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Preface

This is our 31st edition of Yojana Gist and 22nd edition of Kurukshetra Gist, released for the month of October, 2017. It is increasingly finding a place in the questions of both UPSC Prelims and Mains and therefore, we've come up with this initiative to equip you with knowledge that'll help you in your preparation for the CSE.

Every Issue deals with a single topic comprehensively sharing views from a wide spectrum ranging from academicians to policy makers to scholars. The magazine is essential to build an in-depth understanding of various socio-economic issues.

From the exam point of view, however, not all articles are important. Some go into scholarly depths and others discuss agendas that are not relevant for your preparation. Added to this is the difficulty of going through a large volume of information, facts and analysis to finally extract their essence that may be useful for the exam.

We are not discouraging from reading the magazine itself. So, do not take this as a document which you take read, remember and reproduce in the examination. Its only purpose is to equip you with the right understanding. But, if you do not have enough time to go through the magazines, you can rely on the content provided here for it sums up the most essential points from all the articles.

You need not put hours and hours in reading and making its notes in pages. We believe, a smart study, rather than hard study, can improve your preparation levels.

Think, learn, practice and keep improving! You know that's your success mantra ☺

India @ 70: Need to create New India by 2022

As India celebrated the completion of 70 years of Independence, Prime Minister Narendra Modi gave the country a new slogan—Unify India (Bharat Jodo)—as he outlined a vision of building a “New India” that’s free of caste and religious differences, corruption and terrorism, and where all Indians have access to housing, electricity and water.

In his fourth Independence Day speech from the Red Fort, Modi set a deadline of 2022—the 75th anniversary of India’s independence—for the transformation of the country into “New India” that would fulfil the dreams of the young and women.

Modi invoked cricket terminology and urged 'Team India' to run for 'New India' by 2022, by which time he promised, the poor shall have pucca houses, access to electricity, healthcare, sanitation and education, farmers' incomes shall double, there will be ample opportunities for the youth and women, and India would be free of scourges such as communalism, casteism and terrorism.

Giving the slogan of ‘sankalp se siddhi’ (pledge to achieve), he urged the people to work shoulder to shoulder “to create the India that our freedom fighters would be proud of”.

A 'New India' was central not only to Modi's discourse but was also reminiscent of President Ram Nath Kovind's maiden speech to the nation. There was remarkable interplay between the two speeches. Kovind spoke of a house for every family, on-demand power, better telecommunication, modernisation of infrastructure, upgradation of road and railway networks, rapid and sustained growth, and a compassionate society.

Creating a Clean India

In his address to the nation at the Red Fort on 15 August 2014, Prime Minister Narendra Modi set his government the ambitious target of making India 'open defecation free' by Mahatma Gandhi's 150th birth anniversary on 2 October 2019.

The spotlight he turned on was much needed as India faces almost herculean challenges on the sanitation front.

- The country still has more than 4 lakh people engaged in manual scavenging despite legislation prohibiting this
- Around 524 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 poses a serious threat to the health of children in India. The practice is the main reason India reports the highest number of diarrhoeal deaths among children under-five in the world.
    - Every year, diarrhoea kills 1,17,285 children under five in India. Children weakened by frequent diarrhoea episodes are more vulnerable to malnutrition, stunting, and opportunistic infections such as pneumonia.
    - About 38 per cent of children in India suffer from some degree of malnutrition.
    - Diarrhoea and worm infection are two major health conditions that affect school-age children impacting their learning abilities.
- 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.
- UNICEF survey of 10,000 families shows that households that didn't have toilets or lacked good hygiene had to spend Rs 50,000 on health-related expenditure.

The Swachh Bharat Mission (SBM) has two sub-missions – SBM (Rural) and SBM (Urban). The SBM is in sync with the **Goal 6** of the Sustainable Development Goals which commits the countries of the world to achieve universal access to safe drinking water and adequate sanitation and hygiene to all in the next 15 years.

