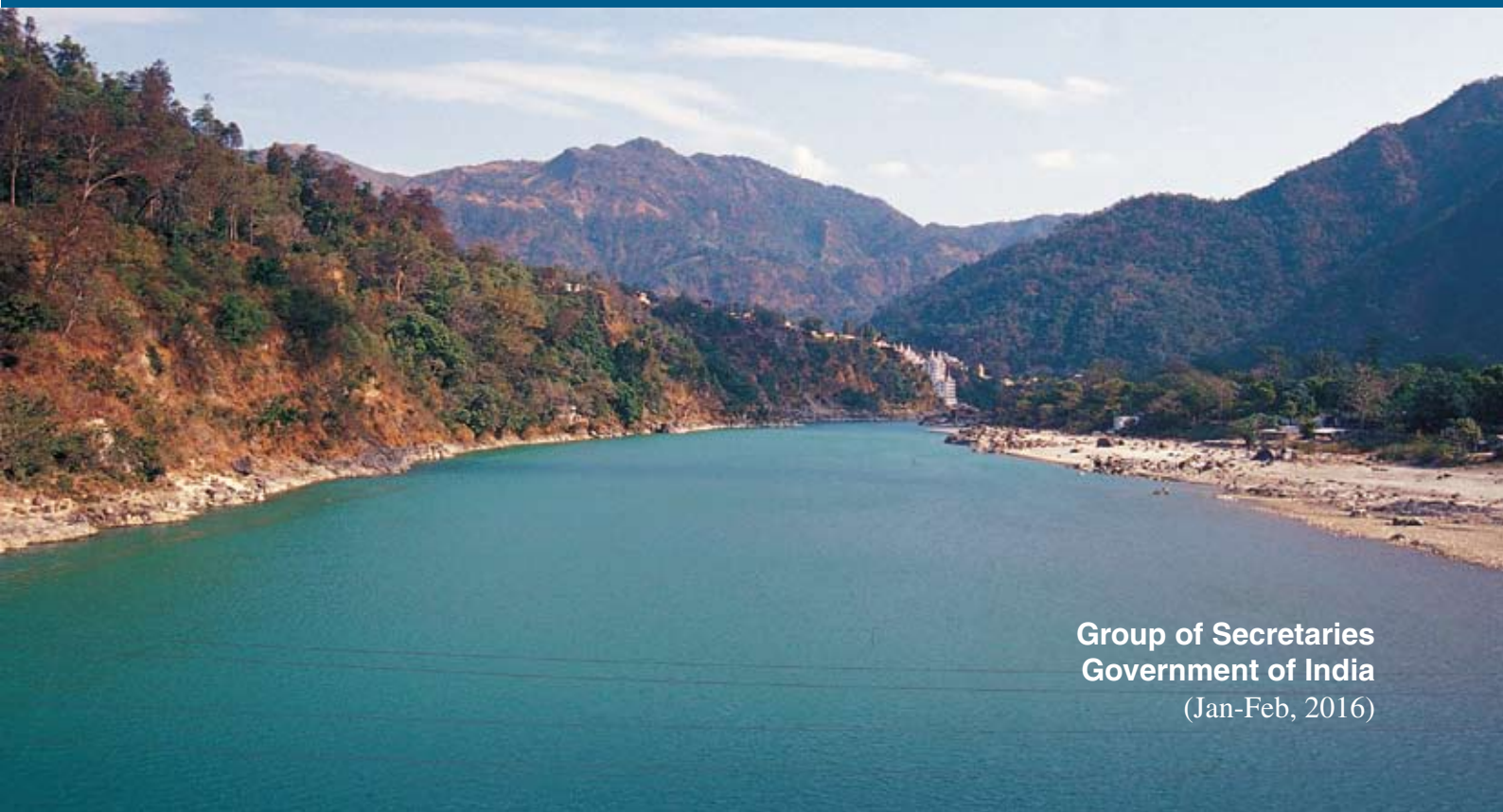
सत्यमेव जयते

Report

Swachh Bharat & Ganga Rejuvenation

People's Participation & Sustainability



Group of Secretaries
Government of India
(Jan-Feb, 2016)

Swachh Bharat & Ganga Rejuvenation

People's Participation & Sustainability

Group of Secretaries, Government of India

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People's Participation & Sustainability

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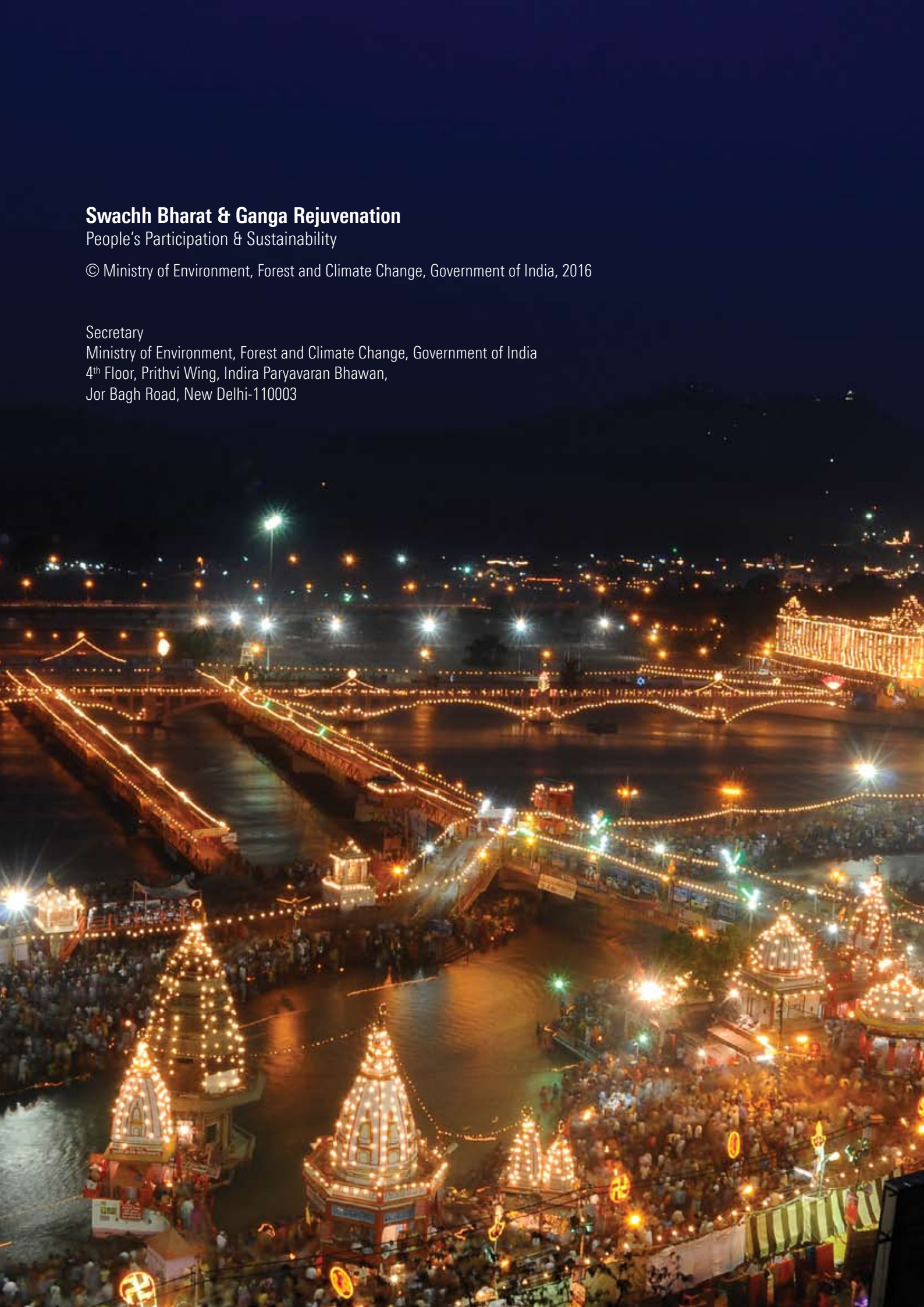

CONTENTS

Acknowledgement

This Report is the result of several rounds of interaction by the Group of Secretaries with fellow civil servants in the central and State governments who are responsible for government programs, Non-Government organizations who are passionately associated with them, and entrepreneurs who are spiritedly involved in bringing in their enterprise, innovation and risk taking abilities in converting challenge into opportunity. We were particularly benefitted and enthused by the initiatives taken by the municipal bodies of Surat, Pune and Hyderabad and the candid manner in which their representatives shared their experiences with us. The CII and FICCI also apprised the Group about the involvement of the corporates constantly craving to create a business model for achieving success in the seemingly social programs of SBM & GJ. The RakshaMantri, the Minister for Road Transport & Highways, the Minister for Environment, Forest & Climate Change and the Cabinet Secretary took very keen interest in our presentation and took time out to interact with the Group. They enriched our Report with their insightful observations. The Group gratefully acknowledges each one of them for their contribution in completing this exercise which took more than 50 hours of deliberations. Calculating the manhours that went into the preparation of the Report is as difficult a task as the two flagship programs that the Group was dealing with.

The Group would also like to thank the two sub groups of Joint Secretaries, especially their Rapporteurs, for their assiduous and incisive presentations on the subject that brought forth several imaginative suggestions that were incorporated in our Report. Equally useful were the site visits to the Waste to Energy plants in Gazipur and SaritaVihar, the integrated waste processing plant in New Moti Bagh and the C&D waste processing unit in Jehangirpuri facilitated by my Ministry officials and the officials of the local municipal corporations and Delhi government.

The Group would also like to place on record the tireless support provided by JS MoUD Mr. Praveen Prakash, Mr.Bishwanath Sinha, my Joint Secretary and his efficient team, which helped in putting together this Report. My personal staff, of course, always keeps working sincerely and diligently despite my whims and exactitude without adequate acknowledgement. A big ‘thank you’ to all of them.

Finally, the Group is grateful to the Prime Minister for providing us an opportunity to think ‘beyond the beaten track’, discover each other’s potential, work together as a group and contribute to national programs with which we may not be necessarily associated in our official capacities. As a Rapporteur I thank all the Secretaries who were members of the group for their spirited and wholehearted participation in the deliberations and for extending their unstinted cooperation in making this Report possible.

Ashok Lavasa
Secretary, Government of India
Ministry of Environment, Forest and Climate Change & Rapporteur

Public Sanitation Through Ages

"Whoever throws dirt in the Street …… Whoever causes mire or water collection in the Street …….. Whoever excretes faecal in pilgrim places, reservoirs, public places…..shall be punished with fine" and "Nagaraka (City Superintendent) is punishable if derelicts his duty" in the enforcement.

(Arthashastra, Chapter XXXVI, Book II)
3rd Century BC

"Any person who, on any road or in any open place or street or thoroughfare within the limits of any town….commits any of the following offences….shall….. be liable to fine…… or to imprisonment…… and it shall be lawful for any police-officer to take into custody, without a warrant, any person who within his view of commits any of such offences, namely :-

Fifth –Throwing dirt into street. – Any person who throws or lays down any dirt, filth, rubbish or any stones or building materials, or who constructs any cowshed, stable or the like, or who causes any offensive matter to run from any house, factory dungheap, or the like:

Seventh – Indecent exposure of person. – Any person who wilfully and indecently exposes his person, or any offensive deformity or disease, or commits nuisance by easing himself, or by bathing or washing in any tank or reservoir not being a place set apart for that purpose."

The Police Act, 1861
Section 34

List of Abbreviations

ADO	Agriculture Development Officer
BOD	Biochemical Oxygen Demand
C&D	Construction & Demolition
CAGR	Compound Annual Growth Rate
CBOs	Community Based Organisations
CETP	Common Effluent Treatment Plant
COP	Conference of Parties
CPCB	Central Pollution Control Board
CPSEs	Central Public Sector Enterprises
CT	Community Toilet
D2D	Door-to-door
DWS	Department of Drinking Water and Sanitation
EPR	Extended Producer's Responsibility
ETP	Effluent Treatment Plant
FCO	Fertilizer Control Order
FMCG	Fast Moving Consumers' Goods
GDP	Gross Domestic Product
GOI	Government of India
GPIs	Grossly Polluting Industries
ICT	Information & Communication Technology
IEC	Information Education Communication
IHHL	Individual Household Toilet
INDC	Intended National Declared Contributions
ITI	Industrial Training Institute
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNRES	Mahatma Gandhi National Rural Employment Scheme
MHRD	Ministry of Human Resources Development
MLD	Million litres per day
MoEF&CC	Ministry of Environment, Forest & Climate Change
MoF	Ministry of Finance
MoI&B	Ministry of Information & Broadcasting
MoUD	Ministry of Urban Development
MRF	Material recovery facility
MSW	Municipal Solid Waste
NEERI	National Environmental Engineering Research Institute
NGO	Non-Governmental Organisation
ODF	Open Defecation Free
OPEX	Operational and maintenance expenditure
PT	Public Toilet
PWM	Plastic Waste Management
QCI	Quality Council of India
RDF	Refused Derived Fuel
RFP	Request for Proposal
RWA	Residents' Welfare Association
SBM	Swachh Bharat Mission
SDG	Sustainable Development Goals
SEZ	Special Economic Zone
STP	Sewage Treatment Plant
SWM	Solid Waste Management
TPA	Tons Per Annum
ULBs	Urban Local Bodies
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WtC	Waste to Compost
WtE	Waste to Energy
ASHA	Accredited Social Health Activist

Swachh Bharat and Ganga Rejuvenation

People's participation and Sustainability

Composition of the Group of Secretaries :

1	**Shri Ashok Lavasa**	**Environment, Forest & Climate Change, and Rapporteur**
2	Shri Madhusudan Prasad	Urban Development
3	Dr. M Rajeevan	Earth Sciences
4	Shri Lov Verma	Empowerment of Persons with Disabilities
5	Shri V.S. Pandey	Chemicals & Petrochemicals
6	Shri N.K. Sinha	Culture
7	Shri Sunil Arora	Information and Broadcasting
8	Shri Ameising Luikham	Public Enterprises
9	Shri Rajiv Gupta	Youth Affairs
10	Shri Shashi Shekhar	Water Resources & Ganga Rejuvenation
11	Shri S. Mohanty	National Human Rights Commission
12	Shri Ashok Prasad	Internal Security
13	Shri RK Jain	National Disaster Management Authority

Composition of sub-Group of Joint Secretaries

Sub-Group 1

1.	**Usha Padhee**	**Civil Aviation, Rapporteur**
2.	P K Das	Personnel & Training
3.	B Anand	Urban Development
4.	Samir Kumar Biswas	Chemicals and Petrochemicals
5.	Nikunj Bihari Dhall	Mines
6.	Neeraj Mandloi	Urban Development
7.	Praveen Prakash	Urban Development
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9.	Rakhee Gupta Bhandari	MHA
10.	Sushil Kumar Lohani	Fertilizers
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12.	Vani S.Rao	Overseas Indian Aff.
13.	Urvilla Khati	Steel
14.	Sibi George	MEA

Sub-Group 2

1.	**Barun Mitra**	**Shipping, Rapporteur**
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7.	Sanjay Prasad	Defence Production
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10.	Bishwanath Sinha	Environment, Forest & Climate Change
11.	Rakesh Mohan	Minority Affairs
12.	TCA Kalyani	Social Justice & Empowerment
13.	Ashok Pal Singh	Disinvestment
14.	Kusum Singh	Defence Production
15.	Gopal Baglay	External Affairs

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Ministry of Environment, Forest and Climate Change
Government of India

FOREWORD

The subject of **Swachh Bharat Mission (SBM) & Ganga Rejuvenation** allotted to this Group is different from other subjects as this is the only one that deals with specific programs of the government that are not only flagship programs but they have a time-bound and well defined monitorable outcome. Both the programs are also closely linked to each other. Hence the group focused on making specific suggestions with a well-articulated plan of action that assigns responsibilities to various organizations with definite timelines.

2. Secondly, both Swachh Bharat Mission (SBM) & Ganga Rejuvenation are subjects that are associated with the prestige and image of the country and the self-respect and dignity of Indians. Both are aimed at improving the standards of living, providing adequate infrastructure and reorienting habits and behavior that contribute to clean surroundings in a growing economy facing wide disparities in income and lifestyles and struggling to meet the inadequacies of public infrastructure. In fact, in a large measure the success of the programs depends on a combination of the ability of public bodies to make effective systems and the public in adhering to those systems. That's why the focus of the Group was on improving public participation in these programs and making them sustainable.

3. The group identified three primary challenges associated with both the Missions. These were:

   A. How to bridge the gap between personal hygiene and public sanitation? *Neeji safai aur sarvajanik swachhata ke beech ka faasla kaise meetaya jaye*? Unless people became concerned about cleanliness of their surroundings as much as they were about personal cleanliness it would be difficult to expect them to participate in a Mission that cannot succeed without their wholehearted involvement.

   B. How to introduce the polluters pay principle (*jo kare so bhare ka siddhant*) in waste management? Increasing urbanization, rapidly changing lifestyles and the shift from durability to disposability in consumer goods is bound to increase the generation of waste and enormously increase the pressure on public waste management systems which the urban local bodies would not be able to cope with. In order to make this arrangement sustainable the equation between those who generate waste and those who are responsible for managing it would have to be redrawn. Those who pollute must pay in proportion to the pollution load that they cast on public systems. Besides, bulk generators of waste must participate in waste management so that they augment the total resources deployed for waste management and reduce the burden on the over stretched ULBs.

   C. How to stop treating waste as a burden, a liability, a nuisance and start seeing it as a resource? *Kude ko samasya nahin sansadhan samjhen*. This would require not only the return to the basic principles of the three Rs- Reduce, Reuse and Recycle but also evolve business models that turn waste management into a viable economic activity so that the exploitation of fresh resources is also reduced.

4. Considering the enormity of the problem of waste generation as the pace of urbanization grows and the disposable income leads to increasing consumerism, the regulatory regime governing the waste management system would have to undergo a radical change. The capital required for augmenting

waste collection and management infrastructure may not be easily forthcoming in the near term. This would necessitate a participatory model of responsibility sharing in which citizens, resident welfare associations, market associations and big commercial establishments and other generators of bulk waste ensure segregation at source. They would also have to take on the responsibility of decentralized processing or transportation, wherever feasible. Bulk generators such as hotels, hostels, banquet areas etc. would have to set up their own facilities for bio-methanation or composting so that the load on ULBs is reduced and waste management can be done in a cost effective manner.

5. One of the oft-repeated criticism of the waste management regime is that it is governed by weak laws that are implemented by weaker organizations who lack the authority, the wherewithal, and the inclination for enforcement. This obviously requires a major overhaul of the relevant laws, rules and regulations. There is an urgent need to decriminalize pollution and introduce civil monetary liability as a deterrent. Those that violate must compensate society by paying a penalty that could be utilized for taking remedial measures. Prosecution leading to imprisonment should be reserved for grave violations causing substantive damage to the environment. Monetary penalty should be severe and swift, including spot fines. State governments and municipal authorities will have to be reminded and persuaded to use existing rules to make the enforcement mechanism more effective as has been done by some municipal authorities.

6. In order for this new regime to take roots it is necessary to understand the nature and character of the waste generated and ensue scientific management that is driven by adopting alternate technologies. Nearly half of our waste (almost 65 to 70% in residential areas) is wet waste that can be easily converted into ethanol, methane or compost. This can be done at the household level, the colony level or the institutional level. This holds the key to the success of modern waste management. Nothing short of a bio composting revolution is required to reduce filth in public places, reduce the burden of segregation at the processing level and make processing more efficient. Once we stop mixing wet waste with dry waste it would become easier to collect the dry waste, whether plastic, glass, electronic, biomedical or construction and demolition waste and take it for processing. This will have to be supplemented by strict implementation of the extended producers responsibility, which makes him accountable for collecting the waste that the disposal of the products manufactured or marketed by him cause. This makes the producer a stakeholder in waste management like bulk generators.

7. All the above challenges, trends and approaches are equally valid for the success of Ganga Rejuvenation. Massive efforts in a systematic way are being made by the government involving different sections of society. As we learn from the mistakes of the past, we have to convert the drive provided by the Prime Minister into a sustainable process that acquires momentum and efficacy. The Rivers will have to be resurrected. The senseless withdrawal of water flowing from glaciers and springs will have to be curtailed. The abundant rainwater that is being allowed mindlessly to flow into the seas will have to be checked and stored in intermediate water bodies so that we have 'water banks' that serve like lockers in a bank where we store our precious belongings.

8. With these thoughts and assumptions the Group presents its Report inspired by the vision of the Prime Minister and put together after several painstaking hours.

Ashok Lavasa
Secretary, Government of India
Ministry of Environment, Forest and Climate Change &
Rapporteur

1

Introduction

1.1 Government of India constituted Groups of Secretaries to outline a pragmatic action plan in areas having a direct bearing on socio-economic development of the country with a roadmap for achieving specific outcomes within a well-defined time schedule. The objective was to identify strategic solutions with a focus on implementationto prioritise schemes along with targets and a monitoring framework with a view to benefitting the common man. The following eight Groups were constituted to deal with different subjects:

(i) Good Governance – Challenges and Opportunities.
(ii) Employment Generation Strategies.
(iii) Farmer-Centric Initiatives in Agriculture and Allied Sectors.
(iv) Education and Health – Universal Access and Quality.
(v) Innovative Budgeting and Effective Implementation.
(vi) Accelerated Growth with Inclusion and Equity.
(vii) Swachch Bharat and Ganga Rejuvenation – People's Involvement and Sustainability.
(viii) Energy Efficiency and Conservation.

1.2 The Group noted that in the implementation of Swachh Bharat Mission and Ganga Rejuvenation, the focus should be people's involvement and sustainability of programmes. The behavioural, attitudinal and transformational change should remain the prime focus. The principles of circular economy need to be integrated into policy streams for reuse, recovery and recycling of the valuable resources from Waste. In addition, action plan for Ganga Rejuvenation identification of specific activities with timelines should remain the priority.

1.3 Swachh Bharat epitomises cleanliness which is organic to Indian culture.In the Harappa civilization archaeologists have found towns with covered drains and garbage bins along the main streets, and houses with toilets distinct from bath area. Rejuvenationof Ganga,the umbilical lifeline for socio-economic mosaic in Ganga Basin, would need to focus on restoration of the "Nirmal and Aviral Dhara".

1.4 'Swachh' or clean in common lexicon means devoid of dirt, marks, stains, rubbish or unwanted matter. In environmental phraseology 'Swachh' would imply the 'uncontaminated' state of the elements – air, water, land. In common parlance Swachh Bharat and Ganga rejuvenation would mean pollution abatement and minimisation. The process of growth based on exploitation of natural resources does have an adverse impact on water, air and energy cycles. We require a redefined growth strategy to minimise environmental damage promoting recycling of secondary resources, conserving the stock of virgin resources, utilising less energy and leaving minimum carbon footprint. At the same time, solid waste, liquid waste, open defecation, and contaminated sites require immediate intervention.

1.5 Waste generation is a by-product of growth; anthropogenic activities create waste, and handling and disposal method of the waste are challenges to environment and public health. Quantum and typologies of waste generation is a function of cultural practices, level of development of an economy, consumption pattern and lifestyle, population size, income level among others. Liquid waste generation in addition to these factors is the outcome of type and concentration of industries releasing contaminated waste water and untreated sewage water. Deficient and inefficient waste

management practices lead to decay in urban environment and aesthetics, health problems, water and air pollution, wastage of resources, among others.

1.6 The quest for swachhata will require the focus to shift from segmental approach to a comprehensive, integrated and targeted focus on Ganga river basin. The dendritic Gangetic river basin pattern has linear river flow of mainstream of river Ganga passing through 6 Indian States, spread over 11 States, supporting approximately 40% of Indian population with a storehouse of 30% of the country's water resources, and where the flow of water has defined, destined and determined the settlement patterns, agrarian culture, cities and town functioning for secondary and services sector thriving on the surplus agricultural production from vast rural hinterland. Ever expanding population pressure leading to networks of irrigation canals and populous cities generating household, industrial and commercial waste findsdisposal in river Ganga and its tributaries; compounded by overdrawal of water and, waste refuse in the rivers – leading to extremely polluted drainage system. The targeted focus on Ganga rejuvenation is a sub-set of Swachh Bharat Mission to ameliorate the menace of pollution.

1.7 31% of India lives in cities occupying 2.5% of the land; this itself is an immense challenge,especially when 53 million cities house 42.6% of urban Indians and 16% of total Indians. That Indian urbanisation has a primate structure wherein class-I cities with 1 lakh and above population house 68% of urban population and is devoid of adequate planned urban infrastructure. Urbanisation in India is often termed as motley collection of accretional growth wherein rurban migration have led to city growths affording less scope for planned city infrastructure to withstand the mounting growth pressure. The city morphology in India is characterised by slums and is dominated by informal sector presence with low per capita income, and weaker municipal resources. Simultaneously, with rising number and income of middle class, diversified and modern consumption pattern, innovative, flexible and demanding consumerism the generation of waste has accentuated and evident on streets, drains and unplanned municipal dumps leading to health hazard, wastage of resources, polluted waters, blocked and dried drains and streams.

1.8 Fertile and flat land in Indo-Gangetic plain from the earliest time has supported intensive agriculture and surface & navigational transport network.The landscape of Ganga basin today is conglomeration of mixed industrial manufacturing. The river course is used as effluent disposal basin; the network of canals harvested upon the diverted river water from Ganga and its tributaries; often river streams have been blocked leaving downstream segment dry; the cities and villages on the banks are unmindfully dumping their city refuse; all these undermining and threatening river Ganga's self-rejuvenation capability.

1.9 Sanitation is a key index for measurement of development and quality of life and is pervasive in all human settlements. With urban India projected to grow at 590 million in 2030, 700 million in 2040 contributing to 70% of GDP, it is imperative that aneffective policy framework is evolved to deal with pollution abatement, particularly in cities.

