mission of your state
Housing	Availability of markets	Weekly Haat	Weekly Haat				Farmer groups can be created to build access to markets.
	% of household with kuccha wall and kuccha roof	4.00	4.00				Check the waiting list for PMAY-G.
Land Improvement	% of Area irrigated	20.00	20.00				Call Kisan call centre 1800-180-1551.
	Availability of soil testing centres	No	No				Anyone from the village can open soil testing centre.
	Availability of Fertiliser Shop	No	No				
Animal Husbandry	% of households supported by village based Livestock Extension Workers	8.00	8.00				Call agriculture helpline 1094 for details
Drinking Water	Availability of Piped tap water	100% habitations covered	100% habitations covered				
Roads	Whether the village is connected to All weather road	Yes	Yes				
	Whether village has an internal c/c/ brick road	Yes	Yes				MGNREGA can be used to create internal c/c/brick road.

Health and Sanitation	Community waste disposal System	Yes	Yes				MGNREGA can be used to create waste disposal system.
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Roads	Whether the village is connected to All weather road	Yes	Yes				
	Whether village has an internal c/c/ brick road	Yes	Yes				MGNREGA can be used to create internal c/c/brick road.
Rural Electrification	Availability of Public Transport	Auto	Auto				
Non-conventional energy	Availability of electricity for domestic use	>12 hrs	>12 hrs				Renewable electricity equipments can be used at subsidized rates.
	% of Household using clean energy (LPG/Bio gas)	36.00	36.00				
Poverty alleviation programme	% of households mobilized into SHGs	8.40	8.40				Contact the Block Mission Manager, National Rural Livelihood Mission of your state.
	% of SHGs accessed bank loans	21	21				Contact the Block Mission Manager, National Rural Livelihood Mission of your state.



Ministry of Panchayati Raj
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Poverty alleviation programme	% of households mobilized into Producer Groups (PGs)	8.40	8.40			Contact the Block Mission Manager, National Rural Livelihood Mission of your state.
	% of households supported by village based Agricultural Extension Workers	32.00	32.00			Call agriculture helpline 1094 for details
	% of SHGs Promoted	21	21			
Vocational education	Availability of Vocational Educational Centre	Yes	Yes			Contact the District Magistrate.
Women & Child Development	Availability of Anganwadi Centre	Yes	Yes			Register and send children to Anganwadi.
	% of children aged 0-3 years registered under Anganwadi	100.00	100.00			
Social Welfare	% of children aged 0-3 years immunised	100.00	100.00			
	% of children categorized as Non-Starteds as per ICDS record	13.51	13.51			Take your child to Village Health and Nutrition Day.
	Availability of Post Office	Yes	Yes			
Public Distribution System	Telephone Services	Mobile	Mobile			
	Availability of Internet Cafe/Common Service Centre	No	No			Anyone from the village can open the internet cafe/common service centre.
	Availability of Banks	Yes	Yes			
	Availability of ATM	No	No			
Education	Availability of School	Primary School	Primary School			
Public Distribution System	Availability of Public Distribution System (PDS)	Yes	Yes			

Priority Areas: Guaranteed Rural Employment, **NRM**



Thrust on *sustainable livelihoods* through durable assets in **Mahatma Gandhi NREGA**