Technically, the crisis of sanitation is now being handled by three ministries as nodal entities with an expectation that this division of labour will help in achieving the gigantic goal of making India open defecation free by 2019 –

- Rural sanitation is vested within the Ministry of Drinking Water and Sanitation (MDWS)
- Urban areas fall under the Ministry of Urban Development (MoUD)
- School sanitation is given to the Ministry of Human Resource Development
- **Challenge:** lack of coordination between the ministries and it is unclear yet on how they will work together to overcome their overlapping sanitation challenges

The Government of India launched the Swachh Bharat Abhiyan (SBA) with the following objectives:

- Eliminate open defecation,
- Conversion of insanitary toilets to pour flush toilets,
- Eradication of manual scavenging,
- 100% collection and scientific processing/disposal reuse/recycle of Municipal Solid Waste,
- Behavioural change in people and awareness generation among the citizens about sanitation and its linkages with public health,
- Strengthening of urban local bodies to design, execute and operate systems, and
- To enhance private sector participation

The above objectives are to be achieved with the help of the following components:

- Construction of Household Toilets,

- Community and Public Toilets,
- Solid Waste Management,
- Information, Education & Communication (IEC) and Public Awareness

In a nutshell, compared to the sanitation programmes of earlier governments, SBM includes some significant departures:

- Political willingness exists at the highest level, with increased involvement of elected representatives in water and sanitation issues.
- Responsibility for the implementation of SBM policy lies with states and includes clear targets and an ambitious timeline.
- States have the flexibility to design programme and monitoring systems.
- For the first time, post-construction and sustainability have been considered.
- The percentage of funds allocated to behaviour change has been reduced and the scope of work under it has been decreased.

Challenges in the Success of SBA

A. Data Related Challenges

- Adequate data on the basis of third party surveys and evaluation is not available to assist in performance evaluation.
- Whatever data has been recorded reveals a lot of inconsistencies. Accuracy of data is lacking since there is duplication of names and false toilet construction have been reported in many cases.

B. Quality Concerns

- No training is being undertaken to mobilise all the people involved. Officials of the local government and those responsible for sanitation are not given any training for community mobilization.

C. Administrative Concerns

- Even though Panchayati Raj Institutions (PRI) has a major role to play, there is lack of institutional capacity at the grassroots level in delivering sanitation services.
- One of the main challenges faced in the drive to eliminate open defecation is the inadequate human resource base for sanitation. In sub-districts where they are most needed, there are no dedicated frontline workers to promote and implement sanitation strategies. While some states have now begun to recruit frontline workers, there are still no mechanisms for their training, management, and supervision.
- The high level of political focus that SBA has received has brought along with it immense performance pressure for essential stakeholders such as district collectors. This pressure has had a negative impact on the officers' in charge.

D. Citizen Engagement

- Since the district collectors and other officers in charge are supposed to work towards targets, they have resorted to penalization of citizens. Coercive measures such as disconnecting power supply and withholding supply of rations are being used in case of failure of public to construct toilets.
- Citizens are being fined for not constructing toilets and being forced to take loans from banks since the government gives the money after construction of the toilet.
- There is limited interaction between the government officials and the citizens who need to be made aware of the programme and their roles and responsibilities.

Progress under Swachh Bharat Mission

Construction of toilets:

The priority was given to the construction of toilets at individual households and if there was no space available, community toilets were provided. Public toilets were constructed at public spaces like railway stations and bus stations.

Solid Waste Management:

Solid waste management includes segregating waste at source; collecting, transporting and storing waste; as well as processing, treating and finally disposing of it.

In urban areas there has been progress in door to door waste collection. Transportation and processing of waste is also taking place at faster pace compared to previous year. There has been an increase in the number of compost plants from 40 to 145.

Waste Management: Waste to Energy

The Ministry of Fertilizers provides Rs 1500 for market development assistance for per ton of compost generated. For conversation of waste to energy, the Ministry of Power has made it mandatory that the power generated from waste to energy plants has to be purchased by the state DISCOMs.

Behavioural change:

The major achievement, however, is not a spurt in the construction of toilets, but the focus on behaviour change, and the rapidly spreading public awareness of the need for sanitation and usage of toilets. The most significant policy shift in this regard has been **the move from outputs** (number of toilets built) **to outcomes** (ODF villages), since ODF signifies the entire village unit makes this commitment.

There is increasing realisation in rural India that, in addition to the violation of dignity, especially that of women and girls, open defecation significantly adds to the disease burden, especially of children below the age of five.