1.10 Open Defecation Free (ODF)

1.10.1 In India, open defecation has been practicedsince time immemorial. Public sanitation is not a universal social norm.Traditionally, toilets were constructed away from living quarters. Growing urbanisation and persisting lack of adequate housing and amenities have caused emergence of unplanned, unauthorised shelters without toilet facility. The lack of toilet facilities leads to open defecation in slums, streets in and around public facilities like railway tracks or drains.The challenge is to both provide toilets and motivate people to use them.

* * *

2

Approach & Methodology

2.1 In undertaking its work, the Group recalled the meeting with Hon'ble Prime Minister in which it was elaborated that in the dedicated subject area the action plan is required to be presented to focus on the roadmap and specified timeline to achieve deliverables. The suggested framework for policy must be accompanied with a concrete solution with timeframes of 1 year, 3 years and long-term with focus on actions and outcomes by prioritizing schemes, setting targets with monitoring framework from the perspective of common man.

2.2 The Group applied the following principles fordeveloping the proposed action plan:

a. Primacy to environmental protection and conservation of the natural resources.

b. Capacity building in pollution abatement and waste management.

c. Public hygiene and sanitation systems to support urban economy.

d. Sustainable urbanisation to propel growth.

e. Simplification of procedures and market-oriented policies for recycling.

f. Reconstruction of degraded environment.

g. Effective monitoring with people's participation.

2.3 The key methods applied for data gathering and analysis were as follows:

Methods	Description	Key Informants/ Source
Desk review of existing literature/data	Profile	Waste management systems of other countries, Reports of committeesand Task Force. Election Manifesto – BJP, 2014, UNEP document on Sustainable Development Goals (SDGs), India's Intended Nationally Determined Contribution (INDC) for COP-21,
	Acts / Regulations and guidelines	Acts / Regulations/ Notifications/ Guidelines/ Programmes and Schemes of the Governments
Consultation of Stakeholders	Public	Corporate houses/ Industry Associations/NGOs / Civil Society / Public Institutions(Municipal Corporations)
	Regulators	MoEF&CC/ Other relevant Ministries at Central level and Departments at the State level, etc./ CPCB
Rapid assessment	Understanding the issues of operations of waste management infrastructure & facilities	Visit to (i) C&D waste recycling plant at Burari, (ii) waste-to-energy plant in Ghazipur and Okhla, (iii) Integrated waste management at GPRA, New Moti Bagh. Discussion and interaction with operators of the facilities.

	Understanding the issues	Collection of information from various Central Ministries, State Governments, ULBs, Industry associations, stakeholders. Consulting Report on SBM by Group of Chief Ministers.
Analysis	- Identification of key issues of existing laws - Evaluation of adequacy / effectiveness of the existing laws	Clear assessment of current situation Assessment of strength and weakness of regulatory framework, policies, programmes, schemes and guidelines Interaction with rapporteurs of Joint Secretary Groups and their presentations
Recommendations	- Addressing issues / constraints / challenges of current system. - Addressing issues related to resource mobilization, financing and capacity building - Expediting processes. - Required changes: Legal, Procedural, Administrative & Institutional - Preparing a draft report	Documentation & Draft Report
Review and Finalization	- Evaluation of proposed recommendations from sustainability and people's participation perspective - Finalization of the Report	Final Report

2.4 The Group in aid of its task of information collection and data gathering had meetings with various stakeholders which included representatives of civil societies, corporate house and industry associations, State Governments, Municipal Corporations and relevant Ministries of Government of India. The rapporteur along with a few members visited waste management infrastructure installations at Burari, Ghazipur, Okhla, New Moti Bagh in Delhi for direct assessment of the ongoing waste management facilities. The rapporteurs of the sub-group of Joint Secretaries presented the recommendations of their sub-groups on the subject.

2.5 The Group analysed the principles as laid down in Sustainable Development Goals (SDGs), the relevant elements from India's Nationally Determined Contribution (INDC) for COP-21 and the election manifesto of Bhartiya Janata Party for General Elections 2014, in so far as these relate to Swachhata and Ganga rejuvenation. While formulating the final action plan, the major elements of these documents emphasise upon :

(i) Efficient and sustainable management of waste and water; sanitation for all;and elimination of open defecation; (SDG)

(ii) Cities to be symbols of efficiency, speed and scale byupgrading existing urban centres, public utility services like Waste and Water Management – for a clean and healthy city life and model towns to be identified for rolling out integrated waste management infrastructure. (SDG)

(iii) Poor Hygiene and Sanitation have a far reaching, cascading impact. A 'Swachh Bharat' by Gandhiji's 150th birth anniversary in 2019, taking it up in mission mode by converging resources and building around jan bhagidari to create an open defecation free (ODF) India; to set up modern, scientific sewageand waste management systems, to introduce Sanitation Ratingsmeasuring and ranking our cities and towns on 'sanitation'; toensure the cleanliness, purity and uninterrupted flow of the Ganga on priority. (BJP election manifesto)

(iv) Development of climate resilient 100 smart cities withrecycling and reuse of waste, use of renewables, protection of sensitive natural environment; and transformation of 500 cities for upgrading basic infrastructure like water supply, sewerage, storm water drains, transport and development of green spaces; Promoting waste to wealth conversion in cities through recovery and recycling under Swachh Bharat Mission; and abatement of pollution through CETPs and reforms in waste management rules administered by Government of India for a more scientific, technology driven, regulated and participative environment management. (INDCs)

2.6 In the process of finalisation of the report the Group took note of various comments/ suggestions, and recommendations made when the report was presented before Hon'ble Prime Minister on 15.1.2016. A copy of the presentation is at **Annexure-I**. The summary of these suggestions is at **Annexure-II** of the report. The Group, having taken note of these suggestions, had further meetings with Union Minister for Defence on 22.1.2016 and Union Minister for Road Transport & Highways & Shipping on 30.1.2016

2.6.1 Interaction with Union Minister for Defence

It was suggested by Union Minister for Defence that the Group should consider the following issues for incorporation in the report :

(i) In view of the lack of strict diligence in segregation of waste, there has been reports of presence of arsenic and other heavy metals and non-biodegradable materials in city waste leading to traces of heavy metals in the compost. Avoidance of this requires revising Fertilizer Control Order in terms of specifications of city compost/ vermi-compost as given in Schedule 4 of the Order to revise threshold values.

(ii) The quality certification of the compost derives a value from Nitrogen content in the compost. However, there are cases where the presence of Nitrogen value was reported less than specified threshold making such compost non-purchasable. It is appropriate that **a calibrated system of Nitrogen content in the compost should be kept in FCO to provide for saleability of such compost with differential pricing.**

(iii) Ensuring less drawl of water from river Ganga, and pumping and ploughing back the water in the river.

(iv) Provision for sequential batch treatment plants while planning STPs.

(v) Rejuvenation of existing water bodies and creation of new water bodies to harvest rain water.

2.6.2 Interaction with Union Minister for Road Transport, Highways & Shipping

It was suggested by Union Minister of Road Transport, Highways & Shipping that the Group considers the following issues for their incorporation in the report :

(i) Policies must create value out of waste. Organic and biodegradable wastes have various downstream applications, which have been successfully demonstrated and are operational at micro level. Effort should be to replicate and upscale the same for the use of biogas in kitchen/ food vendors.

(ii) Policy should support adoption of technologies for bio-gas and bio-ethanol driven vehicles. Bio-fuels in form of pellets and bio-CNG should be promoted. There should be a concerted effort for collection of waste from fruit and vegetable markets, especially at Azadpur Mandi.

(iii) The manufacturing and production of ethanol from agriculture farmland should be promoted. In the conversion cycle ethanol should be used as a raw material for plastic and the crushing of plastic in the downstream should be used to produce oil and lubricants.

(iv) Metal, glass, plastic and e-waste has established market, and policy must provide efficient segregation methods and channelizing these waste items for recycling.

(v) Water use policy should mandate the use of only treated water in refineries and thermal power plants.

(vi) It was suggested that CO_2 as a co-generation output in bio-CNG should be tradeable in various applications like aerated drinks.

(vii) Sludge of biologically processed MSW should be used for nutrient addition in fertilizers.

(viii) The use of plastic in mixed-bitumen in road construction should be promoted.

(ix) Possibility of using mixed waste in landfills in the foundation filling for roads should be explored.

(x) Information and dissemination of available technologies for efficient waste management should form part of policy.

(xi) A national level conference be organised to discuss and evaluate alternative technologies for waste processing and evolve business models.

2.7 The Group in having regard to all the suggestions received during the presentation and the specific interactions with two Union Ministers has incorporated a few of them after deliberations in the report; and proposed action has been incorporated as indicated against such comments.

2.8 In all, the Group had 13 meetings, including the presentation on 15.1.2016, between 1st January and 30th January, 2016 which lasted for about 32 hours.

* * *

3

Assessment and Challenges

3.1 Aims and Objectives–Solid waste management& Ganga Rejuvenation

3.1.1 With a vision to transform the way Indians perceive sanitation and to ensure 100% scientific management of solid waste being generated, Prime Minister of India launched the Swachh Bharat Missionon the 2nd October 2014, birth anniversary of Mahatma Gandhi. This Mission is a joint Mission of the Ministry of Urban Development and the Ministry of Drinking Water and Sanitation and emanates from the vision articulated in the Prime Minister's address to the Nation during his speech on 15th August 2014: *"Brothers and Sisters, has it ever pained us that our mothers and sisters have to defecate in open? Whether dignity of women is not our collective responsibility? The poor womenfolk of the village wait for the night; until darkness descends, they can't go out to defecate. What bodily torture they must be feeling, how many diseases that act might engender. The poor need respect and it begins with cleanliness. I, therefore, have to launch a 'Swachh Bharat Mission' from 2nd October this year and carry it forward in 4 years."*

3.1.2 The mission has six components, namely, household toilets, including conversion of insanitary latrines into pour-flush latrines;community toilets; public toilets; solid waste management; IEC & Public Awareness; andcapacity building.

3.1.3 **Swachh Bharat Mission (Urban)**, is implemented by Ministry of Urban Development, Government of India, and is proposed to cover 4,041 statutory towns of the country with the following objectives:

(i) Elimination of open defecation

(ii) Eradication of Manual Scavenging

(iii) Modern and Scientific Municipal Solid Waste Management

(iv) To effect behavioral change regarding healthy sanitation practices

(v) Generate awareness about sanitation and its linkage with public health

(vi) Capacity Augmentation for Urban Local Bodies (ULBs)

(vii) To create an enabling environment for private sector participation in CAPEX (capital expenditure) and OPEX (operation and maintenance)

3.1.4 The Mission, before 2nd October 2019, is targeting: (i) Construction of 1.04 crore individual household toilets (IHHL); (ii) Construction of 2.52 lakh community toilet (CT) seats; (iii) Construction of 2.56 lakh public toilet (PT) seats; and (iv) Achieving 100% door-to-door collection & scientific management of municipal solid waste.

3.1.5 **Swachh Bharat Mission – Gramin** being implemented by Department of Drinking Water and Sanitation, Ministry of Rural Development, Government of India,targets cleanliness programmes in rural areas by restructuring and amalgamating Nirmal Bharat Abhiyan (Total Sanitation Campaign) to make rural areas clean. This campaign has major objectives of (i) Freedom from open defecation; (ii) focus on attitude change; (iii) Management of Solid & Liquid Waste; (iv) Community-based collective behavior change; and (v) flexibility to the States for carrying forward the Mission. In the implementation of SBM – Gramin, funding has been delinked from MGNREGA and a direct and higher Central Plan support is being provided @ Rs. 12000 to provide for water availability, including

for storing, hand-washing and cleaning of toilets as integral components of the toilets; the toilets in schools and Anganwadis are to be constructed by M/o HRD and M/o WCD respectively; and the funding pattern changed from 75:25 to 60:40 between Centre and State. A total number of 8.84 crore toilets are required to be constructed in rural areas out of which 2 crore is targeted to be accomplished under MGNREGA and remaining 6.84 crore through Department of Drinking Water and Sanitation in Government of India.

3.1.6 The Mission involves the participation of panchayati raj institutions, in aid of achieving the objectives of the Mission which include: (i) to improve quality of life of people living in the rural areas; Motivate people to maintain sanitation in rural areas to complete the vision of Swachh Bharat by 2019; (ii) to motivate local working bodies (such as communities, panchayati raj institutions, etc.) to make available the required sustainable sanitation facilities; (iii) develop advance environmental sanitation systems manageable by the community especially to focus on solid and liquid waste management in the rural areas; and (iv) to promote ecologically safe and sustainable sanitation in the rural areas.

3.2 Genesis and Extent of Problem

3.2.1 **Solid waste Management** – commonly termed as municipal solid waste (MSW)is the churning material of growth process in urban areas.Though waste generation is a function of population and economic growth, cultural practices and consumption pattern, and permeates into rural areas as well, the reported problems on account of inefficient management of solid waste is distinct in towns and cities, and is jeopardising quality of life, urban space, urban economy and the mosaic of city milieu itself. UNDP in 1997 reported insufficient solid waste disposal as the second most serious urban problem as per a survey of 151 Mayors of the cities across the globe.

3.2.2 India is **rapidly urbanising**. The first decade of the millennium reported an urban growth at 3.18% in 2011 census with absolute urban growth outpacing the growth of rural India. Constituting 31.66% of the total population, 377 million urban population in 2011 is projected to grow to 470 million in 2021, 590 million in 2030, and 700 million in 2040. Ten most populous cities of India house 8% of population in 0.1% of land and contribute 15% GDP; 53 million cities houses 13.3% population of the country in 0.2% of land contributing 36.3% GDP, and 100 populous cities contribute 43% of GDP in 1.6% land. The city governments in municipal towns face immense challenge in the provisioning for basic services including sanitation – solid waste disposal commensurate to the contribution to GDP, employment and economy as expected and planned.

3.2.3 Evidently, **municipal authorities**, although vested with the responsibility of sanitation and waste managementhave been lagging behind on account of growing city population, unplanned civic infrastructure and weak financial base. Not too far behind is the outdated legal and institutional framework, public apathy, non-participatory role of city dwellers, individual, social and cultural behavioural and attitudinal patterns, lack of appropriate technology, absence of private sector participation. That the incremental and segmental growth of city is not intrinsically intertwined with the cost sharing for waste management; it is high time that dynamic economies investing in the cities and creating residential, industrial, infrastructure built up areas which is projected at 800 million sq. meters of commercial & residential space by 2030, should integrate the cost for waste generation and its efficient management, and engage itself in a partnership to create business districts which is ecologically and economically integrated.

3.2.4 Central Pollution Control Board (CPCB) in 2013-14 reported a generation of 52.4 million TPA of MSW in the country comprising 5.6 million TPA plastic waste, and 0.176 million TPA of bio-medical

waste. In addition, Hazardous Waste and e-waste not commonly reported as a part of MSW but merrily mixed with general waste, is reported to be 7.90 Million TPA and 8.00 lacs TPA respectively. In another survey Ministry of Urban Development, Government of India estimated MSW generation to the tune of about 62 million TPA. Task Force constituted by erstwhile Planning Commission in 2013 estimated that the volume of waste is expected to increase @ of 5% per year on account of increase in the population, rising income and diversified consumption pattern, and the urban India will generate 101 million TPA waste by 2021, 165 millionTPA waste by 2031 and 436 million TPA waste by 2050.

3.2.5 The primate structure of urbanisation is carried forward in waste generation as well. It is reported that 72% MSW is generated in 468 class-I cities. Central Health Engineering Organisation has estimated per capita waste generation in Indian cities in the range of 0.2-0.6 kg per day in 2011. In the waste management stream, out of 52.4 million TPA of generated MSW, 43 million TPA (82%) is collected, and 11.9 million TPA (23%) is treated, remaining 77% of the collected waste i.e. 31.1 million TPA, though collected, is indiscriminately dumped in landfill sites. Similarly, the quantum of plastic waste in MSW is 10.6% at 5.6 million TPA, out of which 3.3 million TPA is collected and the left over remain littered all around urban space. 92.4% of bio-medical waste is collected and treated.

3.2.6 There are reported and observed deficiencies in the current system for waste management varying over States and municipal areas. In general, there is scanty segregation at source, very little primary collection, no infrastructure for appropriate storage, transportation and processing leading to uncontrolled dumping of wastes on the street, in the drains and streams and on precious land in and around cities creating huge piles of waste, some running into millions of tonnes and are a source of contamination of ground water and air pollution, and simultaneously posing a risk to public health. There are 97 major municipal **landfill sites** in the country and most of these are breeding grounds for many infectious diseases like cholera, dysentery, jaundice, typhoid and diarrhoea. A study has indicated that most of these municipal dumpsites are occupying prime urban land which, if decontaminated and remedied, could be utilised for gainful economic activities generating its own revenue. Waste management problems in cities will continue to accentuate and call for immediate policy interventions to minimise waste generation, efficient collection and disposal system by way of infusing recycling, recovery and reuse. Alternatively and alarmingly, the present indiscriminate dumping of MSW in landfills in 2031 will require 66,000 ha. of land on annual basis.

3.2.7 The physical composition of MSW is an outcome of consumption pattern which in turn is dependent upon product mix in consumer market from essential food segment to high-end luxury items. Per capita income, rising proportion of middle class with enhanced disposable income on demand side provide the aggregated pattern of physical composition of MSW – the amalgamated data of NEERI, 1996 and CPCB, 2005 indicate the physical composition of MSW in India.

Table 1: Composition pattern of Municipal Solid Waste

Year	Composition (%)							
	Biodegradable	Paper	Plastic/ rubber	Metal	Glass	Rags	Others	Inerts
1996	42.21	3.63	060	0.49	0.60	Nil	Nil	45.13
2005	47.43	8.13	9.22	050	1.01	4.49	4.016	25.13
2011	42.51	9.63	10.11	0.63	0.96			17.00
2011	52.32	13.8	7.89	1.49	0.93	1.00		22.57
Sources: For 1996 results, NEERI 1996; for 2005 results CPCB								

The time series comparative composition indicates that there is substantial increase in paper, plastic, rubber, rags and glass waste though the biodegradable waste has increased to the level of 50-55%. There is a high correlation in the constituents of the waste material as with development indicators where packaging of plastic, rubber, glass and metal have been growing along with the flux of construction activities contributing to inert waste. The presence of biodegradable waste in MSW still poses the biggest challenge for civic authorities as it is voluminous and is impacting the cost of collection and transportation; is potent for spread of diseases at dump sites, but however, has a future in store in form of being composted at decentralised level. National city average of waste composition as indicated above is an interplay of climatic conditions, soil characteristics, farmland produce, vegetation pattern, income levels, consumption pattern among others – varied geographies and different levels of income groups generate different composition of wastes e.g. higher consumption of vegetables and fruits generate more biodegradable waste with higher moisture content which if not disposed scientifically is more injurious to public health.

3.2.8 The **dry recyclable materials** – paper, plastic, metal, glass, rags constituting a quarter of MSW holds a future for circular economy by recover, reuse and recycle and generating in the process employment as well as integrating the waste pickers, kabadiwalas and informal recyclers in the economy. At the same time, gainful evacuation of 25% of such wastes will certainly bring down the pressure on already crumbled municipal authorities in having found scientific methods for disposal. City growth is co-terminus with construction of built-up areas for residential, industrial, institutional and commercial purposes with economic consolidation in growth pole cities of the size of 0.5 million and above as data on composition of MSW indicate the inerts constitute 23% of such wastes comprising construction & demolition waste which is finding its way to municipal dumpsites.C&D waste are proven resources through recycling and conversion into aggregates, kerbstones and other applications which not only adds to the enterprising income but also has positive signs on carbon footprints with reduced dependence on cement and steel industries.

3.2.9 An efficient MSW system comprises following elements :

(i) **Waste segregation and reuse at source** – An efficient and workable SWM system at inception has a prerequisite for source segregation and reuse at source to ensure the entire chain of resource recovery to operate in the designed manner to reduce the load on centralised MSW facility. Currently, in India the common practice is to dump and throw the mixed waste on the streets, water bodies and in public places, at times in municipal dumps on the street side which is the breeding ground for animals and poor rag pickers. Segregation is neither a practice nor a culture either in households or in commercial establishments. A World Bank study has estimated that 15-20% of country's total waste could be conveniently segregated at source for recycling provided segregation at source is adopted. However, a low profile local economic chain exists to collect useful materials like newspapers, glass bottles, empty tins, old clothes etc. which is aggregated at neighbourhood level before finding its way in the recycling industry. Another stream, the mixed bag waste has a large proportion of wet biodegradable and kitchen waste which multiplies the problem upto the landfill level in terms of voluminous transportation and size of the landfill.

(ii) **Primary waste collection (door-to-door)** – National city space is replete with classic and individual case studies where door-to-door collection system existed but could not be scaled up or replicated. Kerala legislation is the only institutional artefact available to support door-to-door collection on payment basis. Else many civil societies and community based organisations are engaging themselves in D2D collection of waste – at times segregated and most of the times being

segregated at second stage. The lack of segregated waste into wet and dry streams in such micro enterprise also accentuate the problems of finding secondary storage and segregating facilities not without adding to the cost. Civil governance system and community living organisations, like RWA and market associations generally do not support the existing army of waste pickers/ rag pickers to enter the community living areas, the latter being considered as threat to security. Simultaneously, most of the municipal authorities have failed in enforcing segregation at source as well as door-to-door collection because the regulations either do not support the recovery of the cost for D2D collection or there is no political will for expanding the tax base or imposition of user fee on city dwellers. D2D collection mechanism has proven to be one of the tripods of the efficient waste management system, others being source segregation and resource recovery. A vibrant and smart city has a prerequisite of institutional mechanism for D2D collection on the principles of polluter pays to ensure the sustainability through people's participation.

(iii) **Decentralised processing of biodegradables** – The share of biodegradable constituents in solid waste is on the rise in Indian cities as reported reaching upto 50%, although households generate more than the commercial and institutional generators. Another stream of food and kitchen waste emanates from chain of hotels and restaurants and street food stalls on daily basis. Biodegradable waste as elaborated earlier poses single the biggest challenge to municipal infrastructure as well as our source points for health problems. The presence of remnants and residue of vegetables, fruits and meat products add high calorific value to biodegradable waste which, if properly processed, could supplement the fertilizers and manures and/ or add to the energy resources through bio-methanation. CPCB has reported installation of 553 municipal compost &vermi-compost plants and 56 bio-methanation plants in the country. However, there are numerous individual initiatives of vermi-composting at decentralised level at household and institutional level. The stream of biodegradable waste conversion into composting and/ or bio-methanation in India, however, suffers from quality of compost and its certification; marketing of the compost, evacuation of the biogas along with its marketing. The scale of production remain very small. Fertilizer Control Order of Department of Agriculture, Government of India regulating the manufacturing and marketing of compost requiring licence at regular intervals; highly subsidised chemical fertilizer retaining a competitive edge in this segment market; aggregation of bio-methanes through bottling and/ or piped network being a high capital intensive industry discouraging bio-methanation for the reasons that the competitive stream of supply of LPG or commercial gas still remain subsidised – all these require a corrective mechanism in deregulating the licensing regime as well as providing for captive markets for the products to ensure that municipal authorities concentrate on this segment of waste only upto source segregation and door-to-door stage. Thus removing 50% of MSW from the direct ambit of responsibilities of civic authorities keeping them at the backyard of the generators and adding to their income. As per the report of federation of Hotel and Restaurant Association India, has 600+ star hotels and 14000 restaurants having more than 20 seats. In addition, street food stalls are numerous in the country. All these services generate huge amount of biodegradable waste. There are reported arrangements where food waste is channelized to orphanage and under-privileged from organised star hotels. However, majority of discarded food and kitchen waste from restaurants, hotels and street food vendors find their way in municipal dumps or public drains. Surat city in Gujarat has put in place an efficient collection system of food waste from the hotels on payment basis by the vendors to be used in municipal composting ground. An efficient MSW system would require an institutional arrangement for collection of such waste from composting either at decentralised level or in civic authority supporting, owned, promoted macro composting facility.

(iv) **Collection and transfer to the secondary storage/ MRF** – Waste collection by civic authorities in Indian cities is hampered by several factors. Collection vehicles and equipments are not available in sufficient numbers; these are inadequately designed to access all the nooks and corners; there is lack of personnel; lack of public awareness; lack of finance; and per se there is no institutional secondary storage in Indian cities. Wherever these centres appear there are waste pickers trying to recover valuables. These storage points in neighbourhoods themselves are mixed bag causing foul smell and giving unhygienic environment for municipal personnel to handle whose only objective is to load the available containers into the tippers for onwards final disposal at dumpsites. The secondary storage purpose is not practiced in Indian cities for sorting and segregating valuable, recyclable materials. As reported, although, 25% of MSW comprises recyclable items, a substantial portion is recovered and removed at source level leaving behind not less than 10-15% recyclable material being transported to secondary storage facilities in mixed bags. An efficient collection system supported by segregated waste into dry and biodegradable streams requires solely dry and inert waste to be transported to secondary storage facility which is possible only if the city is accessed by modular and flexibly designed conveyance and collection equipments to SSFs which provides an opportunity for segregation and removal of resourceful items to be recycled. Commercial, institutional and industrial establishments generate 70-80% of recyclable waste except hotels and restaurants. The secondary storage facility is required to be merged at the generation level itself in these establishments through a direct responsibility mechanism in partnership with civic authorities so as to ensure that segregated recyclable products are directly offered in the RRFs.