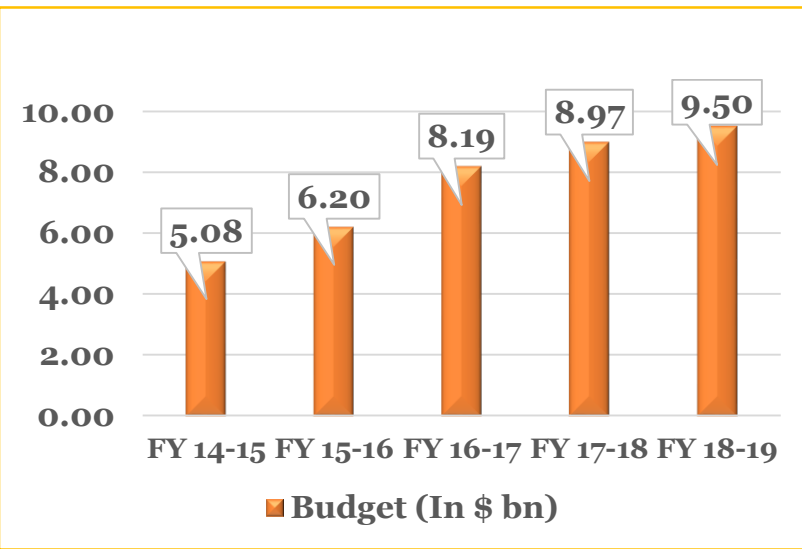


Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

Focus on Public works related to NRM

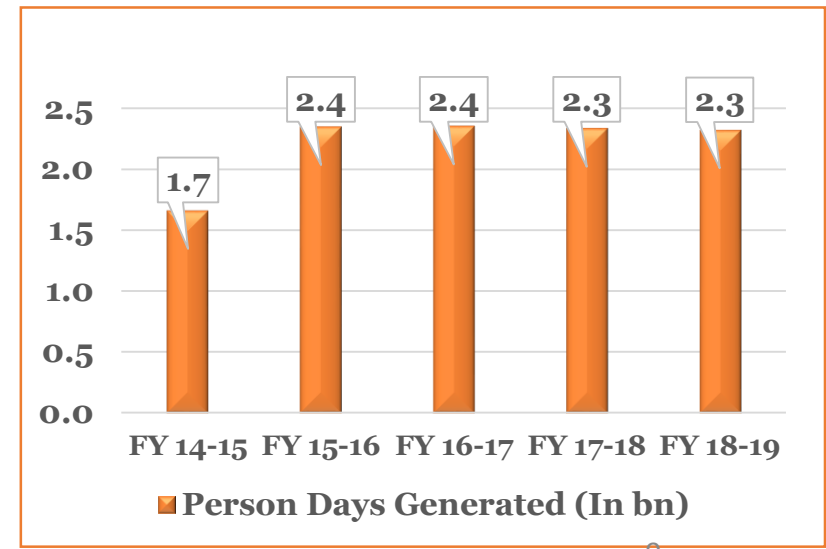
Community /individual assets

Infrastructure including for Self help Groups



Total persondays generated (since inception)
27.66 billion

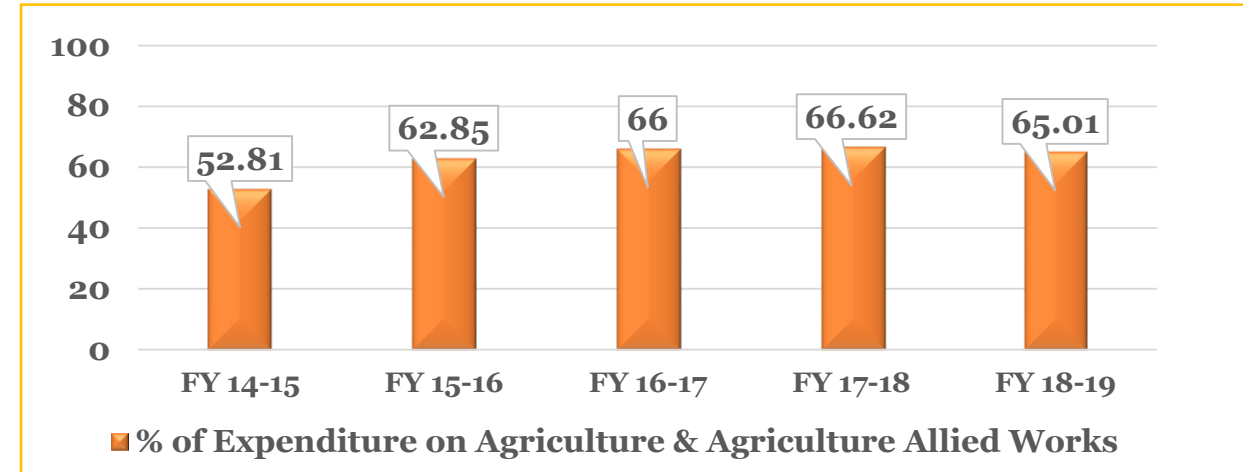
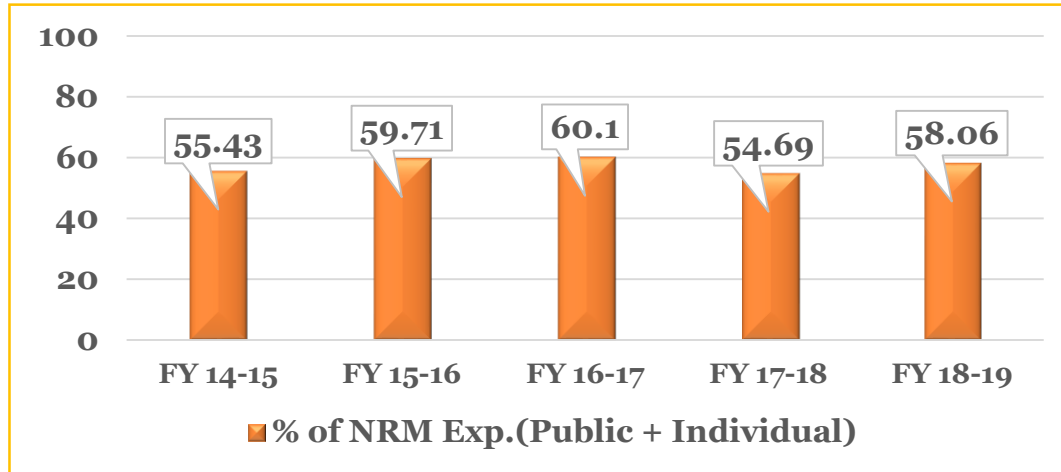
Total Expenditure (since inception)
\$71.45 billion