This is a very important segment to make the progress sustainable. At one end of the IEC spectrum is the use of mass media: Print and electronic, using celebrities like Amitabh Bachchan leading a “Darwaza Bandh” (on open defecation) campaign. At the other end is the use of interpersonal communication, where trained grass roots level motivators, or swachhagrahis, work under an incentive-based system to “trigger” behaviour change by stimulating community-level demand for toilets. Involving locally elected representatives, grass roots-level organisations, NGOs and school students in spreading awareness on sanitation is also a key aspect of the SBM’s approach to IEC.

Measurement – ODF

Once a village declares itself as ODF, verification of the latter status becomes key for which the SBM guidelines provide for a 90-day window from the date of ODF declaration. The verification process also allows for any gaps or errors in ODF status to be rectified.

Currently, verification of ODF villages stands at around 60 per cent. To accelerate the verification process, the Ministry of Drinking Water and Sanitation has recently issued policy guidelines that state governments will be eligible for release of the second instalment of central funds only if they have fully verified all their ODF villages.

The programme also has a fairly robust system of verification at district and state level. At the national level, the Ministry of Drinking Water and Sanitation, carries out separate checks as well as third party sample surveys by independent organisations. A national 1,40,000-household survey, carried out by the Quality Council of India during May-June 2017, found that national usage of toilets was 91 per cent.

The emphasis on **sustainability** is what differentiates SBM from previous sanitation programmes. Post ODF-declaration, it is possible that the village may witness some "*slip back*" into open defecation due to old habits. Incentive mechanisms are therefore being developed for sustaining ODF, including prioritizing ODF villages for centrally sponsored schemes like piped water supply.

Swachh Survekshan

It is an initiative launched by Ministry of Urban Development through which the government is bringing competition among cities towards creating cleaner cities and towns.

- In order to foster a healthy competition between cities for improving cleanliness standards, the Ministry of Urban Development (MoUD) started the "Swachh Survekshan" survey, ranking of cities on cleanliness and other aspects of urban sanitation, in 2016 which ranked 73 cities across the country.
- On the same lines, MoUD initiated "Swachh Survekshan" 2017 which was a survey to rank 500 cities of India.

- The performance evaluation of the Swachh survekshan is conducted by Quality Council of India (QCI), an autonomous body established by Government of India in 1997 for Quality assurance in all spheres of activities including Governance.

Solve: Critically analyse the significance of a measure like Swachhta Survekshan and the impact of the same on urban fabric of India.

A lot of effort is needed to translate the vision and mission of a massive campaign such as the SBM into real actions on the ground.

- For SBM to work, it is critical to concentrate on creating demand and responding to such demands without delay in the release of funds.
- In addition, information on state, district and block-wise funds approved under SBM needs to be made easily available for people to know the annual plans and allocations for making their demands.
- Community interaction should be encouraged. Civil society institutions need to be approachable to the people. Such collective action will go a long way in the success of this campaign.
- Local government has to be very proactive in their work. Organs of local government need to be strengthened with sufficient powers to work towards the objectives of SBA.
- While the expectation is on the communities to demand and build toilets and adopt new sanitation and hygiene behaviours, it is equally important for state mechanisms, civil society and community organisations to be vigilant about any misuse of funds.
- While the focus of the government should be on ensuring that maximum waste in the country is processed, the increased tax burden under the Goods and Service Tax (GST) regime on the recycling and composting industry is not aligned with this 'noble' mission. The increased tax slabs for recyclables is killing the recycling sector.

  The composting machines are now attracting 12 per cent tax against the 8 per cent previously. While on one hand the government is trying to promote city compost, imposing 5 per cent GST will have a negative impact on its production and promotion. Solid waste management has received much-needed attention through

SBM, but if sustainable practices are not adopted at an accelerated rate, the mishaps like Ghazipur and Deonar will frequently repeat.

The focus for the remaining two years should be on segregation, creating systems to support segregation, sustainable processing and minimal land use for waste disposal.

It is when such efforts come together that success stories such as **Nadia district from West Bengal becoming the first district in the country to achieve open defecation free status** can truly be celebrated.

Sanitation needs to be seen as a life cycle issue and hence providing sanitation facilities at work, education and other public spaces is important. This requires investing in the right place at the right time and in the most appropriate manner. Time is running out and the Mahatma's 150th birth anniversary is not far away.