(v) **Final disposal of non-recyclable inert and process waste from recycling and recovery facilities**– At present, non-recyclable inert and process waste, construction and demolition waste all are destined to landfills. If our cities continue to dump the waste at the present rate without treatment it will need 3,40,000 cubit mtrs. of landfill space everyday (1240 ha. per year). Considering the projected generation of 165 million tons, by 2031 the land requirement for setting up landfill for 20 years with 10 mtrs. high waste pile would be 66,000 ha. Thus, there is a serious requirement of minimising the waste going to the landfill. There is a lack of adequate regulatory framework for C&D waste management, infrastructure for its recycling and utilisation, and adequate market for products from C&D waste. NIMBY is a public outcry against landfill sites. Cities are looking for rural space in the vicinity to offload their waste which is opposed vehemently. There is a necessity of identification of landfills sites at regional cost-sharing basis to be developed on scientific management to ensure that once waste is segregated, resourceful items are extracted, very less is dispatched to landfill sites.

3.2.10 **Wastes – a rural phenomenon as well** – Solid Waste Management is assuming equal importance in rural areas as well. The rural urban integration, particularly, in urban agglomerations and the fringe villages of urban areas are marked with transport and communication unified network wherein specialised bulk services are located and serviced in surrounding villages of urban areas. Seamless communication network and high density road network are connecting men and material movement from rural to urban areas and vice versa. The consumption pattern and FMCG sales in rural areas are also impacting solid waste generation – characteristics and composition alike. Islands of non-rural economic activities and isolated institutions particularly in SEZs and education streams other than important places of pilgrimage are located in rural areas. The waste generation from these institutions are very much similar to that of municipal areas. Needless to say that spatial planning that requires integrated approach for rural urban combination is necessarily to be extended for solid waste management as well. Although rural areas might not be generating as much solid waste, the

approaches towards segregation, collection and processing depending upon the typology of the waste is to be adopted in rural set up as well.

3.3 Recovery of Waste Water

3.3.1 The use of fresh water is appropriated by the agricultural sector,domestic and industrial sector at 79%, 6% and 5% respectively. The projected municipal and domestic water demand will also double by 2030, to 108 billion m3 (7% of total demand), while projected demand from industry will quadruple to 196 billion m3 (13%), pushing overall demand growth close to 3% per annum. Exponentially increasing demand for water will drive per capita accessibility of water to under 1,000 cubic metres by 2020 if left unregulated.

3.3.2 About 80% of water supplied (especially in urban areas) becomes wastewater. It is estimated that 22,900 MLD of domestic wastewater is generated from urban centres while 13,500 MLD of industrial wastewater is generated. The treatment capacity available for domestic wastewater is only for 5,900 MLD, against 8,000 MLD of industrial wastewater. Thus, there is a huge gap in treatment of domestic wastewater and only 30% of total sewage generated by urban India treated. About 26.5 billion litres of untreated wastewater is discharged into water bodies every day. As per information, the discharge from 39% STPs does not conform to environment protection standards.

3.3.3 There is a wide range of technologiesavailable for wastewater reclamation and reuse, and water recycling systems can be tailored to meet specific demands which provides a sustainable optionsfor cities and industrial development. However, Municipal wastewater collection, treatment, and disposal are still not a priority of the municipality/ state Government as compared to water supply. In the absence of sewer network, untreated wastewater is flowing into storm water drains and poses health hazards to the citizens inhabiting the areas near the drain. A regulatory regime is required for mandatory use of treated water for non-potable purposes with economics of differential tariff and prohibition of fresh water limiting it to essential necessities.

3.4 Regulatory framework for Solid Waste Management

3.4.1 **The Municipal Solid Wastes (Management and Handling) Rules, 2000:** The rules apply to every municipal authority and provides for system to be set up for collection, storage, segregation, transportation, processing, and disposal of municipal solid wastes. Under these rules, municipal authorities have been made responsible for developing and putting in place the infrastructure required for environmentally sound management of the waste.

3.4.2 The rules provides for segregation at source but do not mandate the residential and commercial entities to segregate. The rules suggest processes or generic technological options, which may be adopted by the municipal authorities for waste processing. In the rules, it has been suggested that the biodegradable waste may be converted into biogas or compost through biological processes. The recyclable waste should be channelized to authorised waste recyclers. The combustible waste which is not recyclable may be utilised for energy recovery through thermal processes such as incinerations. The management of diary waste, construction and demolition waste and horticulture waste have been left with the municipal authorities for which they are required to notify the norms under the State laws. The waste which cannot be recycled or processed further or is inert should be allowed to go to the landfills. The responsibility for implementation of the rules in the metropolitan cities has been assigned to the Secretary in-charge of department Urban Development. For the rest of the cities, the responsibility is with the respective District Magistrates/ District Collectors. The

State Pollution Control Boards are responsible to monitor the compliance of standards given in the rules for ground water, ambient air quality, leachates and compost etc. and compile the status of implementation of these rules in their respective States. The CPCB is responsible for coordinating with the State Pollution Control Boards in respect of implementation status, review of the standards for technologies for waste processing, and compilation of monitoring data.

3.4.3 All municipal authorities in the country were required to manage MSW in a time bound manner as outlined under the Rules. The municipal authorities were required to setup door-to-door collection, devise mechanism for collection of waste from slums, slaughterhouse, fish markets, vegetable markets, identify the land for and setting up waste processing facilities and landfills, etc. A deadline of 31st December 2003 was laid down for implementation of these rules.

3.4.4 Complete compliance within 31 December 2003 as per the existing rules could not be achieved. Many cities and towns have not even initiated measures whereas some cities have moved forward on their own or under the pressure of Judiciary. There is no consolidated official data available about the status of compliance of MSW Rules in the country though all ULBs are expected to submit their annual reports.

3.4.5 The prime reasons for ineffective implementation of these rules inter-alai include rapid urbanization, increasing population, lack of public awareness, financial constraints and inadequate capacities of Urban Local Bodies. Besides, the rules did not provide the role of the generators, State Urban Development Department, which are the prime stakeholders in the chain of waste management. The Municipal agencies were left alone with the responsibility of implementation without any technical or financial support.

3.4.6 There was no agency which could have assisted local bodies technically, either at State or National level to provide a detailed assessment as to how ULBs would meet targets as per MSW rules including financial requirements and prepare the plans. The Community participation is must for efficient SWM. This was also left with the municipal authorities wherein they were required to organise awareness programme and undertake programme for community participation in the phased manner. The municipal authorities, with no institutional and financial support, failed to undertake such programmes and educate citizens on the requirements of handling waste and proper segregation practices at the household, shops and establishment-level.

3.4.7 Lack of awareness clubbed with the absence of a basic facility for waste collection from source, resulted in to dumping of waste by the citizens on the streets, open spaces, drains, and water bodies in the vicinity creating insanitary conditions. At present, Citizens have assumed that waste thrown on the streets would be picked up by the municipality through street sweeping. This mind set has become the major cause for unscientific systems of waste management in the country.

3.4.8 **Plastic Waste (Management and Handling) Rules, 2011:** The Plastic Waste (Management and Handling) Rules 2011 were issued in supersession of the “Recycled plastic manufacture and Usage rules, 1999”. The rules apply to all municipal authorities. These Rules mandate that a plastic waste management system be put in place and identifies municipal authority as the agency responsible for implementation of the said rules within their jurisdiction. The concept of extended producers’ responsibility for setting up systems to collect plastic waste generated from plastic carry bags and multi-layered packaging is also incorporated in the rules. The manufacture, sale and use plastic carry bags, which is less than 40 microns in thickness has been prohibited to facilitate and improve upon the collection of waste from plastic carry bags. To discourage the use

and promote reuse of plastic carry bags, the rules mandate for municipal authority to notify the price for each plastic carry bags. In addition, certain States have imposed a complete ban on the use of plastic carry bags within their State jurisdictions. However, like the implementation of SWM Rules, 2000, the implementation of the PWM rules in the States/ UTs is not satisfactory.

3.4.9 **E-Waste (Management and Handling) Rules, 2011:** The E-waste (Management & Handling) Rules, 2011 are notified to ensure environmentally sound recycling of e-waste generated in the country. These rules apply to every producer, consumer or bulk consumer, collection centre, dismantler and recycler of e-waste involved in the manufacture, sale, purchase and processing of electrical and electronic equipment or components. The regulatory agencies involved are SPCBs/ PCCs and CPCB. The rules also call for the reduction in the use of hazardous substances in electrical and electronic equipment. The Extended producer's responsibility (EPR) is the main feature, wherein the producers has the responsibility of managing such equipment after its 'end of life' and responsible for collecting back their products once the consumer discards them. The responsibility to finance and organize a system to meet the costs involved in complying with EPR has also been assigned to the producers. At present, majority of the recycling is being done by the informal sector, who by using crude methods of metal recovery resulting into higher pollution and less recovery, etc. causing wastages of precious resources and damage to environment.

3.4.10 In addition, there exists separate rules each for management of hazardous waste, biomedical waste and waste lead acid batteries. A separate regulatory regime for management of construction and demolition waste is being developed and would be introduced shortly.

3.5 Ganga Rejuvenation – Extent of Problem and Challenges

3.5.1 Ganga, the cradle of human Indian civilization since time immemorial originates in upper reaches of Himalayas and downstream of Devprayag at the confluence of Alaknanda and Bhagirathi is known as Ganga. The river drains a basin of extraordinary variation in altitude, climate, land use, flora & fauna, social and cultural life. Millions depend on this great river for physical and spiritual sustenance. The river is deeply revered by the people of this countryandhas a vital role in religious ceremonies and rituals.

3.5.2 The river basin is spread over 26% of India's land mass, is the home of 43% of India's population, and holds 25% of India's water resources providing livelihood to13 million people directly. The basin supports approximately 378 fish species,and endangered species like Royal Bengal Tiger, Gangetic Dolphins, Ghariyals, etc. More than 60% area in Ganga basin is utilised for agricultural purposes in fertilizer alluvialsoil andthe other livelihood opportunities includetourism, idol making, sand mining, micro and small manufacturing other than supporting numerous services towns on the bank of the river.

3.5.3 Rapidly increasing population, rising standards of living and exponential growth of industrialisation and urbanisation have resulted in over-exploitation of water resources leading to various forms of degradationincluding water quality impactingquality of life. Ganga, in some stretches, particularly during lean seasons is almost invisible and highly unfit for even bathing on account of pollution. The threat of global climate change, the effect of glacial melt on Ganga flow and the impacts of infrastructural and industrial projects of the river, raise issues that need a comprehensive and cogent response.

3.5.4 In the Ganga basin approximately 12,000 million litres per day (mld) sewage is generated, against a treatment capacity of only around 4,000 mld. Approximately 3000 mld of sewage is discharged into the main stem of the river Ganga from the Class I & II towns located along the banks, against which treatment capacity of about 1000 mld has been created till date. The contribution of industrial pollution, volume-wise, is about 20 per cent but due to its toxic and non- biodegradable naturecauses serious adverse impact on river water and the flow. The industrial pockets in the catchments of Ramganga and Kali rivers, and in Kanpur city are major sources of industrial pollution. The major contributors are tanneries in Kanpur, distilleries, paper mills and sugar mills in the Kosi, Ramganga and Kali river catchments.

3.5.5 Around 14000 metric tonnes/ day of solid waste generated along the river basin. Open defecation due to incomplete sanitation coverage in 1657 Gram Panchayats is also contributing to river pollution. Besides, there are 784 dams, 66 barrages, 92 weir, and 45 lift schemes located in Ganga Basin which reduces the flow thereby affecting river flow substantially. There are 764 Grossly Polluting Industries (GPIs) on main stem of Ganga which discharge 501 MLD toxic effluents. About 144 Drains are also discharging with BOD Load of 1000 tonnes/day toxic pesticides and fertilizers run off into the river Ganga. Out of the estimated 5000 MLD sewage likely to be generated by 2030, there remains a gap of 55% in treatment capacity

3.5.6 The river Ganga on account of aforesaid anthropogenic factors is becoming a sight where aviral and nirmal dhara is a story of past; pollution abatement has not succeeded – in efficient O&M of sewage treatment infrastructure of whatever capacity is the leading cause; there is a widespread deforestation in catchment areas; the water bodies in the river basin are drying up;and thebiodiversity in the basin is declining gradually.

3.5.7 Government of India has set up National Ganga River Basin Authority (NGRBA) to ensure effective abatement of pollution and rejuvenation of the river Ganga by adopting a river basin approach to promote inter-sectoral co-ordination for comprehensive planning and management and to maintain minimum ecological flows in the river Ganga with the aim of ensuring water quality and environmentally sustainable development. The Authority has initiated number of programmes including Ganga Action Plan, National River Conservation Programme and National Mission for Clean Ganga in the past for rejuvenation of river Ganga. However, these programmes suffered from various shortfalls, namely (i) Interventions restricted to Class I and Class II; (ii) Towns Poor enforcement on Industries;(iii) Operation and Maintenance issues and capacity constraints of ULBs;(iv) No priority to Bio-diversity;(v) Delay and poor quality DPRs Inadequate citizen involvement Ineffective data generation & analysis; (vi) Lack of Inter-Ministerial and Centre-State co-ordination; (vii) Non-point source pollution was not adequately addressed.

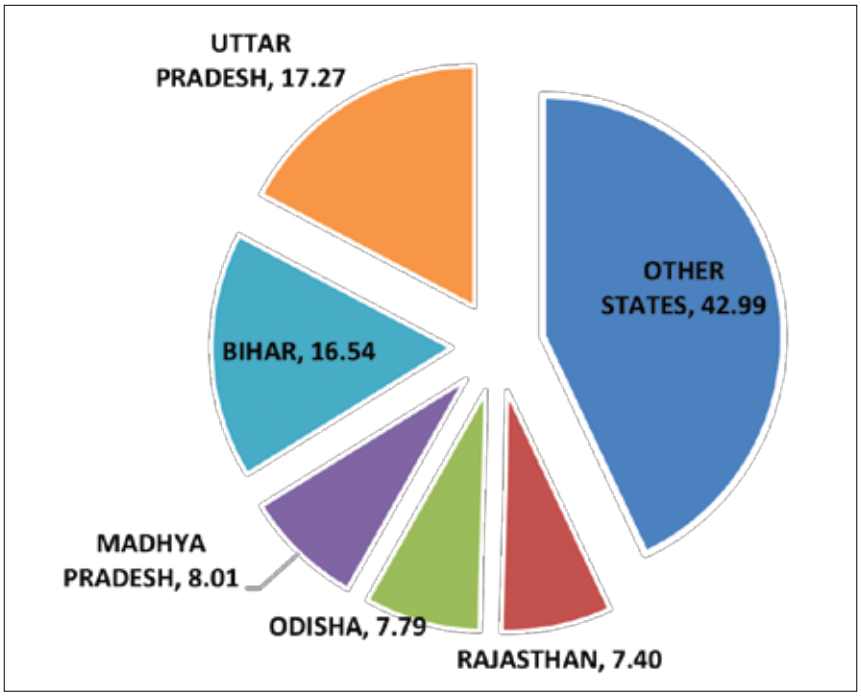
3.5.8 Government of India has taken cognizance of the substantial investment in the conservation and improvement of the Ganga and launched an Integrated Ganga Conservation Mission called “Namami Gange”.

3.6 Open Defecation Free – Extent of Problems and Challenges

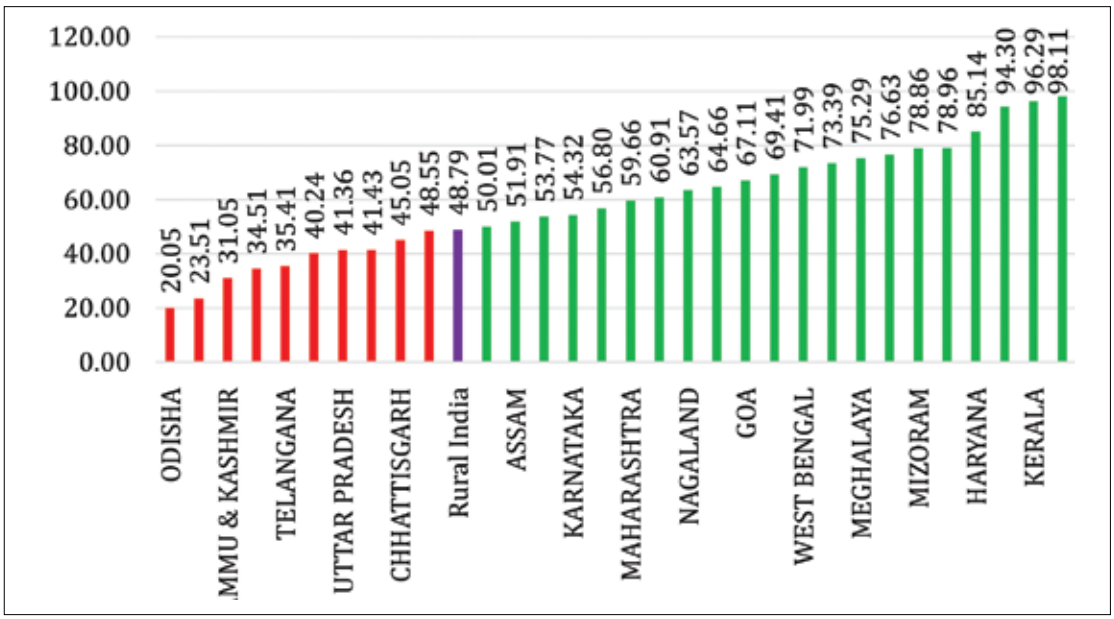
3.6.1 Open defecation refers to the practice whereby people go out in fields, bushes, forests, open bodies of water, or other open spaces rather than using the toilet to defecate. According to UNICEF, India is home to the world’s largest population of people who defecate in the open and excrete close to 65,000 tonnes of faeces into the environment each day. Around 595 million people, which is nearly

half the population of India, defecate in the open. India accounts for 90 per cent of the people in South Asia and 59 per cent of the 1.1 billion people in the world who practise open defecation. Open defecation is a serious threat to health and is the main reason for diarrhoeal deaths among children under-five. Every year, diarrhoea kills 188,000 children under five in India. About 43 per cent of children in India suffer from some degree of malnutrition. Open defecation also puts at risk the dignity of women in India. Women feel constrained to relieve themselves only under the cover of dark for reasons of privacy to protect their dignity.Open defecation exposes women to the danger of physical attacks and encounters such as snake bites. Poor sanitation also cripples national development: workers produce less, live shorter lives, save and invest less, and are less able to send their children to school.

(i) The states, which contribute to Open defecation, are detailed in the figure below.



(ii) The status of State wise sanitation coverage as on 28.12.2015 is given in the figure below.



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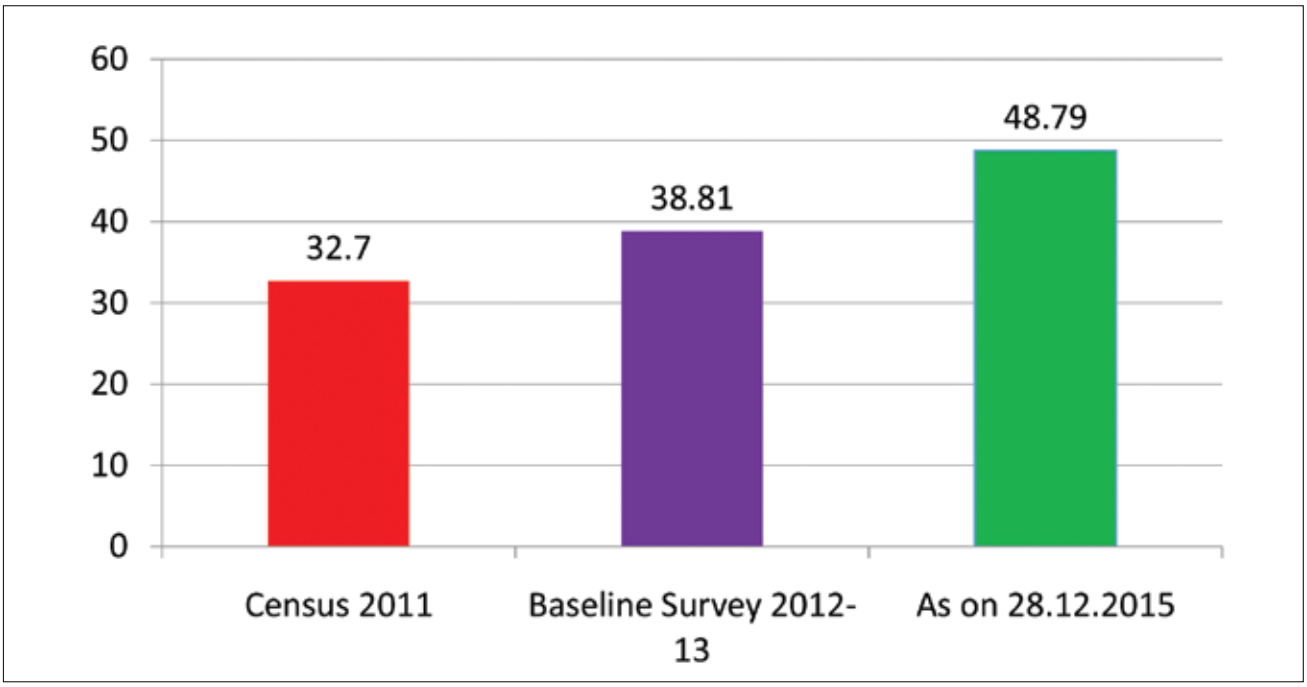

It is evident from the information on open defecation and sanitation given above that there are five States, which contribute maximum to open defecation. These are Bihar, Uttar Pradesh, Rajasthan, Odisha and Madhya Pradesh. These five States contribute about 56.48% of the problem.

3.7 Reinventing the focus Towards Sustainability

3.7.1 **Challenges of Growth** – India is growing. Cities will propel and catapult the growth. Majority of Indians will live in cities. The city infrastructure will demand massive investment. Haphazard, unplanned city morphology will have to be replaced by planned infrastructure; informal sectors will have to be integrated; wage employment has to move towards sustainable self and micro-enterprise; rising city income will accentuate the existing consumption pattern and consumerism will lead to more waste generation.

The following is to be noted:

- Plastic industry is growing at 10% CAGR with 10 million tons output and per capita plastic production consumption is 9.7 kg. 43% of plastic is used in packaging segment.
- Food processing accounts for India's 9% manufacturing sector and with a projected growth of sector at 8% per annum it is likely to reach 100 billion in next 5 years. Plastic packaging of processed food is a preferred mode.
- Indian packaging industry is projected to grow at 15% to reach 59 billion in 2018. With rising income, consumer preference for packaged products and for changing food habits the food processing industry all leading to growth of plastic.
- The collection of plastics is still at the level of 60%.
- There are non-functional usage of plastic packaging leading to the problems in collection of discarded plastic along with one-time use applications.
- Per capita packaging consumption is 4.3 kg.

- Paper is fastest growing sub-strait segment and demand for paper is 6 million TPA, out of which 40% is consumed by paper packaging industries.
- Growth of packaging industry is defying city boundaries and aggressive marketing by FMCGs is making inroads to rural areas – rural areas are also replicating urban sights of littered waste all around.
- Electronic hardware goods reported 31.6 billion dollar turnover in 2015 and is expected to reach 104 billion dollars in 2020.
- Consumer electronics is valued at 29.7% of the total electronic hardware share. FMCGs is expected to reach 20 billion dollar market by 2018. Rural FMCG market is expected to reach 100 billion dollars in 2025.
- Construction industry is growing at 7.8% rate.
- Manufacturing sector recorded a growth of 7.1%.

3.7.2 All these projections indicate a prosperous India, growing India,an economic power India in the making. The composition of MSW, the present rate of collection and treatment of MSW indicate that if the growth parameters would involve the materials which are in the basket of MSW and if the efficiency of civic authorities is outpaced, Indian cities would be the breeding ground of environmental health problems rather than becoming propellers of growth. A directional change and institutional reforms would require a process approach to put in place robust and capable municipal organisations with adequate finances; public awareness and stakeholding of the polluters; integration of weaker sections of economy in the system, robust workable, flexible, legal and institutional mechanism and appropriate technology adoption enabling the chain from source segregation to least landfill approach; and participation of private sector in resource recovery and recycling.

3.8 Legal and Financial Framework of Municipal Bodies

3.8.1 **City governments have prime responsibility for sanitation measures.** These functions are essential and non-exclusive. However, most of the municipal governments have failed in delivery of efficient waste management. Municipal governance in India although in existence in ancient time traces its origin in present formal structure from the British colonial administrative framework which is copied upon county and civic system of United Kingdom. Although municipal administration is recognised as a third tier of Government in aftermath of 74th Constitutional amendment the structure and functioning of such local governments still remain archaic.

3.8.2 **Institutional and financial capabilities of municipal administration is weak.** Sources of revenue and financial grants fall short of requirement; most of the sanitation workers are ill-trained, ill-motivated, citizens are not aware and informed about the cost of services. Of the total municipal finance ranging between 1% to 45% is devoted for sanitation services but out of which 75% is consumed by the salaries of sanitation workers.(NIUA) The municipal finance basket include property tax, sewerage-drainage-conservancy tax, building plan fee, licensing of trade, water tax etc. The finance base is supplemented by State Government grants and infrastructure support, plan finance of Government of India. Tax base is weak on account of lower slabs of tax and inefficient tax recovery. Very few municipal authorities have levied any kind of charge on sanitation services in the form of user fee.

3.8.3 **There is a lack of political will to infuse 'charge based services'** – The present enormous challenge of SWM which cities are faced with calls for redefining, revitalising and re-capacitating the

municipal governments in association with partnership programme with city dwellers, community based organisations and private sector in having created a milieu for higher tax base along with efficient tax collection, imposition of user fee on the services; delineating a specified role for private sector in the areas for resource recovery from the base and not limited to engagement of transport contractors by alluring through a flexible tipping fee. The municipal services have to move from service provider role to service facilitator and regulator.

3.8.4 **The elasticity of the finance for SWM services** to be provided by municipal authorities needs to be increased through government support system on marketing of resources like compost, energy, recycled products as well as direct financial devolution from the higher governments. It is appropriate to mention that manufacturing capabilities of waste management equipment in the country is dismal and customs and excise duty on such equipment adds to the capital cost.