All works: leading to NRM & SDGs



Expenditure on **Natural Resource Management (NRM)** works under Mahatma Gandhi NREGA



“R” : Reduce leakages - Direct Benefit Transfer (DBT)*

Total DBT
(Cumulative)#

\$ 88.74 Billion

Total DBT
(FY 2018-19)#

\$ 36.1 Billion

No of Schemes#

439

Estimated Gains#

\$ 15.49 Billion

*Source : <https://dbtbharat.gov.in/>

#Data as on : 28.02.2019

All leading to SDGs..



Gram Swaraj Abhiyan (GSA)

Achievements → 14th Apr – 5th May 2018



Extended Gram Swaraj Abhiyan (EGSA)

Achievements → 1st June – 15th August 2018

#	Scheme	GSA	EGSA	Description
1	PM Ujjawala Yojana	0.81 mn	4.06 mn	Total Gas Connections Issued → “Reduce” deforestation
2	PM Sahaj Bijli Har Ghar Yojana - Saubhagya	1.02 mn	2.28 mn	Households Electrified
3	“Ujaalaa” : LEDs for All	2.3 mn	4.29 mn	No of LED Bulbs

Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)



Reduce poverty through promotion of diversified and gainful self employment and skilled wage employment opportunities resulting in appreciable increase in incomes of rural poor

B.E.
(2018-2019)

Total No of SHGs
promoted

Total no of Women
Members engaged

Outstanding loans
(RF + CIF)

Community Cadre
Trained

\$ 821 mn

5.05 mn

59.3 mn

\$ 1.09 bn

0.2 mn

Interventions



Greening the Rural Roads

Use of locally available materials and use of **New/Green Technologies** for construction of road under Pradhan Mantri Gram Sadak Yojana (PMGSY)

Road length Sanctioned (in Kms.)

35.92 K

Road length completed using New Technologies (In Kms.)

22.98 K

Key Technologies Used

Total = 41

Cement stabilization

Lime stabilization

Cold Mix

Waste plastics

Cell filled concrete

Fly ash

Paneled cement concrete pavement

Success Story

The Better India

Nagpur – 1st Indian City to treat, reuse 90% of Sewage

- ❑ Three years ago the Nagpur Municipal Corporation began **treating and reusing 130 million litres per day (MLD)**.
- ❑ Today, it is on the **cusp of treating 480 out of the total 525 MLD** the city generates
- ❑ it will become the **first city in India to recycle more than 90% of the sewage water generated** by its residents and businesses
- ❑ It has already received a **commitment from the government-run National Thermal Power Corporation (NTPC) to procure 150 million litres per day (MLD)** of treated sewage water
- ❑ **Maharashtra State Power Generation Company Limited (Mahagenco)** intends to **procure 190 million litres per day** of treated sewage water for its thermal power stations

Success Story

Surat Municipal Corporation

Solid Waste Management

#	Component	Features
1	Door to Door Garbage Collection System	<ul style="list-style-type: none"> >1.2 mn Households covered into Door to Door segregated garbage Collection All Vehicles deployed in garbage collection are equipped with the Vehicle Tracking System
2	Vehicle Tracking System	<ul style="list-style-type: none"> Radio Frequency Identification Tag (RFID) is installed on all Door to Door vehicles
3	Material Recovery Facility Centre	<ul style="list-style-type: none"> Centre Dry waste is segregated into Plastic Waste, Glass, Cardboard & Paper, Rubber, C&D Waste, Industrial Waste, E-Waste, Toys and other dry waste There are 7 MRF centres are functioning and 1 MRF centre is under process
4	Organic Waste Management	<ul style="list-style-type: none"> 1 Mobitrash has started their operation for onsite composting from residential area in Surat City 1 TPD organic waste processing plant has been started at Anjana transfer station 50 TPD Bio Gas production installed at APMC market. On site composting is being implemented in 22 public gardens
5	Bio-Gas Plant	<ul style="list-style-type: none"> Installation of Bio-Gas Plant at APMC market on PPP model for processing of organic waste Total Capacity: 50 mt/Day
6	Container Free City	<ul style="list-style-type: none"> SMC eliminate 1086 containers throughout the city Total 132 Driver-Cleaners, 325 Sanitation Workers remain free from the Container lifting activity, are engaged in other health activities
7	Smart Underground Waste Collection System	<ul style="list-style-type: none"> 75 container spots which will be upgraded with smart underground waste bin is proposed under the Smart City Mission in Area Based Development (ABD) projects with capital cost of \$.4.5 bn It includes automatic emptying of underground dustbins and their cleaning With the Smart Underground Waste Collection System, sensor based alerts are received at SMAC Centre for timely emptying of all containers