Campaigns for SWM on waste	Year of Launch	Objective and progress	Impact
Swachh Survekshan	2015	To foster a healthy competition among cities for improving cleanliness standards, the Ministry of Housing and Urban Affairs (MoHUA) started the "Swachh Survekshan" survey which ranks cities on cleanliness and other aspects of urban sanitation. In 2015-16, 73 cities across the country were ranked. In 2016-2017, 434 towns and cities of India were ranked on SWM and sanitation. The 2017-18 survey shall cover 4,041 statutory towns and cities.	Ranking system has pushed cities to take better initiatives towards segregation and waste management.
Segregation at source campaign	2017	4,041 statutory towns and cities are part of this campaign which pushes for segregation at source.	No substantial progress made
City Compost Policy	2017	The policy wants to ensure that all organic solid waste generated in cities is converted into compost or biogas by October 2019 by providing subsidy. Fertiliser companies were asked to co-market compost with chemical fertilisers.	No substantial progress made
Swachhata Pakhwada	2017	The focus is on involving people and bringing about behavioural and attitudinal change through innovative activities so that the ultimate goals of the SBM could be achieved and sustained. Under the Pakhwada programme, between October 1-15, 2017, different cities and ULBs will undertake awareness programmes and campaigns, urging residents, commercial centres, hospitals and institutes to ensure cleanliness and hygiene.	____
Swachhata Hi Seva Campaign	2017	It seeks to mobilise people to come out and get directly involved with the Swachh Bharat Mission for sanitation to contribute to Mahatma Gandhi's dream of a Clean India.	____

Ref: Down to Earth

Must Read: Link 1

Must Solve: Link 1 + Link 2

Solve: Which are the States that have been declared as ODF?

Swasth-Samaj

Affordable Medical Access for all

A healthy population is the engine behind economic growth; the alternative is a growing economic burden

India's healthcare system is underfinanced and relies too heavily on out-of-pocket (OoP) spending.

The challenges:

Public spending on Health: Global evidence on health spending shows that unless a country spends at least 5-6% of its gross domestic product (GDP) on health—and the major part of it is from government expenditure—basic healthcare needs are seldom met.

Low health insurance coverage: About 300 million people or 25% of India's population is covered with some form of health insurance, according to the World Bank. The Insurance Regulatory and Development Authority of India, meanwhile, claims that only 17% of the population has some form of insurance coverage—and according to the latest National Sample Survey Organisation Survey on Health and Morbidity (2014), only 13% of the population is covered by government-funded insurance schemes.

Healthcare financing system: The problem is that the healthcare financing system in India is highly fragmented and has multiple components and models. Tax-financed healthcare systems provide primary to tertiary level of care. Several publicly managed insurance schemes cater to government employees, while the private insurance sector largely caters to higher income groups, mostly employed in the private sector. Unfortunately, most of these insurance plans are largely limited to covering inpatient hospital care as opposed to primary care medications needed to treat chronically ill patients.

Changing disease profile: Another important factor is that over the past 10-15 years, India's disease burden has shifted from communicable to non-communicable diseases (NCDs). This is thanks to urbanization, industrialization and fast-paced socioeconomic development, and because infectious diseases have been brought under control. Poverty is a significant risk

factor for contracting NCDs, and these diseases in turn can quickly lead to personal financial crises. Statistics suggest that out of the total 98.16 lakh deaths in India in 2014, NCDs held a 60% plus share.

Unfortunately, while NCDs are now recognized as a significant threat, there is a dearth of solutions. According to the latest figures available, in 2015-16, only 3% of the total health budget was earmarked for NCD programmes. The government needs to understand the growing healthcare and economic threat posed by NCDs. Ideally, the allocation should be doubled by 2020 and tripled by 2025.

According to the United Nations and World Health Organization, absent comprehensive action now, NCDs will cost India in the region of $6.2 trillion in the 2012-2030 period. Thus, an increase in healthcare spending should be considered an investment, not a cost.

Statistics for selected health care specialists in India vs the US.