3.9 Sustainability in a Circular Economy

3.9.1 In a circular economy, the most efficient solution of solid waste problem is not to generate it at all. However, in resource recovery pyramid from biodegradable waste, the available options indicate the feasibility of composting at centralised and decentralised level, bio-fertilizers, dry waste conversion into energy pallets, bio-methanation through bio-digesting process; production of ethanol as a bio-fuel, bio-compress natural gas and others. The application of composting is in gardening and soil culture whereas that of bio-methanation is in vehicles, kitchen energy applications, that of dry energy pellets (RDF) is in local cooking in hotels and restaurants to micro energy requirement.

3.9.2 In waste management hierarchy of prevention, reduction, reuse, recycling, energy recovery and disposal occupy the fundamental principle of efficient waste management by way of recovery and salvaging scarce resources from the potentials of the discarded items which not only saves scarce resources but also protects environment and reduces burden on public authorities for collection, transportation and dumping and involves private sector players for generation of employment and additional income. The circular economy of 3 Rs reduce, reuse and recycle civic authorities provide economic fundamental structure to integrate informal sector, rag pickers and private sector.

3.9.3 A circular economy of 3Rs is required to be promoted in Indian cities through creation of logistic chains and marketing of recycled products, promotion of reusable packaging materials and others.

3.10 Public awareness

3.10.1 Involvement of all the stakeholders including city administrator and technical support staff with citizens, NGOs, RWAs, representatives of bulk generators and market associations is necessary to put in place the desired system which will yield the payment-based system for waste generation and disposal. Education materials, celebrations of major occasions, street plays, clean up drives, rallies, signature campaigns, among the city dwellers and targeting specific groups like school children, involvement of political and religious leaders, women's association in addition to electronic and print media will go a long way in putting in place SWM systems in cities which will be participatory and self-sustaining for arresting urban decay, improving quality of life in city, prolonging the city infrastructure in the direction of smart cities which will continue to hold a promise for the rural hinterland it locates in.

* * *

4

Initiatives So Far – Swachh Bharat Mission

4.1 "A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150th birth anniversary in 2019" – Prime Minister of India launched Swachh Bharat Mission at Rajpath in New Delhi on 2nd October, 2014 by exhorting the citizens of the country – *"Na ganda karenge na ganda karne denge"*. The Prime Minister initiated cleanliness drive, and started a chain of multiples of 9 persons to create a sense of responsibility. The transformational change message through behavioural pattern and action is the carrier of Swachh Bharat Mission. Swachh Bharat Abhiyaan is not just about cleaning surroundings but also seeking the participation of people in planting trees, creating a trash-free environment, providing sanitation facilities eventually paving the way for Swachh Bharat. A clean India is of utmost importance for promoting the nation as an ideal destination for tourists from across the world. Images of unclean India often become a matter of embarrassment. This campaign will help citizens adopt the habit of cleanliness and also boost the image of our nation.

4.2 Swachh Bharat Mission - Urban

4.2.1 Census 2011 showed that in 4,041 Indian statutory towns, over 8 million households do not have access to toilets. Weak sanitation has significant health costs and untreated sewage from cities is the single biggest source of water bodies pollution in India. Lack of safe sanitation has the largest impact on the urban poor, causing mortality and morbidity, as well as affecting many aspects of human welfare and general well-being.

4.2.2 Despite sanitation being mainstreamed in Government of India policy through the multi-year Total Sanitation Campaign and its predecessors, sanitation coverage (access to improved sanitation facilities) still remains low, particularly across semi-urban India. The topography, climatic conditions, socio-cultural diversity, size of the country and sheer size of the population add to India's sanitation challenge. Today, **12% of urban Indian households defecate in open, over 200,000 Indians die due to poor sanitation & hygiene, and over 24% young girls drop out of school, just because they lack access to sanitary toilets at home or school.**

4.2.3 With a vision to transform the way Indians perceive sanitation and to ensure 100% scientific management of solid waste being generated, Prime Minister launched the **Swachh Bharat Mission**. This Mission is a joint Mission of the Ministry of Urban Development and the Ministry of Drinking Water and Sanitation.

4.2.4 The **targets** set for the Urban Mission are as under which have to be achieved by 2nd October 2019 are as under:

1. Construction of 1.04 crore individual household toilets (IHHL);
2. Construction of 2.52 lakh community toilet (CT) seats;
3. Construction of 2.56 lakh public toilet (PT) seats; and
4. Achieving 100% door-to-door collection & scientific management of municipal solid waste

4.2.5 Urban Mission Outlay and Central Government Incentives

1. **Government of India funding for various mission components:** The estimated cost of

implementation SBM based on unit and per capita costs is Rs 62,009 crore. The Government of India share amounts to Rs 14,623 Crore. In addition, a minimum additional amount equivalent to 25% of Government of India funding, amounting to Rs 4,874 crore shall be contributed by the States. The balance funds are to be generated through various other sources;

2. **Central share per unit IHHL:** The Central Government incentive for construction of individual household toilets is Rs 4000 per household toilet;
3. **Central share per CT seat:** The Central Government incentive for construction of community toilets is in the form of 40% Grant/VGF for each community block constructed;
4. No Central Government incentive is provided for public toilets;
5. **Central Share for Solid Waste Management:** The Central Government incentive for Solid Waste Management (SWM) projects is in the form of a maximum of 20% grant/VGF for each Project

4.2.6 Central government initiatives towards successful implementation of the Mission

1. Improving Marketability of City Compost.
2. Tariff fixation for Waste-to-Energy plants.
3. Nomination of Swachh Bharat Ambassadors.
4. DGS&D Rate for procurement of MSW equipments.
5. Model RFPs (Requests for Proposals) & Tender Documents.
6. Hand holding and interfacing support to big cities and state capital cities.
7. Showcasing the success stories through learning portals.
8. Independent surveys (Swachh Survekshan) for 74 cities on swachhata.
9. Swachh Bharat Thematic Drives.

Evaluation Parameters		Weightage
1	Strategy for Open Defecation Free town (ODF) and Integrated Solid Waste Management (SWM)	5%
2	Information, Education and Behaviour Change Communication	
3	(IEBC) activity	5%
4	Door to door Collection, Sweeping, Collection & Transportation	40%
5	Processing and Disposal	20%
6	Public & Community Toilet Provision	15%
7	Individual Household Toilets	15%

It is hoped that the ratings would foster a spirit of competition between cities and act as a trigger to improve sanitation. **The Quality Council of India (QCI)** has been commissioned to conduct the survey.

4.2.7 Mission Progress (Till 31st January, 2016)

(in Lakhs)

S.No.	Details	Applications received	Commenced	Completed
1.	Individual Household Latrines, Nos.	42.69	23.25	10.28
2.	Community & Public Toilets, No. of seats		1.34	0.33
3.	Municipal Solid Waste Management	(i) 100% door to door collection in 34,259 wards out of total 78,003 (ii) Waste processing achieved is 18% of total waste generated.		

1. **Resources and Finance:** The resources for the implementation of the Mission are being shared between Centre and State. However, inadequate availability of the funds requires the pooling of resources from the private players. Under Ministry of Finance, a Swachh Bharat Kosh (SBK) has been established, to which corporates and individuals can contribute towards making the mission implementation effective. So far Rs. 300 crores have been contributed. Similarly, in most equipment (including vehicles) linked to sanitation and solid waste management, the excise duty (12.5%) and Custom duty (23%) reduce the affordability of the SBM initiatives. Recommendations and Guidance for ensuring that demand-supply gap of Sanitation infrastructure is met along with bridging the financial gaps is required.

2. **Awareness and Communication:** The Ministry of Urban Development aims at following Hon'ble Prime Minister's vision of making Swachh Bharat Mission a 'Jan Andolan'. This calls for reaching out to every citizen of the country and encouraging them to identify with the objectives of the Mission. A comprehensive National level communication strategy is being prepared by the Ministry of Urban Development, which needs to focus on various aspects of the Indian society and also needs to ensure the uniformity of message being spread across various parts of the country. Some major challenges under the strategy would include:

    a. Intensification of the cleanliness interventions to encourage participation by various departments

    b. Making children and adults an integral part of the Mission's communication strategy and demonstrating children as the change agents

    c. Inculcation of a strong sanitation curriculum in education

    d. Reaching out to households via various forms of media

3. **Community Engagement:** Participation of every Indian citizen is positioned as the core component of the Mission and has been well deemed as a pre-requisite for the success of the Mission. To transform this mission as a 'Jan-Andolan', every citizen needs to pledge their support and work towards achieving as well as sustaining targets. In the on-going survey of 75 pilot cities under SBM (Urban), a 25% weightage has been accorded to Citizen Participation, in addition to ULB data and 3rd Party Observation. An active citizen participation in evaluation if cities' performance on Swachh Bharat Mission metrics, will lend credibility, transparency, and accountability to the mission initiatives.

4. **Capacity Building:** The pan-India scale requires every Urban Local Body (ULB) to implement the Mission in a consistent manner, supported by a Monitoring & Evaluation and Service level framework with an engaging role for non-profits, Citizen Service Centers (CSC) and most importantly the community itself. Both individual and institutional capacity building initiatives will need to be undertaken throughout the mission life-cycle. Provision of benchmarked technologies, encouraging the training of ULB staff, provision of multidimensional E-Learning courses and preparation of Model RFPs for easy procurement are some of the challenges against ensuring sustainability of Mission initiatives.

4.3 Swachh Bharat Mission –Gramin

4.3.1 The Government of India launched a new programme - Swachh Bharat Mission on 2nd October, 2014 to accelerate efforts to achieve universal sanitation coverage, improve cleanliness and eliminate open defecation in India by 2019. The goal of the programme is to achieve Swachh Bharat by 2019.

Swachh Bharat Mission, Gramin {SBM(G)} for rural areas is being implemented by the Ministry of Drinking Water and Sanitation (MDWS).

4.3.2 The main objectives of the SBM(G) are: to bring about an improvement in the general quality of life in the rural areas, by promoting cleanliness, hygiene and eliminating open defecation; to accelerate sanitation coverage in rural areas to achieve the vision of Swachh Bharat by 2ndOctober 2019; to motivate communities and panchayati raj institutions to adopt sustainable sanitation practices and facilities through awareness creation and health education; to encourage cost effective and appropriate technologies for ecologically safe and sustainable sanitation; to develop wherever required, community managed sanitation systems focusing on scientific Solid and Liquid Waste Management systems for overall cleanliness in the rural areas.

4.3.3 The new programme is a shift from the earlier rural sanitation programmes in several respects. First and foremost, under SBM, the focus is on behavior change. Community based collective behavior change has been mentioned as the preferred approach, although the States are free to choose the approach best suited to them. Focus is also on creation of complete open defecation free (ODF) villages, rather than only on construction of individual toilets. This entails triggering the entire village into changing their behavior rather than dealing individually with beneficiaries. Secondly, the new programme provides flexibility to the States (Provinces) in the implementation of the programme. This is essential, given the vast socio-economic-cultural diversity of India, and also from the point of view of promoting innovations. Thirdly, there is greater emphasis on capacity building, especially in community approaches and programme management. Lack of adequate capacities is a major challenge in scaling up the programme. Therefore, various initiatives are being taken to reach out to all the stakeholders. From the Government of India side, the States and select organizations (called Key Resource Centres) are being trained. These in turn are, carrying out trainings at the sub-State level. The key official at the district level- Collector-has been roped in the programme to provide leadership at the district level. They are being exposed to best practices, both through workshops and exposure visits. A National Sanitation and Hygiene Advocacy and Communication Strategy Framework (SHACS) has been developed with the support of UNICEF and other partner agencies. Fourthly, the programme is being run as a citizen's movement with cooperation of all sects of the society including the NGOs, Corporates, youth etc. The Panchayat (Local Government) representatives are being actively involved. This is in tune with the 73rd and 74th Constitutional Amendments in 1992, transferring the subject of sanitation to the urban and rural local governments respectively. Also, there is an emphasis on streamlining administrative and financial procedures, both to cut down on time, as well as to increase accountability. Innovations in technology is being promoted at the National and State levels. Sanitation is being prioritized amongst the overall development agenda. Various other development schemes are being converged with the sanitation outcomes.

4.3.4 In the new SBM(G) programme, funding has been delinked from the livelihood programme, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), since that was leading to inefficiencies and delays in implementation. The incentive for individual toilet has been increased by Rs. 2000 from Rs.10000 to Rs. 12000 for all the poor Below Poverty Line (BPL) households and identified (SC/ST, Small and Marginal Farmers, Landless Labourers with Homestead, Physically Handicapped Women headed households) Above Poverty Line (APL) households. Dedicated funding is provided under the Scheduled Castes Sub Plan (SCSP) (22% of budget) and the Tribal Sub Plan (TSP) (10% of budget), that are to be spent for these two categories of population. Besides, fund is also provided for SLWM, subject to a ceiling of Rs. 0.7/1.2/1.5/2 million to be applicable for

Gram Panchayats having upto 150/300/500/ more than 500 households. A fund of Rs. 0.2 million is available for community toilets. Keeping in view the importance of behavior change communication, 8% of the fund is reserved for this activity.

4.3.5 Fund utilization is planned and implemented through the State and District Swachh Bharat Missions (SSBM and DSBM), which are multi-stakeholder bodies consisting of various government departments and non government stakeholders mandated with planning, supervising and monitoring the programme at the State and district levels. The DSBMs prepare the Annual Implementation Plan (AIP) for districts and supervise the implementation of the programme. The district AIPs are consolidated into State AIPs, which are then discussed with the MDWS, GoI for implementaion and funding.

4.3.6 As per the Baseline Survey done in 2012-2013 around 11.11 crore latrines are to be constructed under the SBM(G) programme in a period of five years (2014-2019). Of these, 8.84 crore are eligible for incentive, 1.39 crore are defunct/dysfunctional and 0.88 crore are ineligible for incentive as per the scheme guidelines. Of the 8.84 crore latrines, around 2 crore are to be done under MGNREGA, leaving a balance of 6.84 crore to be done under the SBM(G) programme.

4.3.7 **Progress since SBM (G)** - There has been a spurt in construction of toilets since the launch of the Swachh Bharat Mission. In the first year of the Mission i.e. from 2.10.2014 to 2.10.2015, 88.71 lakh toilets were constructed, against an expected outcome of 60 lakh. Since the launch of Swachh Bharat Mission, around 132 lakh toilets have already been constructed in the rural areas. The sanitation coverage, which stood at 40.60% as per the National Sample Survey Organisation (NSSO) has increased to around 48.3%. Against an expected outcome of 50 lakh for individual latrines for the year 2014-15, 58,54,987 latrines were constructed, which is achievement of 117% of the target. More importantly 49.49 lakh household latrines were constructed after launch of Swachh Bharat Mission (Gramin), indicating more than 446% increase in construction of toilets after the launch of SBM(G) as compared to pre-SBM period of 2014-15.For the year 2015-16, against the expected outcome of 1.2 crore for individual latrines, around 82.98 lakh latrines have been constructed as on 25-01-2016.

4.3.8 More importantly, besides the construction of toilets, their usage and achievement of ODF is now being monitored. As per the online IMIS, 41,866 villages and 16,470 Gram Panchayats have declared themselves as ODF (as on 30.01.2016). The process of declaration/verification is a continuous process.

4.4 Ganga Rejuvenation

4.4.1 Ganga Rejuvenation encompasses restoration of the wholesomeness of river Ganga – Aviral and Nirmal Dhara. Pollution Abatement is the primary focus but not the only component; Maintenance of flow, rural sanitation, biodiversity conservation, afforestation, monitoring, strengthening public participation are also key to bring back the glory of river Ganga.

4.4.2 Integrated Ganga Conservation Mission called “Namami Gange” has been set up in May, 2015 with a Budget outlay of Rs 20,000 Crores for next 5 years. Namami Gange approaches Ganga Rejuvenation by consolidating the existing ongoing efforts and planning for a concrete action plan for future. The interventions at Ghats and River fronts will facilitate better citizen connect and set the tone for river centric urban planning process. Recognizing the multi-sectoral, multi-dimensional and multi-stakeholder nature of the Ganga Rejuvenation challenge, the key Ministries comprising of (a) WR, RD&GR, (b) Environment, Forests & Climate Change, (c) Shipping, (d) Tourism, (e)

Urban Development, (f) Drinking Water and Sanitation and Rural Development have been working together under the programme.

4.4.3 The programme is a comprehensive approach to rejuvenate river Ganga including its tributaries under one umbrella. The improved Inter-Ministerial and Centre-State coordination is envisaged for effective implementation. Under the programme,the Cabinet has approved a Central Sector Scheme wherein Centre will take over 100% funding to provide for O&M of the assets for a minimum 10 year period.The Public Private Partnership/Special Purpose Vehicle approach will be adopted for pollution hotspots.The indicators and scale to measure performance outcomes will be developed. The programme will have three-tier monitoring mechanism, namely (i) High Level Task Force chaired by Cabinet Secretary; (ii) State level committee chaired by Chief Secretary; and, (iii) District level committee chaired by District Magistrate.

4.4.4 There are eight thrust areas under the programme namely (i) Nirmal Dhara – pollution abatement; (ii) Aviral Dhara – Maintenance of river flow; (iii) River Front Development; (iv) Conservation of biodiversity; (v) Capacity Building and State's participation; (vi) Peoples' participation and creating awareness; (vii) Research and Monitoring (viii) Flood plain protection & sand mining.

4.4.5 Under these thrust areas following Action Points have been envisaged

(i) Nirmal Dhara – pollution abatement

- Re-habilitation and up-gradation of existing infrastructure
- Treatment of sewage and other effluents flowing directly into the river
- Tackling Industrial Pollution
- Promoting sanitation in rural areas on the banks of the river Ganga
- Tackling pollution coming from use of chemical fertilizers and pesticides Tackling pious refuse
- Creating model cremation

(ii) Aviral Dhara – Maintenance of river flow

- Determine and maintain environmental flow

(iii) River Front Development

- Developments of Ghats and beautification of River Fronts at Kedarnath, Haridwar, Kanpur, Varanasi, Allahabad, Patna and Delhi in the current financial year.
- Public Amenities in Char Dham Yatra and Ganga Sagar Ganga Task Force

(iv) Conservation of biodiversity

- Afforestation drive of medicinal plants and native tree species Conserving diversity of Gangetic aquatic life

(v) Capacity Building and State's participation

- Support for DPR Preparation
- Inter-Ministerial Co-ordination, State's Participation &
- Capacity Building

(vi) Peoples' participation and creating awareness

- Ganga Volunteer Corps
- Communication and Public Outreach Activities

(vii) Research and Monitoring

- GIS and Spatial Planning Research projects
- National Ganga Monitoring Centre
- Ganga Institute of River Science

(viii) Flood plain protection & sand mining

- Flood plain demarcation
- Regulation of River Regulation Zone Eco-sensitive Zone
- Regulation of sand-mining

4.4.6 Rejuvenated Ganga aims at tourism, increase livelihood opportunities, more efficient agriculture practices leading to enhance productivity and better health conditions. These objectives are proposed to be implemented through time series activities on pollution abatement in short-term and medium-term along with long-term deliverables to ensure adequate flow of river water.Entry-level activities, which include (i) River Surface Cleaning; (ii) Rural Sanitation; (iii) Crematoria modernization/ renovation/new construction; and (iv) Ghat repair, modernization and new construction.The Medium Term activities for Municipal Sewage Management in 118 cities/towns will include establishment of SPV and its operationlisation and constitution of a High Level Empowered Committee. The medium term activities for industrial pollution envisage sector-wise action plan to achieve zero liquid discharge from distilleries, tanneries and textile industries. The long-term activities will be undertaken for ensuring flow of water which is necessary for Ganga rejuvenation. The long-term measures envisage at least 50% of total flow in all the seasons. This will be ensured by making efficient water use/ reuse in agriculture, industry and households. The similar measures would be taken for all the tributaries of the rivers. No further diversion of water will be allowed. Rainwater harvesting will be promoted for agriculture field, cities and households for ground water recharge. The reuse of treated wastewater in flushing, industry and agriculture will also be ensured.The measures for protection of riverbed including floodplains will include, (i) Riverbed silted up & large number of sand islands formed, fish breeding affected; (ii) Ecologically sustainable sand mining; (iii) River Regulation Zone (RRZ) for flood protection, groundwater recharge and water purification; and (iv) Extensive plantation of Native species. The other associated activities include Biodiversity conservation, afforestation in catchment areas and water quality monitoring.

4.4.7 Despite the reorientation of the programmes of Swachh Bharat and Ganga Rejuvenation, the experience of the last few months has underscored the need for providing a greater impetus to implementation and make these programmes sustainable with greater involvement of people. The next chapter elaborates the Action Plan proposed by the Group in this regard.

* * *

5

Recommendations and Proposed Action Plan

5.1 In consideration of the objectives of Swachh Bharat which intrinsically captures a spatial focus on Ganga Rejuvenation as well, and the magnitude of problems as elaborated in previous chapters, the Group in the task of evolving a policy framework with pragmatic action plan along with strategic priorities and concrete solution having focus on implementation is making recommendations to prioritise schemes, setting targets and the monitoring framework for percolation of the proposed deliverables to ensure that the common man gains with the implementation of transformational sustainable policy framework on Swachh Bharat and Ganga Rejuvenation with people's involvement – an objective which is fundamental to economic growth. These recommendations have been divided into five categories with stated objectives, and each of the recommendations is indicated with the timeline for accomplishment of the same.

5.2 **Strengthening regulatory Framework for effective enforcement, and promotion of recycling and processing of waste to conserve resources and consolidating waste collection systems**

5.2.1 Objectives:

(i) Introduction of Extended Producer's Responsibility (EPR) to ensure that the producers/ manufacturers establish take-back mechanisms for waste/discarded products.

(ii) Creation of partnerships among municipal authorities, bulk generators of waste, producers & manufacturers for entire waste management chain.

(iii) Introduction of civil monetary penalties to enforce the provisions of waste management rules and bring an effective deterrence to influence the behaviour and attitude of the people and institutions.

(iv) Generation of wealth from waste through circular economy.

(v) Partnership of Bulk waste generators with ULBs for waste management.

(vi) Creation of hygienic conditions; prevention of land degradation; & reduction of pollution load.

5.2.2 **Amendment in Waste Management Rules** – Ministry of Environment, Forest & Climate Change administers Environment (Protection) Act, 1986 with a major objective of the Act being protection and improvement of environment and prevention of hazards to human beings, other living creatures, plants and property. The Ministry has formulated following Waste Management Rules under EP Act with themajor objectives of environmentally sound management of such wastes to ensure that they do not affect environment and health.

(i) Bio-Medical Waste (Management and Handling) Rules, 1998

(ii) Municipal Solid Wastes (Management and Handling) Rules, 2000

(iii) Hazardous Wastes (Management, Handling and Trnasboundary Movement) Rules, 2008

(iv) Plastic Waste (Management and Handling) Rules, 2011

(v) E-Waste (Management and Handling) Rules, 2011

These Rules have been framed in the perspective of the scenario and extent of problems during the period of the formulations. The growing challenge and menace of waste along with better methods of waste management have appeared in the times subsequent to the formulation of the rules. Moreover, the non-implementation of the provisions of the rules have indicated the reasons thereof and these are required to be corrected and rectified, and incorporated in the new sets of rules which should take into account the current challenges. The enormity of the size of the waste generated, characteristics of the waste and other associated problems along with the capabilities of the institutions required to intervene in the management process necessitate that these WM Rules be aligned with the paradigms which will ensure waste minimisation, segregation, transportation, 3Rs – establishment of circular economy all in integrated chain to ensure that there is a sense of responsibility among the citizens, willingness to pay for the services and the authority of institutions to be enforceable in case of failure by designated responsible persons. Accordingly, the rules should be amended with following major provisions : (i) The ambit of rules for solid and plastic waste management be increased beyond municipal area to cover urban agglomerates and rural area of the country respectively.

(i) The ambit of rules for solid and plastic waste management be increased beyond municipal area to cover urban agglomerates and rural area of the country respectively.

(ii) Mandate local bodies to incorporate provisions in their respect in State Statute or Bye laws with certain flexibilities to recover 'User Fee' for waste management services, channelize such collection to agency providing such services, and to impose 'Spot Fine' for littering and non-segregation of waste at the Source.

(iii) Responsibilities of individual and institutional generators be introduced regarding source segregation of the waste namely in to three streams, Wet (Biodegradable), Dry (Plastic, Paper, metal, wood, etc) and domestic hazardous wastes (diapers, napkins, empty containers of cleaning agents, mosquito repellents, etc.).

(iv) Bulk & Institutional Generators such as hotels, market associations be made responsible for segregation and sorting and to have partnership with Local Bodies for management of waste generated in their premises (to begin with for gated communities and institutions with area >5,000 sqm)

(v) New townships, Group Housing Societies (exceeding certain area) to have to develop in-house waste handling, and processing arrangements for biodegradable waste.

(vi) Existing standards,in particular the threshold values for heavy metals for compost, be revisited and align with Fertilizer Control Order (FCO).

(vii) The role ULBs in terms of management of solid waste be delineated explicitly.

(viii) Timelines be given to ULBs for door to door collection system by involving Self Help Groups/ Ragpickers, infrastructure for waste management - decentralized processing of wet waste, Material Recovery Facilities/ collection centers for dry waste, transportation and secondary storage of segregated waste and waste processing facilities.

(ix) To improve collection efficiency and prevent littering of plastic carry bags, manufacture, use and sale of plastic carry bags, of thickness less than 50 micron be prohibited. At present the bag of 40 micron thickness is banned.

(x) The ambit of Extended Producer's Responsibility be enhanced to include brand owners using plastic packaging material for their products.

(xi) Simplification in registration/ authorization under e-waste management rules for producers, collection centers, dismantling and recycling through single window system facilitate ease of doing business.