Cleanliness Is Next to Godliness

Mahatma Gandhi

Thank You



Swachh Bharat Mission (Urban): Taking forward the mandate of 3R and Solid Waste Management in India

**Ninth Regional 3R Forum in Asia and Pacific
4th -6th March 2019, Bangkok, Thailand**

Presentation By:

Binay Jha

Director-Swachh Bharat Mission (Urban)

Swachh Bharat Mission (Urban)

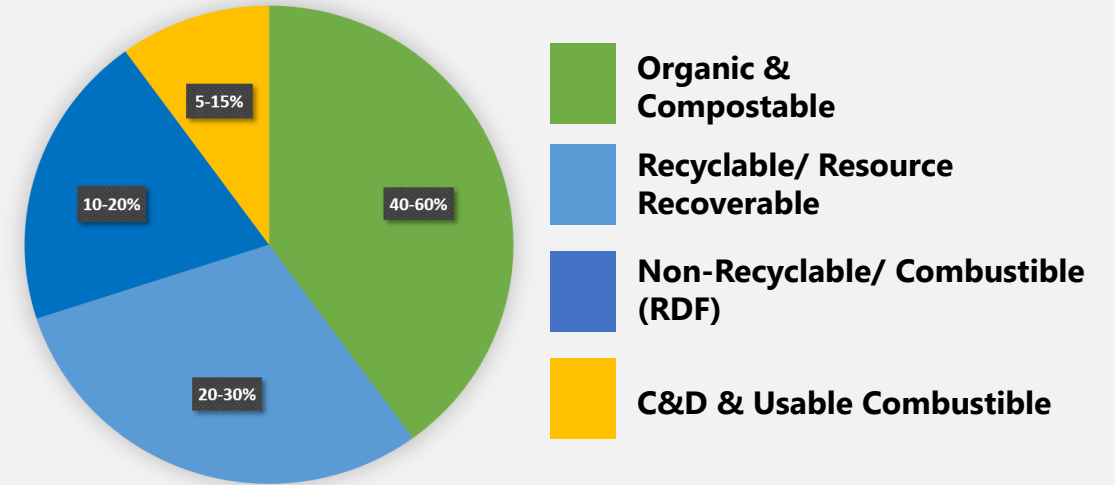
Key Objectives

- 1 **Eradication of Open Defecation in all Statutory towns**
- 2 **100% Scientific Solid Waste Management in all Statutory towns**


Estimated cost of implementation: USD 10 Billion

Amount of Waste Generated | 1.46 lakh Tonnes per day

Composition of Municipal Solid Waste in India



Achievements in Solid Waste Management under the mission

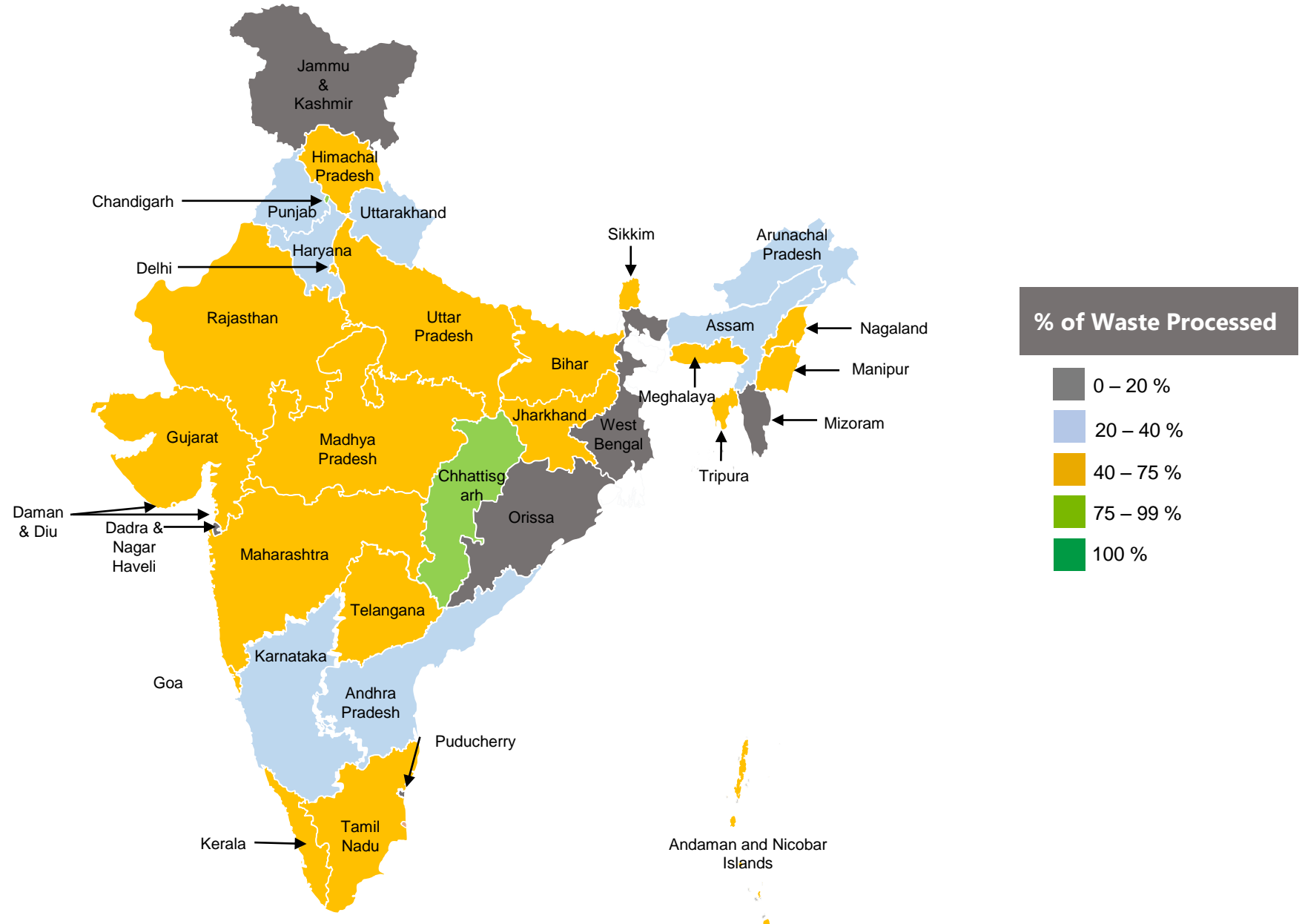


Parameter	Unit	Target	Achieved	Completion
Door to door collection of waste	Wards	84,229	72,503	86%
Segregation of waste	Wards	84,229	50,248	59.6%
Processing of solid waste collected	Tonnes/ Day	145,000 tonnes	75,400 tonnes	50.19%