(xii) GPS and Barcode system be introduced for transportation to prevent dumping of biomedical waste on the way by transporters.

(xiii) The provision of co-processing as preferential mechanism over disposal for use of waste as supplementary resource / for recovery of energy be enumerated in the HW Rules.

Recommendation: MoEF&CC should amend five waste management rules incorporating these measures within 3 months.

5.2.3 **Amendment in the municipal bye-laws in recovering user charges and spot fines** – Sanitation and waste management is non-exclusive function of municipal bodies, and statutory as well as delegated legislations are already be place in most of the municipal bodies for recovering user fee for waste management services. Similarly, municipal bodies are empowered in some cases to impose penalties for non-compliance of the directions and instructions for waste management activities. However, most of these statutory provisions and the provisions of the bye-laws are archaic in nature and not commensurate with the challenges in the waste management in current times. The bye-laws of many of the municipal bodies are silent on recovery of user fee or imposition of any kind of penalty as well. The bye-laws of municipal authorities should be amended to incorporate the provision for imposing user fees on the citizens – differential slabs on the quantity of waste generation, type of waste generation – as a part of sanitation levy or a direct imposition in the name of user fee. The provisions should be flexible enough to ensure that if a segment of waste management is outsourced the user fee could be collectable and payable directly to such agencies. The prevalent practices of Surat Municipal Corporation and Pune Municipal Corporation in providing concessions in property tax for efficient direct waste management or subsuming the payment of sanitation charges under any other charge could also be considered. The penal provisions in cases of non-compliance of waste management rules or any other guidelines made by municipal authorities in effective waste management administration must be activated to deter such erratic and uncivil behavioural pattern and municipal bye-laws must be updated to empower municipal functionaries to impose spot-fines for non-compliance of the directions in aid of keeping city clean. Since the number of municipal body is very high; sizes vary; the concentration and types of economic activities differ; the composition of population in terms of property ownership, income – all impacting the capabilities of municipal authorities, it is appropriate that State Government should make model bye-laws to be adopted by municipal authorities on mandatory basis. The Government of India in Ministry of Urban Development should provide financial and technical assistance in preparation of model bye-laws to State Governments.

Recommendation: MoUD to prepare model bye-laws and mandate adoption of such model bye-laws by municipal authorities to recover user charges for waste management services and spot-fines for non-compliance within 6 months and in the interim issue advisory to the State Governments for collection of user charges under existing laws within 3 months.

5.2.4 **Amendment of EP Act, 1986** –In order to achieve the objectives of the EP Act, Government is empowered to issue directions for closure, prohibition or regulation of any industry; and stoppage or regulation of supply of electricity or water or any other service. The penalty for contravention of provisions of the Act and the Rules, order and directions is criminal in nature, and is provided for under Section 15 of the Act for a term of maximum 5 years or with a fine up to Rs. 1 lakh or both with

an additional fine @ Rs.5000 per day with term of imprisonment extending up to 7 years in case of continued defiance after the conviction of first such failure. To meet the stated objectives of the Act, the Central Government has made rules for management and handling of hazardous waste, plastic waste, biomedical waste, e-waste, municipal solid waste. EP Act, 1986 lacks effective deterrent penal provisions. In the situations of violation, either economic activities are required to be put to halt, or the criminal cases are required to be instituted. There is no differentiated penal provision for degrees of violations having varied impacts under the Act – the violations and non-compliance of the provisions of waste management rules have not been treated in the penal provisions differentially to have deterrent impact.

EP Act, 1986 should be amended to provide for calibrated and differential penalties for violations littering on the street or in public place or non-segregation and extending upto non-fulfilment of extended producer's responsibility by producers/ manufacturers; the prescription of penalty forcivic authoritiesneeds to be incorporated in the amended version of EP Act that civil authorities do not derelict themselves in compliance of waste management rules.

Recommendation: MoEF&CC should amend EP Act, 1986 to introduce differential civil monetary penalties to enforce environment protection and waste management rules within 1 year.

5.2.5 **Standardisation of compost and provision for Market Development assistance on manufacturing and marketing of compost** – MSW compost at source itself has potential for toxic elements. Simultaneously, the proportion of nutrients in such compost would also vary depending upon the specific type of MSW. There is a requirement to revise the compost specification and threshold limits of various constituents to ensure that a calibrated system of pricing could be adopted depending on the availability of nutrients e.g., depending on the availability of nitrogen in such compost the price bands should be available for sale of such compost; and the threshold limit should explicitly prohibit the presence of those toxic elements which could adversely impact the quality of soil and ground water. Secondly, provision of market development assistance on city compost sale &deregulating compost manufacturing/ marketing is the first essential regulatory reform required in circular economy.Ministry of Fertilizers provides subsidy to the tune of Rs. 75,000 crore per annum to Chemical Fertilizers. Against it, subsidy to compost is estimated to be around Rs. 3000 crore only over 5 years. Compost increases crop productivity by 30% and at the same time also reduces chemical fertilizers consumption by 30%. This may result in overall saving of subsidy. Supreme Court in its judgment dated September 2006 mandated sale of 3-4 bags of compost for every 6-7 bags of fertilizers. The Ministry of Chemicals and Fertilizers is to facilitate Market Development assistance in form of fixed financial assistance of Rs. 1,500 per tonne on sale of city compost to farmers to boost sales of compost. For appropriate marketing of compost, Compost Marketing Obligation (CMO) may be imposed on the fertilizer companies engaged in marketing Urea to ensure that city compost is an integral part of fertilizer distribution network.

Recommendation: The Ministry of Agriculture to appropriately amend the Fertilizer Control Order, 1985 (FCO) to ensure the elimination of toxic elements; to provide for price bands depending on the availability of various nutrients; and to deregulate manufacturing and marketing of compost. The Ministry of Chemicals & Fertilizers should mandate the fertilizer companies for co-marketing of compost along with chemical fertilizers as a part of their distribution network. This may be done within 3 months.

5.2.6 **Use of compost by municipal authorities to gradually phase out chemicals fertilizers** –The total potential for **municipal waste to compost production** in India is around 54 lakh MT per annum. In contrast, there are only 553 municipal waste-to-compost plants in India in the 4,041 notified urban areas, with installed capacity of only 10 lakh MT per annum. Additionally, 42 compost plants are under construction, which will add 7.25 lakh MT per annum capacity.Organic materials comprise the majority of MSW, so composting play a critical role in achieving the 40-50% waste reduction goals. The new rules for Solid Waste Management facilitate decentralised processing of wet waste into the compost/ biogas. However, Toxicity reduction is particularly important to the production of safe composts from waste. Improper or incomplete sorting can contaminate municipal solid waste and consequently the end product from composting facilities. To reduce toxicity the best way is to ensure proper segregation at source. This has been envisaged under the new Solid Waste Management Rules wherein the local bodies would be mandated to ensure door-to-door collection of segregated waste within two years. Further, the FCO and rules for waste management regulate the quality of the compost and provide threshold values for heavy metals in compost. Keeping in view the above safeguards, the ULBs responsible for maintaining large green spaces (gardens, parks etc.) of the cities by using considerable quantity of chemical fertilizers, should be asked to phase out the use of chemical fertilizers for maintaining such green spaces by utilising the city compost. The Ministry of Urban Development should issue appropriate instructions Urban Development of State/ UTs and thereby directing ULBs to phase out the use of chemical fertilizers.

Recommendation: The MoUD within 6 months to issue appropriate instructions to State/ UTs directing them have an action plan prepared by all ULBs within six months to phase out the use of chemical fertilizers within two years.

5.2.7 **Innovative approaches for multiple uses of biodegradable and farm waste by conversion** – Proven technologies exist for manufacturing and production of ethanol from farm waste which could be used as a raw material for plastic and the subsequent crushing of plastic in downstream could be used in oil and lubricants. Simultaneously, bio-gas and bio-ethanol driven vehicles and bio-fuels in form of pellets and bio-CNG are being experimented. There is a necessity to upscale these technologies and adoption of the same at commercial level. The efforts should begin from fruits and vegetable markets and from agricultural mandis like Azadpur and Okhla in Delhi which should provide the raw material base for development and adoption of these technologies and their further commercialization. Ministry of Agriculture and MoUD should jointly start a mission-mode programme in this direction for information and dissemination of available technologies. To begin with, a national level conference should be organized to discuss and evaluate alternative technologies.

Recommendation: MoUD to organize within 6 months a national level conference for evaluation of alternate technologies; Ministry of Agriculture and MoUD to issue an advisory to State Governments to experiment the innovative technologies for the downstream application in energy generation thereafter.

5.2.8 **Amendment in Tariff Policy to mandate purchase of power from waste to Energy** – Although there are waste to energy plants available in the country the sale of the generation is handicapped by a lack of appropriate tariff commensurate to the production cost. Determination of Generic Tariff will boost the financial viability of Waste-to-Energy plants in the country. The determined generic tariff for Municipal Waste to Energy (WtE) plants is Rs.7.04 per unit and for energy plan using Refused Derived Fuel (RDF) is Rs.7.90 per unit. Amendment of Tariff Policy to mandate purchase of power from Waste-to-Energy plants and treated waste water by thermal plants – Ministry of

Power to amend the Tariff Policy in Electricity Act, 2003, to include a provision for State Electricity DISCOMs to mandatorily include a separate sub category for power generated from Municipal Waste in Renewable Purchase Obligation (RPO) quota. This may include introduction of a separate sub-category of Renewable Purchase Obligation (RPO) quota out of mandated 15% of renewable power purchase obligation, for waste generated power to achieve the target of about 700 MW. The quantum of Renewable power generated under Waste to Energy is too small compared to solar power, but will have large impact in cleaning of cities under 'Swachh Bharat Mission'. **The Group recognized that converting waste to energy should be the last resort in the solid waste management pyramid but realized that this would require regulatory support.**

Recommendation: Ministry of Power to within 3 months amend the Tariff Policy under Electricity Act, 2003, for mandating State Electricity DISCOMs to include a separate sub category for power generated from Municipal Waste in Renewable Purchase Obligation (RPO) quota out of mandated 15% of renewable power purchase obligation, for waste generated power.

5.2.9 **Mandate use of Treated Waste Water**– Use of water in thermal power plants is very high and taking the locational advantages of the availability of fresh water sources most of the TPPs draw fresh water from neighbouring water sources. MoEF&CC has amended the water requirement of the TPPs in recent times. It is necessary that TPPs should be directed to install water treatment facilities at site for multiple use of cycles of water not only in generation process but also in secondary requirement in maintenance of all the infrastructure of the TPPs. Similarly, Railways should only use treated water for washing of tracks and wagons wherever needed.

Recommendation: Ministry of Power should issue direction to all the TPPs to install water treatment infrastructureand use treated water multiple times in their operations and to restrict the use of fresh water in secondary and ancillary facilities in TPPs. Ministry of Railway to issue similar instructions within 3 months.

5.2.10 **Including C&D products as per BIS norms** – The construction industry in India is growing at 10 percent for the last 10 years vis-à-vis work average of 5.5 percent. Further, almost 70 per cent of the building stock in India is yet to come up. Due to this fast pace urbanization, around 25 to 30 million tonnes of **Construction & Demolition (C&D) waste** is generated annually and only less than 5% of that waste is processed. This C&D Waste often piles up on road causing traffic congestion or finds its way in garbage bins/ depots, mixed with other Municipal Solid Waste. There innovative ways through which the C&D Waste can be scientifically processed and even be re-used. However, to ensure major update of C&D products, through the revision in Rules for waste management, it should be mandated that all private and public construction projects with built-up are more than 20,000m2 use building material made out from C&D waste as per BIS norms.For this purpose, the schedule of rates being used by construction agencies of Centre, State, private and public sector should be amended appropriately.

Recommendations: The MoEF&CC within 6 months to put in place the regulatory framework for management of C&D waste incorporating the above mention suggestions. The MOUD and the State Governments should amend the Schedule of Rates presently in practice to facilitate the use of C&D waste.

5.2.11 **Hotels in million+ cities to establish separate waste collection & transportation facilities** – Indians waste as much food as British eat, and hotels are a large contributor with as much as 20% of

hotel food going to waste. The current practice of disposing of biodegradable food waste in landfills is not sustainable and is environmentally undesirable as it depletes the limited landfill space, creates odour nuisance, generates leachate and landfill gases that require further mitigation measures to deal with, and squanders the useful organic contents. Among other measures, reduction in food waste generation and segregation & transportation of waste by the hotels is essential to streamline the food waste processing. City of Surat has implemented collection of waste from restaurants and hotels at night. Waste is carried out through a tractor to the SMC's transfer station. **Hotels and restaurant** owners have to arrange for the tractors. Due to proper waste disposal, cases of water and vector borne diseases have been curtailed. Hotel Associations will be engaged to develop the framework for collection & transportation of food waste to be adopted by the hotel industry in India.

Recommendation: The Ministry of Tourism and the State Governments to issue advisory to Hotels and Restaurants in million+ cities to develop a mechanism in partnership with the ULBs for separate collection of waste of leftover food and its channelization to waste processing facilities as being practised by the Surat Municipal Corporation in 6 months.

5.2.12 **Mandatory segregation, transportation and process of waste at source** – One of the major issues pertaining to ineffective transportation (leakage) and processing of waste, is the **lack of segregation of source**, where liquid & solid wastes are mixed leading to low calorific value of waste, significant reduction in life of the waste processing equipment, hazardous effects to mixing of various types of wastes. This forces ULBs or operators to rely more on waste dumping than processing the waste. While households are being encouraged to segregate waste in the households themselves, or rag-pickers/ door-to-door collectors are being incentivized to segregate the source, it is proposed that large institutional waste generators (such as, malls, industrial setups, etc) in addition to gated communities, ensure segregation at source, which will significantly improve the waste processing output and efficiency. Simultaneously, to begin with the gated communities and institutions with a built up area of more than 5000 sq. m. may be assigned with the responsibility of source segregation, transportation and in-house processing of wet waste.

Recommendation: MoEF&CC under the new regulatory regime for waste management to mandate the segregation, transportation and processing of wet waste at source. Parallely, a specific condition for source segregation, transportation and in-house processing of wet waste shall be incorporated in the Environment Clearances granted to the gated communities and institutions with a built up area of more than 5000 sq. m. The MoUD through ULBs to provide necessary support to these entities in form of technical advisory, financial support, etc. within a year.

5.2.13 **To formulate a policy for remediation of existing landfills** – The municipal dump sites if continue to receive the existing quantity of the solid waste by the year 2031 the requirement of land for setting up landfill for 20 years (considering 10 meter high waste pile) could be as high as 66,000 hectares (1240 hectare per year) of precious land. The revision in MSW Rules is already found necessary for segregation and use of the recyclable waste items to minimise the quantity ending up in landfills to ensure the longer lifespan of scientifically designed landfills. However, it's a major concern that there are 94 major municipal landfill sites in the country – most of them occupying prime land in the centres of cities and is situated in the vicinity of high density residential/ commercial areas. these landfill sites are storehouse of public health hazards, and is having an adverse impact on the quality of life as well as on the value of the land. Although it has been suggested in many quarters that the waste dumped in these landfill sites could be used by extraction to fill in the low-lying areas

and the level grounds of proposed roads; simultaneously, there are recommendations to retrieve valuable and resourceful gas from these landfill sites. However, the environmental safeguards have not been found established so far in any of these processes. Ghazipur dumping grounds is spread in 29 ha. with a height of 35 mtrs. and the approximate value of the land is assessed at Rs.660 crore. The Government is in the process of formulation of a national policy on the remediation of these contaminated sites which is required to be attended not only from the public health point of view but also to restore the core urban landscape. There are models available including the one in which remediation could be financed at a deferred cost from the value of the land on which these landfill sites situate.

Recommendation: MoEF&CC to develop a policy for remediation/ reclamation of existing overburdened/ discarded landfill sites within 1 year.

5.2.14 **Develop eco-labelling of recycled products and assist in market development through government procurement** - Ecolabelling is a kind of environmental labelling that informs the consumers about the quality and environmental impact of the product. Ecolabelling is now a very useful tool to encourage environmental practices for Governments and to identify and establish markets i.e. domestic and international for industries to promote their environmentally preferable products. Many countries have adopted some kind of eco mark, while others are considering program development. There are many different eco labels being used around the world. It is proposed to introduce a Scheme for Eco label for products from waste. The product would be examined in terms of its environmental footprints based on the concept of life cycle approach and would qualify if (i) it is made from waste, (ii) it haslesser potential for pollution in processing, usage and final disposal and (iii) it has potential to save natural resources.The time has come for consumers to take the lead in prompting manufacturers to adopt clean and eco-friendly technologies and environmentally-safe disposal of used products, along with preventive and mitigative approaches. To begin with, the Central and State Government Departments may be asked to give preference to eco-labelled products from waste over the similar products made from natural resources in their routine procurements.

Recommendation: MoEF&CC to develop the eco-labelling scheme for products made out of waste. The Department of Commerce to issue orders/ advisory to all State and Central Government Departments to give preference to eco-labelled products in procurements within 2 years.

5.2.15 **Mandate Dual Pipe water supply system in upcoming industrial and urban estates, and establish differential pricing for treated water** - Water stress is a growing problem in country, particularly due to population growth and excessive water consumption. As per the estimates of Central Pollution Control Board, for the year 2015, against the available treatment of 23277 MLD (37.5%) in 816 STPs, about 62000 MLD of sewerage is generated. There is an immediate need to promote water conservation through an integrated and a community driven model such as use of treated wastewater. This would require lying of separate lines for potable water and recycled water. For this, dual pipe supply system should be introduced in a phased manner in the areas. National Building Code of India 2005 – BIS has specified recycling of treated sewage in flushing system through separate piping system. The issues pertaining to waste water treatment including household sewage and industrial effluent are regulated under the Water (Prevention and Control of Pollution) Act, 1974. It is proposed to amend the appropriate law/ rules including differential pricing system to mandate dual pipeline namely one for fresh water for drinking purposes and other pipeline for treated waste water for utility services in upcoming industrial and urban Estates, and

States should also establish a pricing mechanism for treated and fresh water. Till the law is amended and put in place, it is proposed that a specific condition to this effect should be incorporated in the Environment Clearance being accorded to upcoming industrial and urban Estates projects. For successful implementation of the dual pipeline system it is required to strengthen and expand the infrastructure for waste water treatment in the States. The corporate sector in partnership with the State Urban Development Department should mobilize adequate resource and finance required for development of such infrastructure.

Recommendation: MoEF&CC to amend the appropriate law/ rules to mandate dual pipeline namely one for fresh water for drinking purposes and other pipeline for treated waste water for utility services in upcoming industrial and urban Estates. Meanwhile, MoEF&CC should incorporate a specific condition regarding dual-piping system in the Environment Clearance being accorded to upcoming industrial and urban Estates projects. The State Governments to introduce differential pricing system for fresh and treated waste water. This may be done within 3 to 5 years.

5.3 Resources & Financial Strengthening

5.3.1 Objectives:

(i) Accelerate creation of infrastructure

(ii) Encourage local participation

5.3.2 **Swachh Bharat Kosh**– Swachh Bharat Kosh has been set up by the Central government to mobilise resources for improving sanitation and waste management facilities in rural and urban areas through the Swachh Bharat Abhiyan.Similarly, Clean Ganga Fund has been set up to attract voluntary contribution for rejuvenation of river Ganga. The contribution and donations in Swachh Bharat Kosh and Clean Ganga Fund are eligible for 100% deduction from the total income of the individual contributor in accordance with the amended section 80G of the Income Tax Act. India is a large country with federal polity. The waste management strategy and programme focusses upon decentralised efforts for environmentally sound management of such waste. Simultaneously, the river Ganga is a national river, however it traverses through States of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal, and is having a direct bearing on landscape, social fabric and economic systems of the people from these States. The regional focus of the programmes supported by these two Funds requires reach out to the remotest of villages. **Creation of State-specific funds for Swachh Bharat and Ganga rejuvenation will be of equal importance in augmentation of resources if these Funds provided the dispensation for income-Tax exemption as under 80G is provided to these State-specific Funds as well.** The State Governments will find it more flexible to utilise the amount available in State-specific funds rather than queuing up to avail support from Central SBK or Central Clean Ganga Fund which surely will be based on some parameters.

Advisory to CPSEs – The amendments introduced in the year 2013 to the Companies Act has introduced several provisions related to corporate social responsibility (CSR). The concept of CSR is to facilitate giving something back to the society in respect of the resources in the form of raw material, human etc. taken by the corporate houses from the society. According to information collected by the DPE from 111 CPSEs, they have spent Rs.345.37 crore (14.53%) on sanitation and Rs.96.46 crore (4.06% on Swachh Bharat Kosh. If both are taken together they represent Rs.441.83 crore (18.59%) out of the total CSR expenditure of Rs.2376.38 crore for 2014-15.In respect to other CSR activities, CPSEs have spent Rs.225.29 crore (9.48%) on health care, Rs.62.48 crore

(2.63%) on Drinking Water Supply, Rs. 14.42 crore (0.61%) on Poverty Alleviation, Rs.440.33 crore (18.53%) on Education, Rs.115.45 crore (4.86%) on Skill Development, Rs.95.43% crore (4.02%) on Social Welfare, Rs.413.73 crore (17.41%) on Forests and Environment, Rs.12.04% crore (0.51%) on Armed Forces Welfare, Rs.38.87 crore (1.61%) on Sports activities, Rs.7.44 crore (0.31%) for SC/ST/OBC/Minorities/Women Welfare, Rs.460.08 crore (19.36%) on Rural Development, Rs.0.62 crore (0.03%) on Slum Area Development and Rs.6.88 crore (0.29%) on other areas.

Keeping in view the availability of considerable funds under CSR, it is proposed to devise a formal mechanism to encourage private and CPSEs to contribute to the Kosh. It is proposed that the CPSEs should spend at least 33% of CSR fund on Swachh Bharat and Ganga rejuvenation activities. Assuming that the level of funds available in the next three years with CPSEs under CSR would be of the same level as in 2014-15 (Rs.3683 crore), this could bring additional resources of about Rs.3,600 crore upto 2018-19.

Recommendation: i) Ministry of Finance to make appropriate amendments in the Income-tax Act, 1961 to provide a dispensation for income-Tax exemption as under Section 80G of the Act to the SBK and Clean Ganga Fund at State level. ii) The DPE should issue and advisory to spend 33% of CSR funds on Swachh Bharat activities. (3 months)

5.3.3 **Excise and Custom duty exemption** - In having taken note of the challenges and opportunities for growth in the country and the potential environmental impact of the solid waste generation the Ministry is proposing to amend the waste management rules to align with principles of recover, recycle and reuse. The directional change is aimed at recovery of resources from the discarded items to reduce load on virgin resources as well as in the process to generate employment with the major objectives of Swachh Bharat Abhiyan which is an integral of smart city programme of Government of India. The streams of segregated waste comprise wet waste convertible into compost and/ or bio-methanation; dry waste including paper, tin, glass, plastic, other valuable metals in electronic items into energy generation for direct co-processing and/ or feeding into the grid and/ or direct use for ignition by bio-methanation among others. In addition, the construction and demolition waste are recyclable for their reuse into construction activities preferably in segments on non-load bearing structure and/ or in form of aggregate of proportionate mix. The collection, transportation and processing of the waste require application of technology for various capital goods. The manufacturing and import of the capital goods as listed in this Annexure are subjected to taxes and duties at Central as well as State level. The existing basic custom duty on these goods is as high as 40% whereas the highest slab of excise duty applicable on such goods is 12.5%. The imposition of additional excise duty and countervailing duty in case of imported equipments adds to the cost of these equipments. The waste stream segments for resource recovery like to energy, to compost, for use of construction and demolition waste and methanation are at nascent stage in the country. The economic markets for the products are not readily available at a cost commensurate to investment on account of higher input cost and specific regulatory measures for price determination like that of electricity. Although, the proposed waste management rules mandate and promote waste segregation and thereafter utilisation for recovery through electricity generation, gas generation, composting, use of construction and demolition waste, the capital cost for procurement of the equipments becomes high on account of existing taxes and duties. It is evident that excise duty has been brought to naught level in 2005 on select equipments deployed for waste management by municipal authorities. **However, to promote resource recovery it is appropriate that capital cost for all the equipments in waste**

management sector is rebated by way of tax holiday at least for the period of two fiscals to attract investment in waste resource recovery industry.

Recommendation: The Ministry of Finance to provide excise duty exemption on capital goods deployed in waste management processes in the forthcoming Budget.

5.3.4 **Advisory to the State Governments to make/ amend bye-laws** – For a bottom-up reinforcement, states need to ensure that private sector involvement in door-to-door collection is encouraged, which will not only improve the service quality but improve the down-stream waste management supply chain. To finance the services, states may be required to make/amend bye-laws to notify user charges for door-to-door collection facilities. Further, concept and enforcement of spot-fines by police, NGOs, and even citizens needs to strengthen to create a deterrent to non-involved waste generation and littering at local levels. Though this is being envisaged under the new regulatory regime for waste management and the proposed amendments to the EP Act, it is proposed that State Urban Development Departments should be advised to make/ amend bye-laws enabling the ULBs to impose user charges for door-to-door collection and spot fines for littering and non-segregation of waste at source. This is essential for the sustainability of waste management model being proposed.

Recommendation: MoEF&CC to incorporate appropriate provisions regarding door-to-door collection, user charges and spot fines in the rules for waste management. The MoUD should issue advisory to States to make/ amend bye-laws for user charges for door-to-door collection and spot fines for littering. (3 months)

5.3.5 **Priority to ODF Villages under GOI Scheme for providing piped water supply:** Swachh Bharat guidelines provide provisions for performance grants to villages and cities meeting their targets. DWS is administering the National Rural Drinking Water Programme. One of the components of this Programme is Rural Pipe water Supply Scheme which proposes to cover at least 55% of the total rural households with piped water. The budgetary allocation criteria of the Scheme should be reformulated to provide higher allocation to the villages achieving ODF status in 1 year. MoRD and DWS should identify other schemes as well under which a higher performance grant and priority would be granted to the villages achieving 100% ODF in times to come.