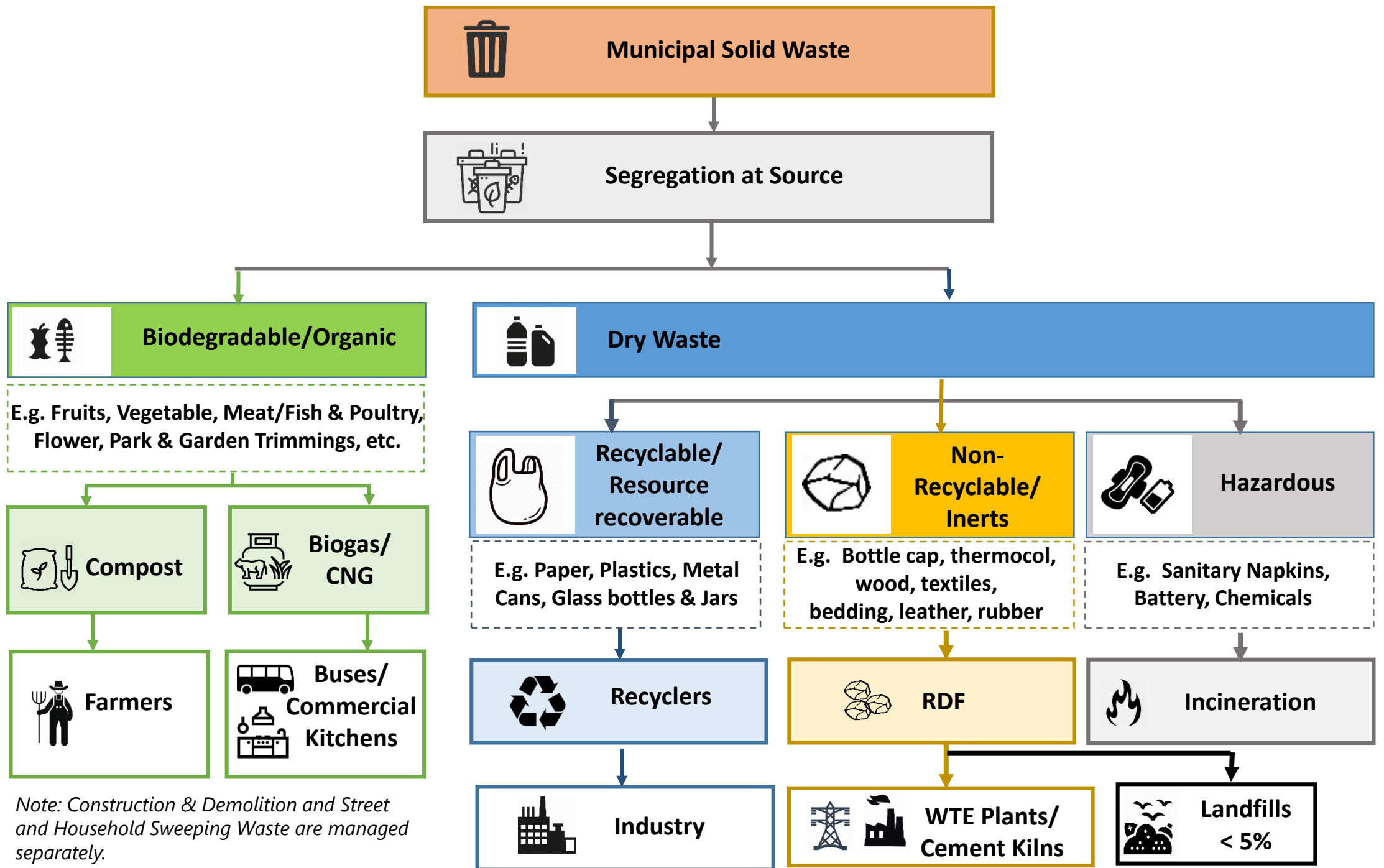
Processing of Municipal Solid Waste



50.19% of generated waste is being processed



Processing of Waste















Note: Construction & Demolition and Street and Household Sweeping Waste are managed separately.

Solid Waste Management – Interventions by GoI

Key Initiatives

- **Enabling policies** for the marketing of By-products of solid waste processing - **Compost, Energy, RDF**
- **Institution of Standards, Guidelines & Protocols**
- **Swachh Survekshan**-Increase in city ranking based on performance on Solid Waste Management indicators
- **Star Rating protocol for Garbage free cities** - single-metric system designed to enable a holistic evaluation of the entire Solid Waste Management (SWM) value chain
- **Transforming Urban Landscape**-Success stories in Solid Waste Management
- **Regular progress tracking and handholding support**

Expected Outcomes

 <p>Efficient systems for Door to Door Collection of Waste</p>	 <p>Ensuring Source Segregation</p>	 <p>Installation of Waste Storage & Litter Bins in Public Places</p>
 <p>Segregated transportation of waste</p>	 <p>Daily Sweeping of Public Areas & Residential Areas</p>	 <p>Systems for Home & Decentralised & Centralised processing of Wet Waste</p>
 <p>Efficient Treatment of Dry Waste (MRF, RDF to Cement Plants, WTE)</p>	 <p>Scientific Landfilling & Biomining for Treatment of Legacy Waste</p>	 <p>Treatment of C&D Waste, Plastic Waste</p>
 <p>Efficient management of waste by Bulk Waste Generators</p>	 <p>Institution of User Fees, Notification of Bye Laws, Penalty Provision</p>	 <p>Preventing Solid Waste from entering Water Bodies</p>

Enabling Policies for Solid Waste Management

35% provided as Viability Gap Funding/Grant by Government of India for all Solid Waste management projects

Waste to Compost

- M/o Chemicals & Fertilizers has notified policy on promotion of City Compost providing Market Development Assistance of Rs. 1,500 per tonne to fertilizer companies/ ULBs/Compost manufacturers

Waste to Energy

- M/o Power has revised the Tariff Policy 2006 under the Indian Electricity Act, 2003, making it mandatory for State DISCOMS to purchase power from Waste-to-Energy plants.

Plastics in Road Construction

- M/o Road Transport and Highways has notified use of plastic waste in bituminous mixes in construction of National highways

C&D Waste Management

- Central Public Works Dept. has notified mandatory use of recycled portions of C&D Waste in construction activities, if the same is available within 100 kms. of the construction site.

RDF

- Industrial units such as cement plants situated within 100 km of RDF plants are mandated to replace at least 5% of their fuel requirements with RDF

India- Solid Waste Management (SWM) Scenario- Challenges

PROJECTED GENERATION OF MUNICIPAL SOLID WASTE



India's Waste to Wealth Status:

Waste to Compost Potential : 5.4 MillionTPA

Waste to Compost Production Capacity (Functional Plants): 4 Million TPA

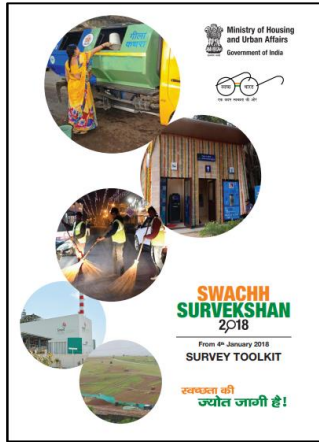
Production Capacity (Plants Under Cons.): 0.7 millionTPA

Waste to Energy Potential : 511 MW

Prod. Capacity (Functional Plants) : 88.4 MW

Prod. Capacity (Plants Under Cons.): 415 MW

Swachh Survekshan – Annual Cleanliness survey-Competitive framework for evaluating progress and expediting efforts an Innovative step



- **City ranking survey** on mission-related parameters, to **foster competition among cities as well as monitor progress** under the mission,
- **First ever Pan India Sanitation Survey** impacting around **40 crore citizens**
- Largest ever swachh survey in the world
- Increased focus on **innovation, outcomes and sustainability**

	Swachh Survekshan - 2016	Swachh Survekshan - 2017	Swachh Survekshan - 2018	Swachh Survekshan - 2019
Survey methodology				
1 ULB documentation	73 Cities	434 Cities	4,203 Cities	All Cities
2 Independent observation and verification	With Million+ population and State Capitals	With 1 Lakh+ Population and State Capitals		
3 Citizen feedback	Cleanest City: Mysuru	Cleanest City : Indore	Cleanest City : Indore	Ongoing (Jan'19)

Star Rating Protocol for Garbage Free Cities

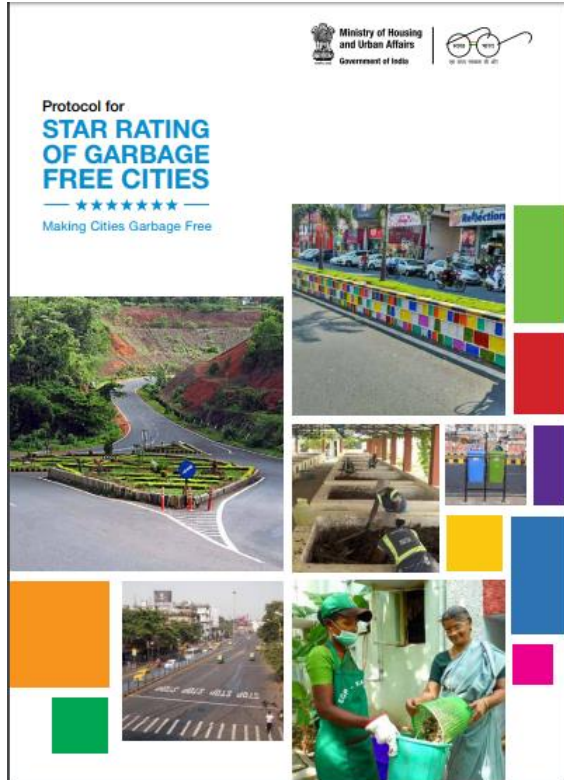
SEVEN STAR RATING devised to ensure **holistic evaluation across entire SWM Chain**

A **star rating framework** in consultation with cities to ensure no visible garbage and enhanced waste processing in all cities/towns, launched on 20th January 2018

Third party certification at 3, 5 and 7 star stages

The rating is based on **12 key components**

1. **Door-to-Door Collection**
2. **Segregation** at source
3. **Sweeping** of public, commercial and residential areas (no visible eyesores on streets)
4. Waste Storage Bins, **Litter Bins** and **material recovery facility**
5. **Bulk Waste Generators** compliance
6. Scientific Waste **Processing**, Scientific **Landfilling** and **C&D** Waste Management
7. **User Fees, Penalties, Spot Fines** for littering and Enforcement of Ban on Plastic
8. **Citizen grievance redressal** and feedback system
9. Eradication of crude dumping of garbage and **dump remediation**
10. Cleaning of **storm drains** and surface of **water bodies**
11. Visible **beautification** in the city
12. **Waste reduction**



SINGLE METRIC

MEASURABLE

ACHIEVABLE

RIGOROUS
VERIFICATION

TOWARDS
OUTCOMES

Innovative Solutions by States & Cities



KERALA

Leading the way in
decentralized waste
management



BENGALURU

Successfully Managing waste
from Bulk Waste Generators

GOA

Segregation of waste by
Residences and Bulk Waste
Generators into minimum 5
fractions



AMBIKAPUR

Successfully
converting Trash to
Treasure



DUMPING YARD: BEFORE RECLAMATION



AFTER DUMPING YARD RECLAMATION: SANITARY PARK

CHHATTISGARH

Moving towards a
Zero Landfill State



PUNE

Mainstreaming the
marginalized sections

Technical Advisories launched under SBM-U



- ✓ Municipal Solid Waste Management Manual (2016)-3 Volumes
- ✓ Guidelines on 'My Swachh Neighbourhood' and 'Implementing MSW 2016 Rules for Bulk Solid Waste Generators'
- ✓ Waste to Wealth Technology Compendium
- ✓ Standard Operating Procedures-Segregation at Source
- ✓ Advisory on onsite and decentralised composting of MSW
- ✓ Guidelines for ULBs on implementing Bulk Waste Management Rules
- ✓ Transforming Urban Landscapes- Best Practice for Solid Waste management
- ✓ Standard Operating Procedures-Swachh Hospitals, Swachh Schools, Swachh Offices, Swachh Railway Stations, Swachh Parks, Swachh Clubs, Swachh Roads, Swachh RWAs and Swachh Volunteering

IEC Campaigns for Solid Waste Management

IEC Campaigns to address the issue of littering and encouraging segregation and processing of waste