Recommendation: DWS should reformulate the budgetary allocation criterial of Rural Piped water Supply Scheme to ensure that the villages achieving 100% ODF till March, 2017 should get higher allocation for piped water supply to the village and households.MoRDand DWS should identify other rural development schemes to provide similar performance incentives to ODF status villages. (6 months)

5.3.6 **Replicating Tamil Nadu model of Waste Management under MNREGS & setup at least one waste management facility (organic) in 50,000 villages in 2016-17 under National Rural Livelihood Mission** - Sanitation is one of the eligible activities under MNREGS for wage employment. However, only State of Tamil Nadu has been utilizing this fund for sanitation and waste management but limited to sweeping of streets and public places. The management of waste is not only problem of cities but also seen in surrounding rural areas. As pointed out earlier, most of the ULBs have weak financial resources and the smaller ones, including panchayats use meagre finance for sanitation works, the funds available under MNREGS is a major boost in the direction of sanitation and waste management. The State Governments should be advised to utilize MNREGS wages for not only sweeping but for other waste management activities as well. Simultaneously, National Rural Livelihood Mission, a GOI scheme entitles a group to avail assistance upto Rs.2.5

lakh in productive activities for micro enterprises. The State Governments should be advised to set up/ form SHGs of interested unemployed youth particularly women to engage themselves in waste management particularly that of bio-composting or similar activities to generate additional income and reduce the quantity of waste. A national target to set up 50,000 waste management units for bio-composting in rural areas should be fixed for 2016-17.

Recommendation: MoRD should advise all the State Governments to replicate Tamil Nadu model of Waste Management under MNREGS & setup at least one waste management facility (organic) in 50,000 villages in 2016-17 under National Rural Livelihood Mission. (1 years)

5.3.7 **Adoption of water bodies in villages** by the bank branches – Rural India has a network of 37953 bankbranches (2013). Water bodies have an important role in village social, economic and environmental setting. The water bodies provide basic ecosystem and economic services to the villages in terms of the provisioning for irrigation water, drinking water, bathing purposes, cleaning of animals, religious offering etc. In addition, water bodies moderate the flood and recharge the ground water, and are the source of water supply during non-rainy season. With increasing pollution these water bodies have become very shallow, dirty, unhygienic and many a places have been completely covered with vegetation - rendering them of no use of social and ecological services. At times many diseases are also caused by polluted water bodies. The bank branches located in rural areas service the economic system, thrift system of the villages. The GoI initiatives of Jan Dhan Yojana is integrating the entire rural population through banking network. Banks in aid of rural ecosystem should come forward and devote a minor resource from their own fund towards restoration of water bodies which will help in the greening and hygiene of the villages.

Recommendation: Department of Financial Services, MoF to advise every bank branch located in the village to adopt one local water body for restoration and upkeep within 6 months.

5.3.8 **Restoring the financing pattern of individual and household toilets IHHL to 75:25 between Centre and State from the existing pattern** of 60:40 – The Swachh Bharat Mission (SBM) aims at making India free from open defecation to be achieved by 2nd October 2019. Ministry of Rural Development is implementing the programme for construction of individual household toilets (IHHL) under MNREGS and SBM (Gramin), the latter being implemented by the Department of Drinking Water and Sanitation since October, 2014 with a target of construction of 8.84 crore IHHL. The programme started in the year 2014-15 with funding pattern of 75:25 Centre and State. So far, 1.36 crore IHHL have been constructed. However, during the current fiscal the funding pattern was changed to 60:40 in the realigned Central plan funding system which is likely to hamper the progress of the Mission on account of weak financial condition of the State Governments. This is a flagship programme of Government of India and in the current focus for Swachh Bharat **it is appropriate and recommended that the funding pattern be restored to 75:25** which will lead to additional burden of Rs.19,520 crore on Government of India which can be recouped from the Swachh Bharat Cess on service tax levied from November, 2015 to fund SBM. The revenue estimated to be collected from the cess till 31.3.2016 is about Rs.3,750 crore. The amount estimated to be collected from Swachh Bharat cess on all taxable services which are not exempt or in negative list in a full financial year is about Rs.10,000 crore, which will be adequate to meet this additional liability.

Recommendation: Ministry of Finance consider restoration of cost sharing pattern for construction of individual households toilets to 75: 25 between Centre and State instead of present 60:40. (3 months)

5.4 People's Participation

People's participation is a must for the success of Swachh Bharat Mission and Ganga Rejuvenation. The recommendations under this section are made keeping in view the following objectives:

(i) Improve ownership

(ii) Involve all field functionaries & grassroot organisations

(iii) To foster the spirit of Swachh Bhartiye se Swachh Bharat

5.4.1 **Harness NSS, NCC, NYK, Scouts & Guides and Eco clubs in Swachh Bharat activities -**

The NCC has a total of 765 units in 586 districts, 6985 schools and 5159 colleges having more than 13 lakhcadets spread all over the country. In addition, there are several units of NSS having 3.2 million student volunteers on its roll spreading over about 298 universities, and about 3.5 million Scouts and 1.9 million Guides, NYKs working in various educational institutions and eco clubs etc. To encourage active youth participation and ensure sustainability of such national causes beyond the mission period, a self-sustainable institutional framework may be created to engage in various areas to support the missions, including, behavioural change, volunteering, research, citizen engagement, etc. The potential of these existing groups should be harnessed to promote Swachh Bharat activities and the proposed institutional framework can be in the form of an ECO-Club with support from NSS, NCC or Nehru Yuvak Kendras.

Recommendation: Ministry of Youth Affairs, Ministry of Defence, Ministry of HRD and MoEF&CC to develop an institutional framework by involving NSS, NCC or Nehru Yuvak Kendras, eco-clubs to ensure sustained public participation in the Swachh Bharat Abhiyan and Ganga Rejuvenation. (3 months & ongoing)

5.4.2 **Use all field functionaries, like Aanganwadi & ASHA** - According to the studies, over 1.5 lakh motivators are needed to be trained and integrated into the rural sanitation system to bring about necessary behaviour change and trigger leading to adoption of safe and hygienic sanitation practices. There are about 1.05 million Aanganwadi centres employing 1.8 million workers and helpers across the country. According to government figure Aanganwadi reaching about 1.8 million children and 10.23 million women. In addition, there are 9,07,918 ASHAs/ link workers and 71,002 volunteer organizations and NGOs who have signed up on NGO-Partnership system portal being maintained by NITI Aayog. It is proposed that field functionaries in Aanganwadi &ASHA workers, Teachers, ADOs, Veterinary Assistants, SHG & NGOs need to be formally trained and on-boarded as 'Motivators', with necessary capacity building by way of providing standard training toolkits.

Recommendation: DWS to develop and provide separate tool kits on Swachh Bharat Abhiyan and Ganga Rejuvenation to all field functionaries such as Aanganwadi & Aasha workers, Teachers, ADOs, Veterinary Assistants, SHG & NGOs. (3 months)

5.4.3 **Credit for practical action on recycle, reduce, reuse -** In order to bring about a Bio-composting Kranti there should be a provision for Credit for practical action on Recycle, Reduce, Reuse in education. In addition to having public hygiene, sanitation and waste management linked education built into the curricula at education institutions, early into the primary school stage, it is proposed

that under SUPW (Socially Useful Productive Work), focus is put on practical action led by projects in community engagement, projects in innovative sanitation and waste technologies, volunteering, etc. with a provision for course credit to students taking up practical projects.

Recommendation: MHRD to make necessary amendments in the curricula at educational institutions to provide credit to the student's practical projects on recycle, reduce, reuse of biodegradable and dry waste. (3 months)

5.4.4 **Provide higher weightage for citizen feedback in periodic ranking surveys of the performance of city in achieving cleanliness** - In the on-going survey of 75 pilot cities under SBM (Urban), a 25% weightage has been accorded to Citizen Participation, in addition to ULB data and 3rd Party Observation. Quality Council of India is currently executing the survey of 75 cities with calls made to over 2 crores citizens for feedback, 30 lakh responded to the call and over 90,000 feedback collected so far, halfway through the survey in 75 cities. An active citizen participation in evaluation if cities' performance on SBM metrics, will lend credibility, transparency, and accountability to the mission initiatives. This will also create significant local level awareness about ULB and one's roles. As part of the scale of the survey program to rest of the nation including rural areas in further surveys to be conducted, weightage of citizen participation should be further increased upto 50%. ULBs will be mandated to maintain service delivery records on public domains to ensure complete transparency for citizens to evaluate ULB's activities and performance.

As more and more private agencies are involved in the upkeep, maintenance and cleaning of public facilities like hospitals, schools, railway stations, it would be necessary to evolve appropriate standards and benchmarks of performance so that adequate standard of cleanliness is ensured. The Group recommended that MoUD may devise objective and verifiable standards for measuring cleanliness in hospitals, schools, railway stations and Government offices for determination of Swachh Bharat ranking. The status of compliance to such standards should be given appropriate weightage in the assessment of cities performance.

Recommendation: i) MoUD should devise objective and verifiable standards for measuring cleanliness in hospitals, schools, railway stations and Government offices for determination of Swachh Bharat ranking. ii) MoUD and DWS to provide weightage upto 50% for citizens' feedback in assessment of the cities performance to meet the sanitation challenges (6 months)

5.4.5 **Expansion of Swachh Bharat Ambassadors chain** – Hon'ble Prime Minister of India initiated the formation of Swachh Bharat Ambassador's chain by nominating 9 prominent persons and exhorting them to create multiples of 9 Ambassadors to touch every single citizen with commitment to action for sanitation. On 9th September 2015, all 100+ ambassadors were invited by hon'ble President of India to acknowledge their commitment and request their more active participation in making Swachh bharat a 'Jan Andolan'. On Swachhbharat.mygov.in over 500 challenges have been taken leading to 2,900 activites reported by the ambassadors. However, it is necessary that this Ambassador chain reaches every single citizen with each citizen being part of multiple levels of chain created. Ministry of Urban Development is evaluating incentive mechanism to motivate expansion of the Ambassador chain. For example, the ambassadors with deepest chain will be recognized as Platinum, Gold, Silver ambassadors. Further they should be recognized through various mechanism, including on Republic Day.

Recommendation: MoUD &DWSto issue advisories to help expansion of Swachh Bharat Ambassadors chain as a part of their beneficiary programmes. (3 months)

5.4.6 **Activation of Setting up of District Level Review & Monitoring Committee (DLRMC)** – Swachh Bharat Mission provides for regular review meeting of the District Level Review & Monitoring Committee (DLRMC) to monitor mission's progress to be chaired by Members of Parliament (16th Lok Sabha) who have been nominated as Chairman/ Co-Chairman. In the month of July 2015, the Ministry has requested all states to constitute the district-level committee and conduct the meeting at the earliest. The experiences so far indicate that the meetings of DLRMC are not being held on regular and periodic basis which is affecting the monitoring of the programmes. It is necessary that the progress of each and every component at implementation level and on the ground is monitored with people's representative to ensure that corrective measures could be taken and the progress to be fastened. It is appropriate that there is a single committee at district level headed by the Member of Parliament (Lok Sabha) to monitor the progress of the Swachh Bharat initiatives at district level.

Recommendation: MoUD and DWS jointly constitute a single DLRMC and issue directives for activation of DLRMC and its continued periodic review meetings. The first meeting to take place within 3 months. (3 months & ongoing)

5.4.7 **Institution of Swachhta Awards at National/ State level** – National level awards on Sanitation should be instituted. At present, SBM Urban Awards 2015 have been launched and are be open to Urban Local Bodies (ULBs), Parastatal Agencies, Water Utilities and Boards, Non-Government Organizations, Community-based Organizations, Private-Sector Organizations, Bilateral and Multilateral Agencies in collaboration with ULBs. The awards cover wide range of good practices that have resulted in enhanced quality of sanitation service delivery levels to the citizens at large and the poor and marginalized in particular under the seven different categories of 1) Innovative Practices in Improving Access; 2) Solid Waste Management 3) IEC and Public Awareness 4) Public Private Partnership 5) Innovative Financing 6) Innovative O & M and 7) ICT in Urban Sanitation & Regulation. It is proposed that the awards will be scaled up and extended to Private Institutions, Citizens and cover work done in both urban and rural areas. The awards should be announced every Republic Day from next year onwards.

Recommendation:MoUD and DWS to institute and scale up National and State Level Swachhata awards for cities, national institutions, and citizens to be conferred on Republic Day. The scheme may be notified within 6 months.

5.5 Communication Strategy

Objective of Communication Strategy area as under:

(i) Maintain momentum and influence behavioural change

5.5.1 **Swachhata Diwas** to be practiced in all educational institutions – To encourage practical action, especially with children, youth, who are not only the beneficiaries of Swachh Bharat, but also the on-ground change-agents to influence their families to adopt clean and hygienic practices. Hence, it is proposed that first working day of every week be practised as 'Swachhta Diwas' on which every student, officials will participate in various activities, including, cleanliness drives within their own premises and for other locations to organize cleanliness campaigns and promoting community engagement.

Recommendation: MHRD will issue directions to all educational institutions recommending to recognize Swachhata Diwas on first working day of every week. MHRD will also issue guidelines and tool-kits, including IEC material to the educational institutions to facilitate consistent and effective student engagements for Swachhata Diwas (3 months)

5.5.2 **Swachhata Geet during mid-day meal/ assembly at schools** – To make the mission a 'Jan Andolan, Ministry of Urban Development has taken unique initiative and composed 'Swachhta Geet'. This song aims to present a voice to the Swachh Bharat mission, taking it to millions of citizens, and making a lasting imprint in the hearts of people. This song is aimed to help Swachh Bharat movement inspire every citizen to make cleanliness a part of their daily lives and make the mission a 'Jan Andolan'. This could be translated in different languages or new songs composed. It is recommended that Swachhta Geet be sung in schools during assembly or lunch breaks as a prayer so that the commitment is reinforced in every student.

Recommendation: MHRD will issue instructions to all educational institutions recommending that Swachhta Geet be sung in schools during assembly or lunch breaks, so that the commitment to cleanliness is reinforced in students. (3 months)

5.5.3 **To develop toolkits for all Motivators** – Given the scale of mission implementation covering all towns and villages in scope to make India 100% ODF, consistency of implement action becomes the most important critical success factor to ensure every town and village becomes 100% ODF in real-sense. In addition to capacity building at ULBs, it is equally important that the on-field functionaries and motivators have the necessary tools to engage communities and bring about the necessary behavioral changes. Given that several best practices and Information material exists, Ministry should develop and collate high-quality Information material and toolkit that will be disseminated to all field functionaries so that they can effectively work as motivators.

Recommendation: DWS will develop and collate high-quality Information material and toolkit that will be disseminated to the motivators. (3 months)

5.5.4 **Constitution of a high powered committee to coordinate multimedia campaign** – A multimedia campaign is necessary for dissemination and outreach and advocacy of all the programmes for Swachh Bharat and Ganga Rejuvenation to reach every common man and to elicit every common man's participation in speech and action. The various modules of activities and propogation of the components of Swachh Bharat is targeted at different types of institutions, vocations and segments of population. A committee in the Ministry of I&B comprising relevant Ministries may be set up to guide and supervise the outreach and advocacy of all the programmes in SBM and Ganga Rejuvenation to ensure sustainability of the programmes.

Recommendation: Ministry of I&B to constitute a High Powered Committee to coordinate and monitor intensive multimedia campaigns for disseminations, outreach and advocacy (3 months)

5.6 Capacity Building

Objectives:

(i) Create manpower & employment and improve capabilities

(ii) Synergize with SKILL INDIA and MAKE IN INDIA

5.6.1 **Skill development in Water, Sanitation & Solid Waste Development as career options** – The education curriculum of the vocational institutions should include management of water, sanitation and solid waste. The ITIs and polytechnics although have introduced applied courses but are yet to introduce subjects of sanitation and solid waste management. Most of the industrial institutions in the management of their pollution abatement are utilizing varied trades by retraining them for operation of such pollution control equipments and waste management facilities. With the gigantic task of

institutionalizing waste management facilities in the country for creation of production resources from the waste and to operated ETPs and STPs it is necessary that the professional courses and skills are institutionalized as career options in ITIs, Polytechnics and other technical institutions. The Ministry of Skill Development has already formalized a sub-vertical on skills in sanitation and waste management. It is time that all State Governments should start professional courses in this relevant field to cater to the demand which already exists and is likely to grow.

Recommendation: MHRD, M/o Skill Development and State Governments to start skill development/ Diploma courses in technical institutions with water, sanitation and solid waste as career options. (6 months)

5.6.2 **Integration of ragpickers and kabadiwalas in waste collection system by Registration & formation of Groups** – The ragpickers and kabadiwalas are essential entities of present city sanitation system wherein they are collecting, sorting and channeling the dry, productive, discarded items from the heaps of the waste or from the generation centre. However, they are operating an informal system; they are highly uneducated; they are working in unhygienic environment; and are not paid well. A policy measure towards circular economy for reuse, recover and recycle will necessarily require the services of ragpickers and kabadiwalas. The services of the present Group need to be integrated in the formal economy by way of their recognition and registration at ULB level to ensure the fair treatment to them. Simultaneously, to help assist formation of self-help groups comprising ragpickers and kabadiwalas will enhance their livelihood and aid in organized waste collection and segregation process in addition to removing the present stigma they face.

Recommendation: MoEF&CC/ MoUD/ DWS to bring guidelines for integration of ragpickers and kabadiwalas (1 year)

5.6.3 **Showcasing best practices on e-learning platform** – M/o Urban Development has started online learning portal through which e-courses on the best practices of different cities are being offered. The web portal www.swachhbharaturban.gov.in is hosting the e-courses on different municipal subjects, based on live best-case studies that have been actually implemented. The e-courses are open to all municipal functionaries in interactive mode as tutorial followed by quiz on subject matters, which can be taken at any time convenient and any number of times for full comprehension. It is proposed that over 100 course covering various aspects of sanitation, waste management service delivery will be prepared and will target over 100,000 ULB officials. It is proposed that the platform be expanded in the near future.

Recommendation: MoUD and DWS to develop e-courses on different subjects, covering various aspects in sanitation and waste management including success stories and best practices. (1 year)

5.6.4 **DGS&D Rate Notification for SWM linked equipments**–To avoid frequent procurement delays and for standardization of equipment in the municipal solid waste management sector, Director general of Supplies & Disposal (DGS&D) to finalise Rate Contracts to facilitate Cities/ Towns in procuring required equipment directly from the RC holders off-the shelf. DGS&D rate contracts have been finalized for 47 items with additional 136 items in pipeline. The notification may further be expanded to other standard equipments.

Recommendation: DGS&D to finalise the Rate Contract Notification for remaining items and equipment in consultation with MoUD. (6 months)

5.6.5 **Development of Model RFPs (Requests for Proposals)**– Model RFPs (Requests for Proposals) & Tender Documents should be prepared and put up on the web portal www.swachhbharaturban.gov.in to enable States/Cities & Towns to roll out proposals & projects. These should include RFPs for Collection, Processing plan in PPP model, and Community/ Public Toilets, Integrated SWM and facilitate development of business model. Over 25-20 Model RFPs and concession agreements to be prepared, followed by orientation sessions with the ULBs. Equally importantly, the usage or the RFPs need to be monitored with support from empanelled agencies to provide advisory support to the ULBs for large transactions keeping in view different business models.

Recommendation: MoUD and DWS should develop model RFPs and Concession Agreements on all the aspects of sanitation and waste management facilitating development of business model. (6 months)

5.6.6 **Develop and Disseminate Technology alternatives for resource recovery and sanitation** –techniques and technologies for pollution abatement, waste management and for recovery of resources are available world over; at micro level the application of indigenous as well as imported technologies is in vogue over years. However, the scalability and its replication is still handicapped. The State Governments and local bodies are not finding access to available technologies with proven results for adoption with preferred cost. In the suggested framework for resource recovery from biodegradable waste to various options of energy use and for dry waste for recycling and reuse it is necessary that the Governments at all level develop a pool of technologies, patented and unpatented for demonstration, propagation and deployment at individual, community and aggregated commercial level for ensuring the adoption and retrofitment of most appropriate technology at every level having taken note of the cost of such technologies and possibility of local adaptation.

There is ample scope for utilization of waste materials for road construction. However, appropriate environmental safeguards are required to be put in place because of possible environmental, health and safety concerns associated with the usage of some of the waste materials. Thus, further research is needed before any specific waste material is finally approved as an alternative road construction material. It is envisaged that availability of suitable technology, appropriate legislation and awareness among all stake holders can widen the possibilities of using some of the waste materials for sustainable road construction. Central Road Research Institute (CRRI) should immediately conduct research on utilising some of the material that can be retrieved from landfills and use in some form in road construction.

Recommendation: i) DST to develop a bank of technology alternatives for sanitation and resource recovery and disseminate the same. (ongoing) ii) M/o Road Transport, Highways through CRRI should get a research done for utilisation of the material retrieved from landfills in road construction. (6 months)

5.7 Specific action planfor Ganga Rejuvenation

Objective:

Create an effective institutional mechanism for coordinated & speedier implementation of the Namami Gange project

5.7.1 **Notification on River Regulation Zone** – The landscape of the banks of river Ganga has become a site of unauthorized development and construction. Even the low lying areas high and frequent flood zones have been encroached. The longitudinal area on both the banks of the river bring annual

floods and contribute to alluvium rejuvenation and ground water recharge which is being hampered by the development and construction along the banks. The ground water recharge is being affected on account of interruption of the natural flow of water. Unscientific and excessive sand mining in select stretches including in ecological fragile areas is impacting the self-rejuvenation capacity of the river flow. It is necessary to put in place a regulatory mechanism to ensure that river banks are developed only in ecologically sustainable manner to help the coexistence of river flow and economic activities.

Recommendation: MoEF&CC to notify River Regulation Zone to maintain river ecology.(1 year)

5.7.2 **Notification ofimproved standards for industrial water consumption** – Industrial water use has a cumulative whammy of inefficient water consumption and pollution. Thermal power plants consume 87% of industrial water use in India; pulp and paper 2.25%, and textiles 2.1%. With the current rate of water consumption, industry and energy sector which consume 8% of India's water will required 80 BCM of water by 2025. TPPs in India, on an average, consume 80 m3/mwh generation. The reasons for inefficiency in water consumption are attributable to its low pricing and outdated or lack of mandatory water efficiency standards. Ganga basin suffers on account of serious challenges posed by over-consumption of water which depletes the basin water budget as well as pollutes the river. Specific waste water discharge standards for industries need to be made stricter. The MoEF&CC recently, has revised standards for water use in pulp & paper, sugar industries and TPPs aiming at less drawl of water from the river as well as ground water and adopting the use of treated water. The water use standards for sugar has been halved from 400 liters per ton; that of paper & pulp fixed at 40 m^3/ tonfrom 100 m^3/ ton, and that of TPPs have been revised to achieve a zero discharge in the plants to be installed after 2017.

Recommendation: MoEF&CC to notify improved standards of water consumption in all industrial segments. (1 year)

5.7.3 **Rainwater harvesting in urban areas/ towns along river Ganga** – Rain water harvesting has been practiced in various parts of the country over centuries to meet the requirement of water during lean season and to control surface runoff rain water. The Ganga Basin receives 85% of the rainfall during monsoon season.The summer is arid with high water deficiencies. The dependence on river flow is also very high during summer season when the Ganga and its tributaries also has less flow of water. The rainwater harvesting should be mandated while approving building plans in cities in villages to ensure that drawl of ground water and from the river is less during lean season and the life support system for households and commercial needs is fulfilled from the stored water. Simultaneously at village and community level rain water should be harvested in water bodies /ponds to meet the requirement of water. Rain water harvesting structures is a mandatory requirement for all the towns in Tamilnadu and it has helped in water conservation immensely. Dissemination of information about the available technologies in terms of its costing, feasibility and ease of construction and its scalability assumes an important role when the rain water harvesting is to be adopted as a mandatory construction requirement.

Recommendation: Ministry of Urban Development and State Governments should make it mandatory condition in building approval plans to have rainwater harvesting facilities; and technology workshops should be conducted at the city level in Ganga basin to disseminateinformation about the available technologies in terms of its costing, feasibility and ease of construction and its scalability.MoEFCC should amend EIA Notification to

provide for mandatory rain water harvesting in the buildings more than 5,000 sq. meter. (6 months)

5.7.4 **Adoption of Seechewal Model for community led sanitation programmes** – The Seechewal Model, Jalandhar district Punjablooks at diverting open drains, practice of segregation of solid and liquid waste, treatment of waste water through oxidation ponds, use of treated water for irrigation, and composting of solid waste. It is an instance of a community-based river conservation initiative where local villagers are conserving the natural resources and their habitat. Also, the Model is a religious and environmental initiative, which originally started in the Jalandhar district in the state of Punjab and gradually spread to the adjoining areas. The people of the villages along this rivulet had been discharging their dirty water and sewage into the Kali Bein. The communities came forward to stop this by constructing indigenoussewerage system units comprising of small ponds to which the sewage flows for treatment. The dirty sewage water was collected into these common ponds and after treating this waste water in indigenous manner, the clean water was supplied through pipelines to farmers for irrigating their fields. Conservation of water and the savings were made in terms of cost of fertilizer used in agricultural fields and the hygienic impact on the lives of villagers. The environmental, economic and social impacts of the Seechewal initiative are visible, as they have not only helped improve the living conditions of the residents but also their general quality of life. It is proposed to replicate this model in to villages in the Ganga basin.