Multimedia campaigns featuring popular celebrities



Multimedia campaigns for Swachh Survekshan (Annual Cleanliness Survey)



Prime Ministers Messaging for Print Ads



TV Commercials



Other Capacity Building Initiatives

E-Learning



E-learning Courses Available

21	145
August 2015	As on date

8.89 lakh
Course
Certifications
across India

Workshops/e-Learning on SWM

- ✓ Conducted 10+ major national workshops on Implementation of SWM 2016 Rules in collaboration with CPCB across India
- ✓ Conducted 24 SWM workshops across India in collaboration with NIUA (660 participants)
- ✓ Conducted 15+ regional peer-to-peer exposure visits



State Workshop on City Compost National Workshop on SWM Rules



Exposure Visits to Cities

Swachhata App-ICT based Grievance Redressal System



Swachhata App has been envisioned as an effective tool towards enabling citizens to have their grievances addressed by the concerned Municipal Corporation



15 Million Registered Users



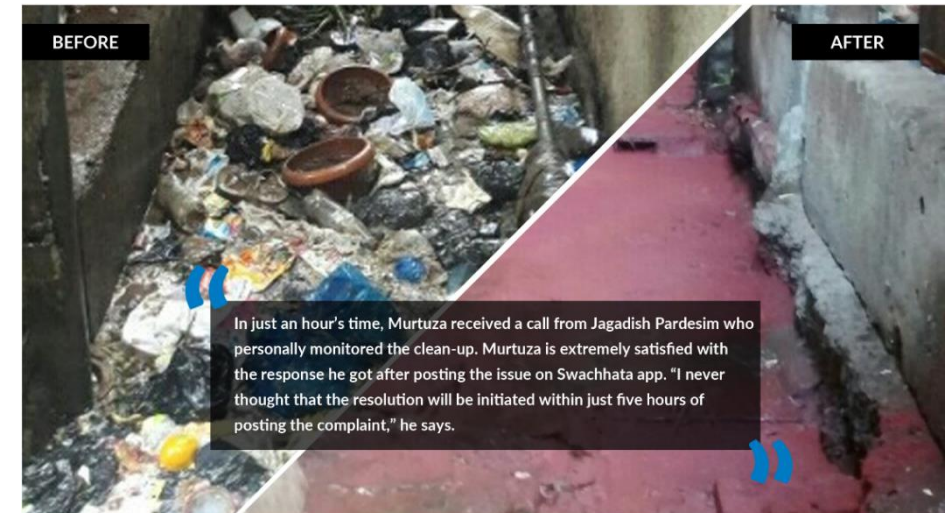
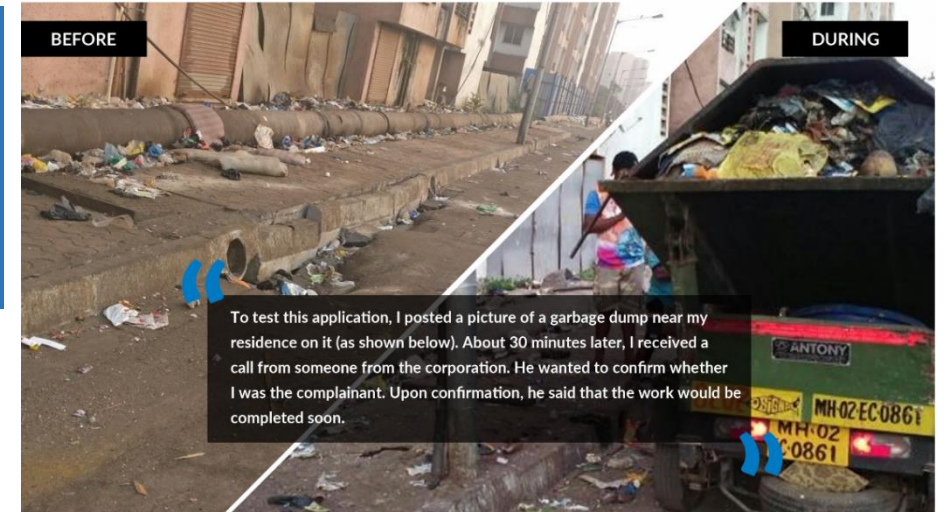
16.7 Million Resolved Complaints



4,023 Cities



97% Resolution Rate



Eighth Regional 3R Forum in Asia and the Pacific hosted by MoHUA

9-12 April, 2018 Indore, Madhya Pradesh



Theme: Achieving Clean Water, Clean Land and Clean Air through 3R and Resource Efficiency – A 21st Century Vision for Asia-Pacific Communities”

Management of Plastic Waste and synergies with 3R concept

Benefits of 3Rs on Public Health, Livelihood Generation and creation of Waste Entrepreneurship

Control of land based sources of plastic impacting Global and Marine systems

Benefits of Plastic Ban and illegal disposal of plastic in eco-sensitive and eco-fragile areas



Thank You