Recommendation: MoWR, DWS and State Governments should involve people in community sanitation programmes based on the lessons learned from Seechewal model. (to start in 3 months)

5.7.5 **Promotion of Ganga Chaupal, Ganga Sabha, Ganga Sansad through community leaders** –The banks of river Ganga have been interaction centres for multiple socio-cultural and economic activities over centuries. Various kinds of socio-economic groups of different orders already exists having a chain of followers in attainment of the objectives these groups are formed. Many of such groups are engaged in the conservation of river Ganga and/ or for activities performed on the banks of river Ganga. There are community and social leaders recognized in high esteem and there are regular and periodic celebrations/ congregations on the banks of river Ganga. The efforts of Namami Gange programme in their outreach to common people and to increase higher stakeholding is required to be supplemented by promotion of Ganga Chaupals at village level, Ganga Sabha at small town level and Ganga Sansad at large town levels on secular/ religious partnerships with the involvement of community leaders, influential opinion makers and people's representatives.

Recommendation: MoWR/State Governments to organize and promote Ganga Chaupals, Ganga Sabhas and Ganga Sansads for outreaching Namami Gange programmes. (1 year)

5.7.6 **Involvement of corporate houses in Ganga rejuvenation** – The MoWR in Namami Gange project has initiated multi-pronged strategy for entry level rejuvenation activities for surface cleaning, modernization and construction of ghats and crematoria in identified spots and river stretches. The long stretch of the river Ganga and its tributaries and the huge population these streams support require the Government finance and effort to be supplemented by the corporate houses by way of adoption of ghats and river stretches for ecological restoration and maintenance with people's participation.

Recommendation: MoWR and States to involve corporate houses in entry level activities of Ganga rejuvenation. (1 year)

5.7.7 **Dissemination of information on river health** – Health of the river expressed in technical terms about the chemical and biological characteristics of the water. In technical terms water quality is assessed by physico-chemicals features, presence of nutrients and heavy metals. The progressive indicators of river health include fish movement, riparian vegetation, free flow, sediment transfer and others. However, the awareness about the river health is least available. In general terms the colour of river water, presence of mud, broken streams etc. are perceived by the local population to be indicators of poor health of the river. With the existing level of pollution in river Ganga which is impacting not only the river life but also the socio-economic conditions of the people, it is necessary that innovative measures on river health are prescribed in local language for people to understand the impact of the bad quality of water as well as the problems of river movement, so that the same could be understood and appreciated to ensure the popular participation in the programmes for Ganga rejuvenation.

Recommendation: MoWR/ States to develop and popularize river health card preparation and disseminate about the results of the water sample of the river to ensure public concerns and efforts to ameliorate it. (6 months)

5.7.8 **Maintenance of Aviral Dhara in river Ganga** – Uninterrupted and continued flow of river water is the natural river course is the lifeline for riverine ecology to and supports self-rejuvenation of the river. The adequate flow in the river is necessary to support aquatic biodiversity, sediment transportation, ground water recharge through aquifers and helps assist the river water quality improvement. In Ganga basin, the diversion of the river water from the mainstream as well as tributaries for irrigation purposes reduces the river flow and there is a lack of adequate minimum flow affecting the entire spectrum of river support system. Simultaneously, many dams and barrages have been constructed leaving downstream dry stretches in the river stream. Arguably, 80-90% of water diverted for agriculture purpose reach back the river streams through underground channels but the drawl of river water for non-irrigation purposes are creating a deficit in the river water balance and consequently impacting Aviral Dhara. The rejuvenation of many of the water bodies on the banks and in the vicinity of river banks; and new water bodies to harvest rain water will not only reduce the dependence on the river water but also recharge the ground water – all will ensure Aviral Dhara in its earnest perspective

Recommendation: MoWR and State Governments to adopt measures to reduce drawl of water from river Ganga and its tributaries; and to rejuvenate all existing water bodies in the river basin and also to create new water bodies. (1 year)

5.7.9 **National law and Authority for Ganga rejuvenation and river conservation–** The river Ganga flows through 5 Indian States and its basin is spread across 11 States. These riparian States have not focused upon judicious use of river water neither serious pollution abatement efforts have been taken so far. Water is a State subject in Indian Constitution. However, the drainage basin of river Ganga has national importance and affects the socio-economic life of more than 40% population of the country. The responsibilities and accountabilities of State Government remain segregated and scattered and of late are the subject of judicial pronouncements on pollution abatement. The practices world-over particularly in Europe indicate that the trans-national rivers have been treated under international treaty for allocating the responsibilities and usufructs among the territories through which the river passes keeping basic principles for river ecology sacrosanct and not to be breached by aby riparian territory. On a similar model, a national legislation could bring in order the

basic principles for the life of river Ganga in terms of its environmental and ecological exploitation, river banks preservation, regulated use of water among others.

Recommendation: MoWR to move a Bill for enactment of national law for rejuvenation and conservation of river Ganga and set up river authority to plan, execute and monitor action plan after wide-ranging consultations. (12-18 months)

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6

Summary of Recommendations

6.1 Action Points for Ministry of Environment, Forest & Climate Change (MoEF&CC)

1) MoEF&CC should amend five waste management rules incorporating these measures within 3 months.(para 5.2.2)

2) MoEF&CC should amend EP Act, 1986 to introduce differential civil monetary penalties to enforce environment protection and waste management rules within 1 year. (para 5.2.4)

3) The MoEFCC within 6 months to put in place the regulatory framework for management of C&D waste incorporating the above mention suggestions. The MOUD and the State Governments should amend the Schedule of Rates presently in practice to facilitate the use of C&D waste. (5.2.10)

4) MoEF&CC under the new regulatory regime for waste management to mandate the segregation, transportation and processing of wet waste at source. Parallely, a specific condition for source segregation, transportation and in-house processing of wet waste shall be incorporated in the Environment Clearances granted to the gated communities and institutions with a built up area of more than 5000 sq. m. The MoUD through ULBs to provide necessary support to these entities in form of technical advisory, financial support, etc. within a year. (para 5.2.12)

5) MoEF&CC to develop a policy for remediation/ reclamation of existing overburdened/ discarded landfill sites within 1 year. (para 5.2.13)

6) MoEF&CC to develop the eco-labelling scheme for products made out of waste. The Department of Commerce to issue orders/ advisory to all State and Central Government Departments to give preference to eco-labelled products in procurements within 2 years. (para 5.2.14)

7) MoEF&CC to amend the appropriate law/ rules to mandate dual pipeline namely one for fresh water for drinking purposes and other pipeline for treated waste water for utility services in upcoming industrial and urban Estates. Meanwhile, MoEF&CC should incorporate a specific condition regarding dual-piping system in the Environment Clearance being accorded to upcoming industrial and urban Estates projects. The State Governments to introduce differential pricing system for fresh and treated waste water. This may be done within 3 to 5 years. (para 5.2.15)

8) MoEF&CC to incorporate appropriate provisions regarding door-to-door collection, user charges and spot fines in the rules for waste management. The MoUD should issue advisory to States to make/ amend bye-laws for user charges for door-to-door collection and spot fines for littering. (para 5.3.4)

9) Ministry of Youth Affairs, Ministry of Defence, Ministry of HRD and MoEF&CC to develop an institutional framework by involving NSS, NCC or Nehru Yuvak Kendras, eco-clubs to ensure sustained public participation in the Swachh Bharat Abhiyan and Ganga Rejuvenation. (3 months & ongoing) (para 5.4.1)

10) MoEF&CC/ MoUD/ DWS to bring guidelines for integration of ragpickers and kabadiwalas (1 year) (Para 5.6.2)

11) MoEF&CC to notify River Regulation Zone to maintain river ecology. (1 year) (para 5.7.1)

12) MoEF&CC to notify improved standards of water consumption in all industrial segments. (1 year) (para 5.7.2)

13) Ministry of Urban Development and State Governments should make it mandatory condition in building approval plans to have rainwater harvesting facilities; and technology workshops should be conducted at the city level in Ganga basin to disseminate information about the available technologies in terms of its costing, feasibility and ease of construction and its scalability. MoEFCC should amend EIA Notification to provide for mandatory rain water harvesting in the buildings more than 5,000 sq. meter. (6 months) (para 5.7.3)

6.2 Action Points for Ministry of Urban Development (MoUD)

1) MoUD to prepare model bye-laws and mandate adoption of such model bye-laws by municipal authorities to recover user charges for waste management services and spot-fines for non-compliance within 6 months, and in the interim issue advisory to the State Governments for collection of user charges under existing laws within 3 months. (para 5.2.3)

2) The MoUD within 6 months to issue appropriate instructions to State/ UTs directing them to have an action plan prepared by all ULBs within six months to phase out the use of chemical fertilizers within two years. (para 5.2.6)

3) MoUD to organize within 6 months a national level conference for evaluation of alternate technologies; Ministry of Agriculture and MoUD to issue an advisory to State Governments to experiment the innovative technologies for the downstream application in energy generation thereafter. (para 5.2.7)

4) The MoEFCC within 6 months to put in place the regulatory framework for management of C&D waste incorporating the above mention suggestions. The MOUD and the State Governments should amend the Schedule of Rates presently in practice to facilitate the use of C&D waste. (5.2.10)

5) MoEF&CC under the new regulatory regime for waste management to mandate the segregation, transportation and processing of wet waste at source. Parallely, a specific condition for source segregation, transportation and in-house processing of wet waste shall be incorporated in the Environment Clearances granted to the gated communities and institutions with a built up area of more than 5000 sq. m. The MoUD through ULBs to provide necessary support to these entities in form of technical advisory, financial support, etc. within a year. (para 5.2.12)

6) MoEF&CC to incorporate appropriate provisions regarding door-to-door collection, user charges and spot fines in the rules for waste management. The MoUD should issue advisory to States to make/ amend bye-laws for user charges for door-to-door collection and spot fines for littering. (para 5.3.4)

7) MoUD should devise objective and verifiable standards for measuring cleanliness in hospitals, schools, railway stations and Government offices for determination of Swachh Bharat ranking. MoUD and DWS to provide weightage upto 50% for citizens' feedback in assessment of the cities performance to meet the sanitation challenges (6 months) (para 5.4.4)

8) MoUD & DWS to issue advisories to help expansion of Swachh Bharat Ambassadors chain as a part of their beneficiary programmes. (3 months) (para 5.4.5)

9) MoUD and DWS jointly constitute a single DLRMC and issue directives for activation of DLRMC and its continued periodic review meetings. The first meeting to take place within 3 months. (3 months & ongoing)(para 5.4.6)

10) MoUD and DWS to institute and scale up National and State Level Swachhata awards for cities, national institutions, and citizens to be conferred on Republic Day. The scheme may be notified in 6 months. (6 months) (para 5.4.7)

11) MoEF&CC/ MoUD/ DWS to bring guidelines for integration of ragpickers and kabadiwalas (1 year) (Para 5.6.2)

12) MoUD and DWS to develop e-courses on different subjects, covering various aspects in sanitation and waste management including success stories and best practices. (1 year)(para 5.6.3)

13) DGS&D to finalise the Rate Contract Notification for remaining items and equipment in consultation with MoUD. (6 months) (para 5.6.4)

14) MoUD and DWS should develop model RFPs and Concession Agreements on all the aspects of sanitation and waste management facilitating development of business model. (6 months) (para 5.6.5)

15) Ministry of Urban Development and State Governments should make it mandatory condition in building approval plans to have rainwater harvesting facilities; and technology workshops should be conducted at the city level in Ganga basin to disseminate information about the available technologies in terms of its costing, feasibility and ease of construction and its scalability. MoEFCC should amend EIA Notification to provide for mandatory rain water harvesting in the buildings more than 5,000 sq. meter. (6 months) (para 5.7.3)

6.3 Action Points for Department of Drinking Water & Sanitation, Ministry of Rural Development (DWS, MoRD)

1) DWS should reformulate the budgetary allocation criterial of Rural Piped water Supply Scheme to ensure that the villages achieving 100% ODF till March, 2017 should get higher allocation for piped water supply to the village and households. MoRD and DWS should identify other rural development schemes to provide similar performance incentives to ODF status villages. (6 months) (5.3.5)

2) MoRD should advise all the State Governments to replicate Tamil Nadu model of Waste Management under MNREGS & setup at least one waste management facility (organic) in 50,000 villages in 2016-17 under National Rural Livelihood Mission. (1 years) (para 5.3.6)

3) DWS to develop and provide separate tool kits on Swachh Bharat Abhiyan and Ganga Rejuvenation to all field functionaries such as Aanganwadi &ASHA workers, Teachers, ADOs, Veterinary Assistants, SHG & NGOs. (3 months) (para 5.4.2)

4) MoUD and DWS to provide weightage upto 50% for citizens' feedback in assessment of the cities performance to meet the sanitation challenges. (6 months) (para 5.4.4)

5) MoUD & DWS to issue advisories to help expansion of Swachh Bharat Ambassadors chain as a part of their beneficiary programmes. (3 months) (para 5.4.5)

6) MoUD and DWS jointly constitute a single DLRMC and issue directives for activation of DLRMC and its continued periodic review meetings. The first meeting to take place within 3 months. (3 months & ongoing)(para 5.4.6)

7) MoUD and DWS to institute and scale up National and State Level Swachhata awards for cities, national institutions, and citizens to be conferred on Republic Day. The scheme may be notified in 6 months. (6 months) (para 5.4.7)

8) DWS will develop and collate high-quality Information material and toolkit that will be disseminated to the motivators. (3 months) (para 5.5.3)

9) MoEF&CC/ MoUD/ DWS to bring guidelines for integration of ragpickers and kabadiwalas (1 year) (Para 5.6.2)

10) MoUD and DWS to develop e-courses on different subjects, covering various aspects in sanitation and waste management including success stories and best practices. (1 year)(para 5.6.3)

11) MoUD and DWS should develop model RFPs and Concession Agreements on all the aspects of sanitation and waste management facilitating business model . (6 months) (para 5.6.5)

12) MoWR, DWS and State Governments should involve people in community sanitation programmes based on the lessons learned from Seechewal model. (to start in 3 months) (5.7.4)

6.4 Action Points for Ministry of Finance (MoF)

1) Ministry of Finance to make appropriate amendments in the Income-tax Act, 1961 to provide a dispensation for income-Tax exemption as under Section 80G of the Act to the SBK and Clean Ganga Fund at State level. (3 months) (para 5.3.2)

2) The Ministry of Finance to provide excise duty exemption on capital goods deployed in waste management processes in the forthcoming Budget.(5.3.3)

3) Department of Financial Services, MoF to advise every bank branch located in the village to adopt one local water body for restoration and upkeep within 6 months. (para 5.3.7)

4) Ministry of Finance should consider restoration of cost sharing pattern for construction of individual households toilets to 75:25 between Centre and State instead of present 60:40. (3 months)(para 5.3.8)

6.5 Action Points for Ministry of Human Resource Development (MHRD)

1) Ministry of Youth Affairs, Ministry of Defence, Ministry of HRD and MoEF&CC to develop an institutional framework by involving NSS, NCC or Nehru Yuvak Kendras, eco-clubs to ensure sustained public participation in the Swachh Bharat Abhiyan and Ganga Rejuvenation. (3 months & ongoing) (para 5.4.1)

2) MHRD to make necessary amendments in the curricula at educational institutions to provide credit to the student's practical projects on recycle, reduce, reuse of biodegradable and dry waste. (3 months) (para 5.4.3)

3) MHRD will issue directions to all educational institutions recommending to recognize Swachhata Diwas on first working day of every week. MHRD will also issue guidelines and tool-kits, including IEC material to the educational institutions to facilitate effective student engagements for Swachhata Diwas (3 months) (para 5.5.1)

4) MHRD will issue instructions to all educational institutions recommending that Swachhta Geet be sung in schools during assembly or lunch breaks, so that the commitment to cleanliness is reinforced in students. (3 months) (para 5.5.2)

5) MHRD, M/o Skill Development and State Governments to start skill development/ Diploma courses in technical institutions with water, sanitation and solid waste as career options. (6months) (para 5.6.1)

6.6 Action Points for Ministry of Agriculture (MoA)

1) The Ministry of Agriculture to appropriately amend the Fertilizer Control Order, 1985 (FCO) to ensure the elimination of toxic elements; to provide for price bands depending on the availability of various nutrients; and to deregulate manufacturing and marketing of compost. The Ministry of Chemicals &Fertilizers should mandate the fertilizer companies for co-marketing of compost along with chemical fertilizers as a part of their distribution network. This may be done within 3 months. (para 5.2.5)

2) MoUD to organize within 6 months a national level conference for evaluation of alternate technologies; Ministry of Agriculture and MoUD to issue an advisory to State Governments to experiment the innovative technologies for the downstream application in energy generation thereafter. (para 5.2.7)

6.7 Action Points for Ministry of Chemicals & Fertilizers (MoCF)

1) The Ministry of Agriculture to appropriately amend the Fertilizer Control Order, 1985 (FCO) to ensure the elimination of toxic elements; to provide for price bands depending on the availability of various nutrients; and to deregulate manufacturing and marketing of compost. The Ministry of Chemicals & Fertilizers should mandate the fertilizer companies for co-marketing of compost along with chemical fertilizers as a part of their distribution network. This may be done within 3 months. (para 5.2.5)

6.8 Action Points for Ministry of Commerce & Industries (MoC)

1) MoEF&CC to develop the eco-labelling scheme for products made out of waste. The Department of Commerce to issue orders/ advisory to all State and Central Government Departments to give preference to eco-labelled products in procurements within 2 years. (para 5.2.14)

2) DGS&D to finalise the Rate Contract Notification for remaining items and equipment in consultation with MoUD. (6 months) (para 5.6.4)

6.9 Action Points for Ministry of Information & Broadcasting (MoI&B)

1) Ministry of I&B to constitute a High Powered Committee to coordinate and monitor intensive multimedia campaigns for disseminations, outreach and advocacy (3 months) (para 5.5.4)

6.10. Action Points for Ministry of Defence (MoD)

1) Ministry of Youth Affairs, Ministry of Defence, Ministry of HRD and MoEF&CC to develop an institutional framework by involving NSS, NCC or Nehru Yuvak Kendras, eco-clubs to ensure sustained public participation in the Swachh Bharat Abhiyan and Ganga Rejuvenation. (3 months & ongoing) (para 5.4.1)

6.11 Action Points for Ministry of Skill Development

1) MHRD, M/o Skill Development and State Governments to start skill development/ Diploma courses in technical institutions with water, sanitation and solid waste as career options. (6months) (para 5.6.1)

6.12 Action Points for Ministry of Youth Affairs

1) Ministry of Youth Affairs, Ministry of Defence, Ministry of HRD and MoEF&CC to develop an institutional framework by involving NSS, NCC or Nehru Yuvak Kendras, eco-clubs to ensure sustained public participation in the Swachh Bharat Abhiyan and Ganga Rejuvenation. (3 months & ongoing) (para 5.4.1)

6.13 Action Points for Department of Science & Technology

1) DST to develop a bank of technology alternatives for sanitation and resource recovery and disseminate the same. (ongoing) (para 5.6.6)

6.14 Action Points for Department of Public Enterprises

1) The DPE should issue and advisory to spend 33% of CSR funds on Swachh Bharat activities. (3 months) (para 5.3.2)

6.15 Action Points for Ministry of Power (MoP)

1) Ministry of Power within 3 months to amend the Tariff Policy under Electricity Act, 2003, for mandating State Electricity DISCOMs to include a separate sub category for power generated from Municipal Waste in Renewable Purchase Obligation (RPO) quota out of mandated 15% of renewable power purchase obligation, for waste generated power. (para 5.2.8)

2) Ministry of Power should issue direction to all the TPPs to install water treatment infrastructure and use treated water multiple times in their operations and to restrict the use of fresh water in secondary and ancillary facilities in TPPs. Ministry of Railway to issue similar instructions within 3 months. (para 5.2.9)

6.16 Action Points for Ministry of Tourism

1) The Ministry of Tourism and the State Governments to issue advisory to Hotels and Restaurants in million+ cities to develop a mechanism in partnership with the ULBs for separate collection of waste of leftover food and its channelization to waste processing facilities as being practised by the Surat Municipal Corporation in 6 months. (para 5.2.11)

6.17 Action Points for Ministry of Railways

1) Ministry of Power should issue direction to all the TPPs to install water treatment infrastructure and use treated water multiple times in their operations and to restrict the use of fresh water in secondary and ancillary facilities in TPPs. Ministry of Railway to issue similar instructions within 3 months. (para 5.2.9)

6.18 Action Points for Ministry of Road Transport, Highways & Shipping

1) M/o Road Transport, Highways through CRRI should get a research done for utilisation of the material retrieved from landfills in road construction. (6 months) (para 5.6.6)

6.19 Action Points for State Governments/ UTs

1) MoUD to prepare model bye-laws and mandate adoption of such model bye-laws by municipal authorities to recover user charges for waste management services and spot-fines for non-compliance within 6 months, and in the interim issue advisory to the State Governments for collection of user charges under existing laws within 3 months. (para 5.2.3)

2) The MoUD within 6 months to issue appropriate instructions to State/ UTs directing them to have an action plan prepared by all ULBs within six months to phase out the use of chemical fertilizers within two years. (para 5.2.6)

3) MoUD to organize within 6 months a national level conference for evaluation of alternate technologies; Ministry of Agriculture and MoUD to issue an advisory to State Governments to experiment the innovative technologies for the downstream application in energy generation thereafter. (para 5.2.7)

4) The Ministry of Tourism and the State Governments to issue advisory to Hotels and Restaurants in million+ cities to develop a mechanism in partnership with the ULBs for separate collection of waste of leftover food and its channelization to waste processing facilities as being practised by the Surat Municipal Corporation in 6 months. (para 5.2.11)

5) MoEF&CC to amend the appropriate law/ rules to mandate dual pipeline namely one for fresh water for drinking purposes and other pipeline for treated waste water for utility services in upcoming industrial and urban Estates. Meanwhile, MoEF&CC should incorporate a specific condition regarding dual-piping system in the Environment Clearance being accorded to upcoming industrial and urban Estates projects. The State Governments to introduce differential pricing system for fresh and treated waste water. This may be done within 3 to 5 years. (para 5.2.15)

6) MoEF&CC to incorporate appropriate provisions regarding door-to-door collection, user charges and spot fines in the rules for waste management. The MoUD should issue advisory to States to make/ amend bye-laws for user charges for door-to-door collection and spot fines for littering. (para 5.3.4)

7) MHRD, M/o Skill Development and State Governments to start skill development/ Diploma courses in technical institutions with water, sanitation and solid waste as career options. (6months) (para 5.6.1)

8) Ministry of Urban Development and State Governments should make it mandatory condition in building approval plans to have rainwater harvesting facilities; and technology workshops should be conducted at the city level in Ganga basin to disseminateinformation about the available technologies in terms of its costing, feasibility and ease of construction and its scalability.MoEFCC should amend EIA Notification to provide for mandatory rain water harvesting in the buildings more than 5,000 sq. meter. (6 months) (para 5.7.3)

9) MoWR, DWS and State Governments should involve people in community sanitation programmes based on the lessons learned from Seechewal model. (to start in 3 months) (para 5.7.4)

10) MoWR/ State Governments to organize and promote Ganga Chaupals, Ganga Sabhas and Ganga Sansads for outreaching Namami Gange programmes. (1 year) (para 5.7.5)

11) MoWR and States to involve corporate houses in entry level activities of Ganga rejuvenation. (1 year) (para 5.7.6)

12) MoWR/ States to develop and popularize river health card preparation and disseminate about the results of the water sample of the river to ensure public concerns and efforts to ameliorate it.(6 months) (para 5.7.7)

13) MoWR and State Governments to adopt measures to reduce drawl of water from river Ganga and its tributaries; and to rejuvenate all existing water bodies in the river basin and also to create new water bodies. (1 year) (para 5.7.8)

14) The MoEFCC within 6 months to put in place the regulatory framework for management of C&D waste incorporating the above mention suggestions. The MOUD and the State Governments should amend the Schedule of Rates presently in practice to facilitate the use of C&D waste. (5.2.10)

6.20 Action Points for Ministry of Water Resources (MoWR)

1) MoWR, DWS and State Governments should involve people in community sanitation programmes based on the lessons learned from Seechewal model. (to start in 3 months) (para 5.7.4)

2) MoWR/ State Governments to organize and promote Ganga Chaupals, Ganga Sabhas and Ganga

Sansads for outreaching Namami Gange programmes. (1 year) (para 5.7.5)

3) MoWR and States to involve corporate houses in entry level activities of Ganga rejuvenation. (1 year) (para 5.7.6)

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5) MoWR and State Governments to adopt measures to reduce drawl of water from river Ganga and its tributaries; and to rejuvenate all existing water bodies in the river basin and also to create new water bodies. (1 year) (para 5.7.8)

6) MoWR to move a Bill for enactment of national law for rejuvenation and conservation of river Ganga and set up river authority to plan, execute and monitor action plan after wide-ranging consultations. (12-18 months)(para 5.7.9)

* * *

EPILOGUE

Most of the recommendations in this Report have been made after quick consultation with concerned Ministries. For the sake of convenience, the summary of recommendations has been divided as per the Ministry / organization responsible for examining such recommendations. A timeline for such examination has also been mentioned.

2. The recommendations requiring consideration of the Ministry of Finance for the purpose of Budget 2016-17 have already been communicated to them. It is a matter of satisfaction that action on some of the recommendations has already been taken by the concerned organizations while the report was being finalized.

3. It is also a matter of some satisfaction that after the launch of the two flagship programmes, sanitation coverage in rural areas has increased to 48% and that 95% of boys' schools and 87% of girls' schools are reported to have toilets. 92% of these toilets have been found to be functional.

4. These achievements notwithstanding we have a long way to go for which dedicated field functionaries, whole-hearted involvement of stakeholders, widespread public participation, effective enforceable systems and sustainable business models will have to be urgently evolved. The Group felt that Swachh Bharat and Ganga Rejuvenation programmes have a vast potential of enabling the implementation of some of the important initiatives of Hon'ble Prime Minister such as Waste to Wealth, Make in India, Skill India and Start up India.

5. Needless to say that a *Swachh* **(CLEAN)** Bharat would lead to *Swasth* **(HEALTHY)** *Bharat* without which we may not be able to achieve a *Samriddh* **(PROSPEROUS)** Bharat.

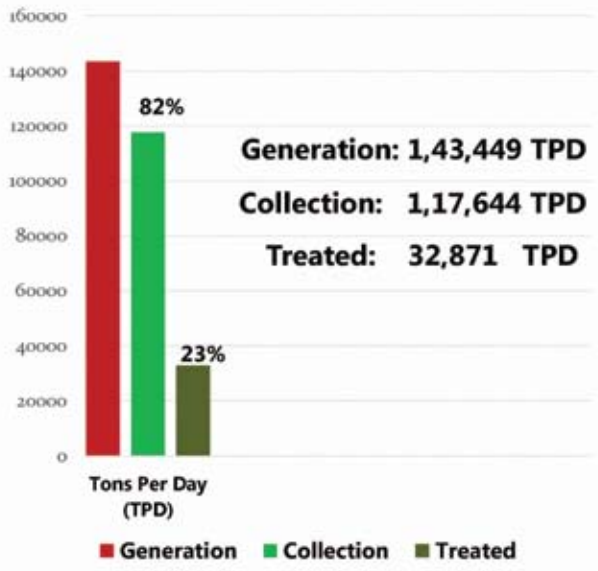
Ashok Lavasa
Secretary, Government of India
Ministry of Environment, Forest and Climate Change &
Rapporteur

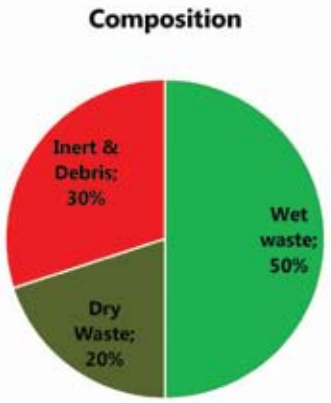
ANNEXURE-I

Group Composition

1	Shri Madhusudan Prasad	Urban Development
2	Dr. M Rajeevan	Earth Sciences
3	Shri Lov Verma	Empowerment of Persons with Disabilities
4	Shri V.S. Pandey	Chemicals & Petrochemicals
5	Shri N.K. Sinha	Culture
6	Shri Sunil Arora	Information and Broadcasting
7	Shri Ameising Luikham	Public Enterprises
8	Shri Rajiv Gupta	Youth Affairs
9	Shri Shashi Shekhar	Water Resources & Ganga Rejuvenation
10	Shri S. Mohanty	National Human Rights Commission
11	Shri Ashok Prasad	Internal Security
12	Shri RK Jain	National Disaster Management Authority
13	Shri Ashok Lavasa	Environment, Forest & Climate Change and Rapporteur
Rapporteurs of JS Sub groups		
1	Shri Barun Mitra	Shipping
2	Ms. Usha Padhee	Civil Aviation

Composition of Waste

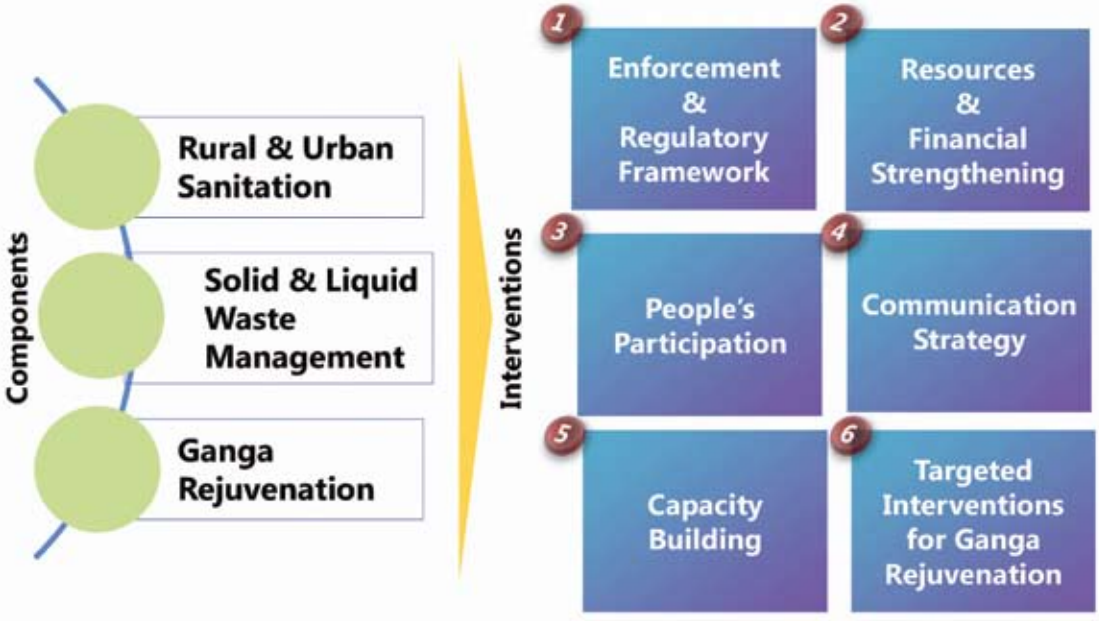




Source: CPCB (2013-14)

3

Key Components & Interventions



4

Enforcement & Regulatory Framework

Key Intervention

REVAMP REGULATORY MECHANISM FOR EFFECTIVE ENFORCEMENT

Objective

- **Introduce Extended Producer's Responsibility**: producers/ manufacturers to establish take-back mechanism for waste/discarded products
- **Create Partnerships in waste segregation & management**
- **Introduce civil monetary penalties**

Key Planned Actions	Ministries	Target
• Amend **Waste Management Rules** for Solid, Plastic, Biomedical, Hazardous, E- Waste	MoEF&CC	3 months
• States to amend bye-laws for recovering user charges & **spot- fines**	MOUD/States	6 months
• Amend **Environment Protection Act, 1986**	MoEF&CC	1 Year

5

Enforcement & Regulatory Framework

Key Intervention

PROMOTE RECYCLING & PROCESSING OF WASTE TO CONSERVE RESOURCES

Objective

- **Generate Wealth from Waste**

Key Planned Actions	Ministries	Target
• Provide **Market Development assistance** on **city compost** sale & ease Compost Manufacturing/ Marketing licensing	MoC&F/ DoA&FW	3 months
• **Urban Local Bodies (ULBs) to procure & use Compost** to phase out use of chemical fertilizers	MoUD	6 months
• Amend **Tariff Policy** to mandate purchase of power from Waste-to-Energy plants & **treated waste water** by thermal plants	MoP	3 months
• Include Construction & Demolition (C&D) products as per BIS norms in **Schedule of Rates**, & **mandate use** in all public projects, & private projects with built-up area >20,000 sqm.	MoEF&CC/ MoUD	6 Months

Enforcement & Regulatory Framework

Key Intervention

STRENGTHEN WASTE COLLECTION SYSTEMS

Objective

- **Bulk Waste Generators to partner with ULBs for management of their waste**

Key Planned Actions	Ministries	Target
• **Hotels** in Million+ cities (53) to establish separate food waste collection & transportation facilities (like Surat)	MoT/ States	6 months
• Mandatory **segregation & transportation/ processing of waste at source** (to begin with for gated communities and institutions with area >5,000 sqm)	MoEF&CC /MoUD	2 Years

7

Enforcement & Regulatory Framework

Key Intervention

LONG TERM POLICY MEASURES

Objective

- **Create hygienic conditions, prevent land degradation & manage pollution load**

Key Planned Actions	Ministries	Target
• **Policy for remediation of existing landfills**	MoEF&CC	1 year
• Develop **eco-labeling** of recycled products and assist in market development through government procurement	MoEFF&CC/ MoC	2-3 Years
• Mandate **Dual Pipe water supply system** in upcoming industrial and urban estates, and establish **differential pricing** for treated water	MoEF&CC/ States	3-5 years

8

Resources & Financial Strengthening

Objective

- **Accelerate creation of infrastructure**
- **Encourage local participation**

Key Planned Actions	Ministries	Target
• Provide Tax Incentive to facilitate setting up of ***Swachh Bharat Kosh*** at State level • Issue advisory to **Central Public Sector Enterprises** to spend 33% of CSR Funds on Swachh Bharat activities (*could bring about ₹ 3600 crore till the year 2018-19*)	MoF/ DPE	3 months
• **Excise & Custom Duty Exemption** for 2 years (2016-17, 2017-18) for waste processing equipments	MoF	3 months
• Advise states to make/amend bye-laws for user charges for **door-to-door collection** and **spot- fines** for littering	MoEF&CC MoUD/ States	3 months

Resources & Financial Strengthening

Key Planned Actions	Ministries	Target
• **Villages achieving** Open Defecation Free (ODF) status up to March, 2017 to get priority **under GOI scheme to provide piped water supply to villages and households**	MoRD	6 months
• Replicate Tamil Nadu model of Waste Management under **MNREGS** & setup at least one waste management facility (organic) in 50,000 villages in 2016-17 **under National Rural Livelihood Mission**	MoRD	1 Year
• **Every Bank Branch located in a village to adopt one local water body** for upkeep	DFS	1 year
• Restoration of cost sharing pattern for construction of individual households toilets **to 75: 25 between Centre and State instead of present 60:40.** • **Additional Central resource required is ₹ 19,520 crore.**	DWS	3 months

10

People's Participation

Objective

- **Improve ownership**
- **Involve all field functionaries & grass root organizations**
- ***Swachh bhartiye se swachh bharat***

Key Planned Actions	Ministries	Target
• Harness NSS, NCC, Nehru Yuvak Kendras, Scouts & Guides and Eco Clubs for Swachh Bharat activities	MoYA/MoEF MOD/MHRD	3 months & ongoing
• Use all **field functionaries**, such as Aanganwadi & ASHA workers, Teachers, Agr. Development Officers, Veterinary Assistants, SHG & NGOs as **Motivators and provide awareness toolkits**	MoDWS	3 months
• Credit for practical action on Recycle, Reduce, Reuse (***Bio-composting Kranti***) in education	MHRD	3 months
• Higher weightage for People's Participation & Citizen Feedback in periodic **Ranking Surveys** in cities & panchayats	MoUD & MoDWS	6 months

11

People's Participation

Key Planned Actions	Ministries	Target
• Expansion of **Swachh Bharat Ambassadors** chain	All Ministries	3 months
• Integrate and activate **District level Monitoring & Review Committee** on Swachh Bharat to be chaired by Member of Parliament	MoDWS, MoUD	3 months & ongoing
• National/ State level **Swachhta Awards** for Cities, Private Institutions & Citizens on **Republic Day**	MoUD & MoDWS	Notify in 6 months

12

Communication Strategy

Objective

- **Maintain momentum and influence behaviourial changes**

Key Planned Actions	Ministries	Target
• First working day of the week be practised as ***Swachhta Diwas*** in all educational institutions	MHRD	3 months
• ***Swachhta Geet*** during mid-day meal/assembly at schools	MHRD	3 months
• Develop **awareness material & toolkit** at National/ State level for all Motivators	MoDWS/ States	3 months
• **High-Powered Committee** to coordinate & monitor intensive **multi-media campaigns for dissemination, outreach and advocacy**	MoI&B	3 months

13

Capacity Building

Objective

- **Create manpower & employment and improve capabilities**
- **Synergize with SKILL INDIA and MAKE IN INDIA**

Key Planned Actions	Ministries	Target
• **Skill Development/ Diploma courses** in State ITIs/ Polytechnics/ Colleges with **Water, Sanitation & Solid Waste** as career options	MHRD/ M/o Skill Development	6 months
• Integrate **Ragpickers** & **Kabadiwallas** in waste collection system by Registration & formation of Groups	MoEF&CC/ MoUD/ MoDWS	1 Year
• Showcase **best practices** on **e-learning platform** with videos on sanitation and waste management	MoUD/ MoDWS	1 Year
• DGS&D **Rate Notification** of SWM linked equipments at central level to expedite procurement by cities	DGS&D/MoC	1 Year

Capacity Building

Key Planned Actions	Ministries	Target
• Develop **Model RFPs and Concession Agreements** for all aspects related to Sanitation and Waste Management	MoUD/ MoDWS	6 months
• Develop and Disseminate **Technology alternatives** for sanitation & solid waste management	DST	ongoing

Target

By December 2016,

- **400 cities to become Open Defecation Free (ODF).**
- **50 cities to attain 100% achievement in four components-** *Individual Toilets, Community & Public Toilets, Solid Waste Management and Behavioural Change.*
- **Aim to increase ODF villages from 38360 (as claimed by States) 1 lakh**

15

Targeted Interventions for Ganga Rejuvenation

Objective

- **Create an effective institutional mechanism for coordinated & speedier implementation**

Key Planned Actions	Ministries	Target
• Notify **River Regulation Zone** for flood plain protection, ground water recharge, ecologically sustainable sand mining/ dredging	MoEFCC	1 Year
• Notify **improved standards** to bring down water consumption in industries	MoEFCC	1 year
• Enforce **rain water harvesting** in Urban areas/towns along river Ganga	MoEFCC/ States	1 Year
• **People's participation**: Model such as Seenchawal (Jalandhar) to be promoted for village sanitation	MoWR/ /DWS/ States	To start in 3 months

16

Targeted Interventions for Ganga Rejuvenation

Key Planned Actions	Ministries	Target
• Promote *Ganga Chaupal, Ganga Sabha, Ganga Sansad* by **involving Community Leaders**, Influential Opinion makers & people's representatives	MoWR/ States	To start in 3 months time
• Greater involvement of **Corporate Houses** in River Surface Cleaning, modernization/construction of Ghats & Crematoria in identified spots and river stretches	MoWR/ States	1 Year
• **Dissemination of Information** on River Health	MoWR/ States	6 months
• To enact a **National Law** for rejuvenation and conservation of river Ganga and set up an **Authority** to plan, execute and monitor Action Plan	MoWR	12-18 months

17

स्वच्छ भारत
स्वस्थ भारत
समृद्ध भारत

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Achieving 100% Progress in Select Towns by 2016

All Mission Components (50 Towns)

#	States (Cities/ Towns)	No of Towns
1	UP	2
2	UK	2
3	Maharashtra	9
4	Chhattisgarh	4
5	Tamil Nadu	1
6	Delhi	1
7	MP	9
8	AP	4
9	Puducherry	3
10	Rajasthan	9
11	Himachal Pradesh	1
12	Telangana	5

100% Open Defecation Free Towns (400 Towns)

#	States (Cities/ Towns)	No of Towns
1	UP	3
2	UK	3
3	Maharashtra	60
4	Chhattisgarh	32
5	Tamil Nadu	7
6	Delhi	1
7	MP	68
8	AP	66
9	Puducherry	2
10	Rajasthan	33
11	West Bengal	8
12	Telangana	14
13	Gujarat	79
14	Punjab	5
15	Himachal Pradesh	1
16	Jharkhand	4
17	Haryana	7
18	Bihar	7

Activities to Clean River Ganga & Targets

1) Entry-level activities

a. River Surface Cleaning
b. Rural Sanitation
c. Crematoria modernization/renovation/new construction
d. Ghat repair, modernization and new construction

Target
To Start- Jan – Apr/May, 2016

2) Medium Term

a. Municipal Sewage Management in 118 cities/towns

Hybrid Annuity PPP model – Approved by the Cabinet:

- Launch of EOI
- Constitution of the High Level Empowered Committee

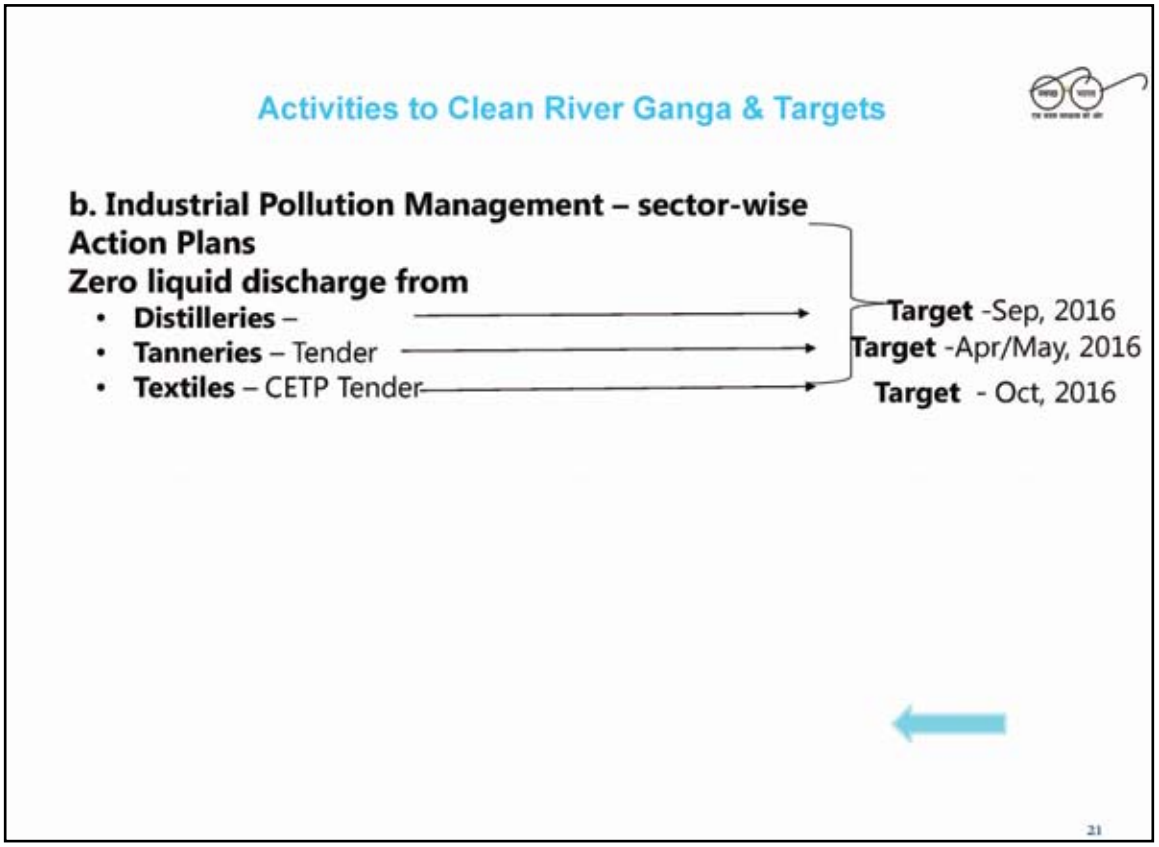
Target- Jan, 2016

- Establishment of the SPV and its operationalization → **Target**- Mar, 2016

Construction of STP:

Launch of Tender for 30 STP → **Target** - Apr-July, 2016

20


Activities to Clean River Ganga & Targets
b. Industrial Pollution Management – sector-wise Action Plans
Zero liquid discharge from
• Distilleries –
• Tanneries – Tender
• Textiles – CETP Tender
Target -Sep, 2016
Target -Apr/May, 2016
Target - Oct, 2016
21

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ANNEXURE-II

Suggestions made during presentation of Group on Swachh Bharat and Ganga Rejuvenation on 15.1.2016.

S. N. Suggestion

1. Hon'ble Prime Minister

(a) Obtain sector-wise break-up of CSR Expenditure by public sector enterprises including on Swachh Bharat Abhiyan measures.

(b) Send to the Ministry of Finance, the proposed recommendation on Excise and Custom Duty exemptionto waste processing equipment for two years.

(c) Devise objective and verifiable standards for measuring cleanliness in hospitals, schools, railway stations and Govt. offices for determination of Swachh Bharat ranking.

2. Minister (Road Transport, Highways & Shipping)

(a) Make suggestions on how technology can be used for converting waste to wealth.

(b) Waste material at land-fill sites to be used for road construction.

(c) Industries like Sugar, Distillery, Tannery, Paper are to be made to use treated water. Between Delhi to Mathura, 13 power plants and Mathura Refineries are available to use treated water and market can be created.

(d) Garden and kitchen waste collection can be converted into manure at household level within 15 days. Excel Company, Mumbai is manufacturing equipment for this purpose.

(e) Ethanol can be produced from solid waste which can help covert the waste to energy. Spain has developed a specialized technology. Like it is done in other countries like USA, solid waste to be used for ethanol, which is a raw material for bio degradable plastic. Such practices should be studied.

(f) Economic use of Human Hair Waste: This waste is a raw material for Amino acid with big market. Such markets should be explored.

(g) Energy production is not a viable proposition. Segregation and bio-methanation should be the priority. For various industries it will be raw material. Buses can be run by methane output. Bio-Digester machines are being used at Delhi SabziMandi to produce methane which can be used for running Buses. Interact with eminent scientists like Dr. Rao for innovative technology for methane production.

(h) Encourage use of waste plastic in Road construction. It was mentioned that his Ministry has come up with the notification to use waste plastic in bitumen for construction of road.

3. Minister (External Affairs)

(a) Waste collectors should pay to households to encourage segregation as segregated waste has a market. The door to door collection of waste should not be free. It should be sold to Waste Management Companies which in turn will earn profits by re-cycling the waste. If households realize that waste has value, they will themselves support proper waste management.

(b) Mentioned about a Scientist from Ukraine who can use innovation technology for cleaning the polluted water bodies. The group may consult a visiting Scientist from Ukraine who is conversant with technology to reduce chemical pollution from ponds. The group can discuss with him whether

this technology can be used in River Ganga. Hon'ble Minister, Shri VK Singh is in contact with the scientist. It was advised that the Group should keep in touch with the scientist.

4. Minister (Defence)

(a) Fertilizer Control Order, 1985 provides for exemption for Municipalities. This needs to be re-visited to ensure that compost's quality is not compromised.

(b) Compost making is a good idea. However, caution needs to be exercised to see that E-waste and heavy metals do not find their way into food-chains through compost. The Goa had experimented converting waste in to compost. But due to high contamination of heavy metals, this was discontinued. It was suggested that the Group should discuss this option thoroughly and consider accordingly.

5. Secretary (Housing and Urban Poverty Alleviation):Regarding Jan Bhagidari programmes, it was suggested to study the UmugandaModel of People's involvement in Rwanda for community work in cleaning activities.

6. Secretary (Inter-State Council, Ministry of Home Affairs): Methane is the raw material for CNG but it is35% more potent than CO2. The Sewage Treatment Plant (STP) and land-fills produce Methane which can be used for making CNG to provide electricity and cooking gas to houses.

7. Secretary (Electronics and Information Technology): Aggregated collection of E-waste by manufacturers needs to be given focus.

8. Secretary (Mines): Empower RWAs for waste collection and generate competition amongst them. RWAs should also be able to self-generate resources for waste management and handling.

9. Secretary (Social Justice and Empowerment)

(a) Need to change behavioral attitude that while everyone can litter, only one section of the society has the duty to undertake cleaning.

(b) Introduce mechanized handling of drain cleaning, sewage management.

10. Secretary (Department of Pension & Pensions' Welfare)

(a) Rag-pickers should be given alternative employment and replaced by mechanization of cleaning / sweeping process.

(b) Un-organized expansion of slums without sanitation provision needs special focus.

11. Secretary (Tribal Affairs)

(a) Use Nano technology to check oil spills and contamination.

(b) Develop bio-degradable packing material.

(c) The Start-Up initiatives which aim at converting waste material to raw material should specially be incentivized.

12. Joint Secretary (New & Renewable Energy): To avoid the disadvantages of composting, bio-methanation can be used even at household levels. Bio-gas plants are available for use by RWAs / Co-operative Societies also.

13. Miscellaneous: The River Health Cards should carry information which can help fishermen and improve services for maintaining the ecosystem.

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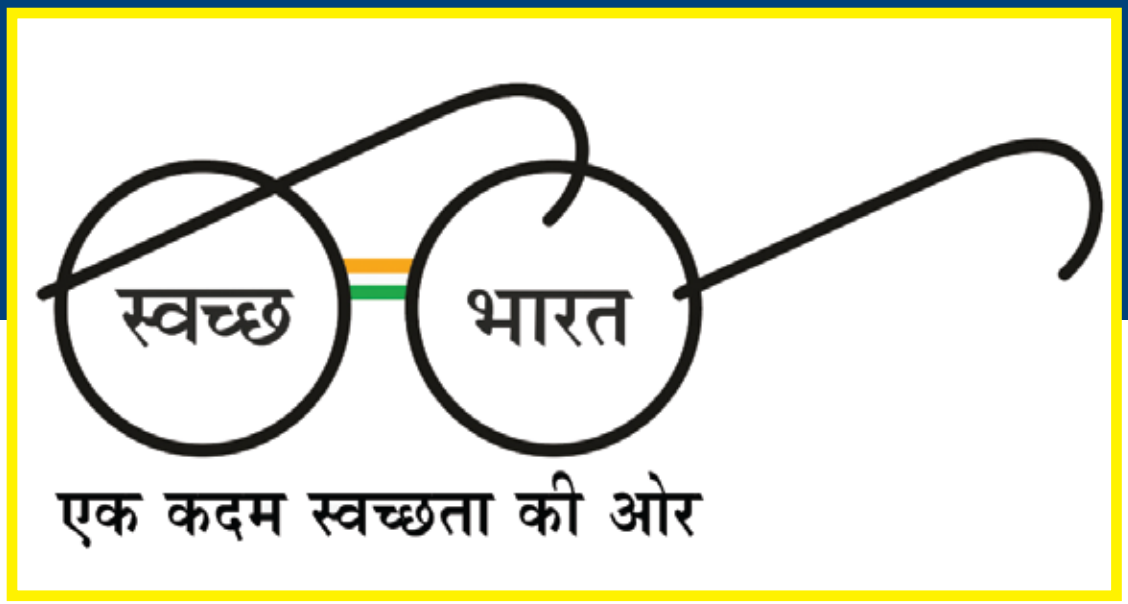

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