	India		USA		USA vs. India
	No. practicing	Per 1 lakh pop	No. Practicing	Per 1 lakh pop	Specialist Ratio
Specialist					
Cardiologist	5,000	0.42	31,500	10.50	25.2x
Dermatologist	7,000	0.58	10,000	3.33	5.7x
Radiologist	10,000	0.83	25,000	8.33	10.0x
Ophthalmologist	11,000	0.92	19,000	6.33	6.9x

The US is widely considered to have a shortage of specialists, as well as a shortage of primary care physicians in rural areas. It has suffered from such shortages for decades. By comparison, India has a super-shortage of specialists, with less than 1 specialist per 1 lakh people. The US vs India ratio in this case ranges from 5x to 25x. While these per capita gaps will narrow over time, it will take many years.

The way ahead:

India desperately needs a holistic care system that is universally accessible, affordable and at the same time effectively reduces OoP expenditure –

- Increasing private investment in healthcare for broader and more comprehensive insurance

- Developing subscription-based primary healthcare clinics and plans
- Come up with viable mechanisms that will exempt the poor from payments and provide them both health and financial protection
- Strengthening tertiary tier healthcare
- Developing local health systems to be able to screen the maximum number of people
- Providing extensive diagnostics and free essential drugs
- Offering disease-specific insurance schemes
- Providing coverage even to those in unorganized sectors
- Using corporate social responsibility involvement to strengthen healthcare
- Switching focus from patient care to preventive care

Public intervention in healthcare delivery is necessary and can take various forms. Some of the following steps warrant the state's more immediate attention:

- Collecting data on prices of similar treatments in public and private facilities to identify and address the exact reasons for the price divergence between public and private healthcare delivery systems,
- Safeguarding periodic monitoring of quality healthcare services within both public and private systems while linking suitable insurance facilities for patients (including those who are terminally ill) to minimise healthcare risk,
- Ensuring cheaper, effective diagnostic facilities at affordable cost for people in accessible distance from clinics/hospitals,
- Complimenting development of healthcare systems with better provision of ancillary municipal services like good pest control, sewage systems, water purification systems and treatment of waste, and
- Giving equal investment weightage to education (primary and secondary) incorporating elements of healthcare awareness to inculcate habits of proper hygiene, basic nutritional requirements, mental wellbeing and physical exercise amongst the young to prevent the incidence of chronic ailments

Concept: For Affordable Access

- Transform 700 district HQ hospitals into medical centres through PPP
- Hub & Spoke Model: Private industry to adopt a PHC → Train HC professionals, upgrade technology, improved patient outcomes

Concept: For Healthcare Centers of Excellence

- Create 20 Medical Free Zones ("MFZs")→ that attract medical tourism (telemedicine, e-consult, telepathology, teleradiology, etc)

Must Read:

National Health Policy

Transforming India's healthcare sector

Healthcare needs to meet Skilled India

Why not a right to primary healthcare?

National e-Health Authority (NeHA)

Making prescription of generic drugs mandatory

Drug Pricing: Critical Illness—A Gold mine

Gorakhpur Tragedy: Learning lessons

E-Pharmacies

Dealing with Malaria

Must Solve: Link 1 + Link 2

Mission 2022: The Challenges of Doubling Indian Farmer Incomes in Five Years

Four point action plan –

1. Remunerative prices for farmers by reforming the existing marketing structure
2. Raising productivity
3. Reforming agriculture land policy
4. Relief measures

Key Statistics:

- Agriculture and allied activities remains the main livelihood for more than half of the Indian population.
- The Socio-Economic and Caste Census (SECC) 2011, released in 2015, also indicates that out of 24.39 crore households in the country, 17.91 crore lived in villages and are more or less dependent on agriculture.
- Further, the Economic Survey of 2015-16 highlights that the share of agriculture in employment was 48.9% of the workforce while its share in gross domestic product (GDP) was 17.4% in 2014-15 at constant (2011-12) prices.
- Additionally this year's Economic Survey projects the growth rate for the agriculture and allied sector for 2016-17 to be 4.1% on the basis of the first advance estimates of the Central Statistics Office.

Government of India accords high priority for welfare of the farmers and is implementing several farmer's welfare schemes to revitalize agriculture sector and to improve their economic conditions –

Soil Health Card Scheme: To assist State Governments to issue Soil Health Cards to all farmers in the country. Soil Health Cards provide information to farmers on-

- Nutrient status of the soil

- Recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility

Neem Coated Urea (NCU):

- To regulate use of urea
- Enhance availability of nitrogen to the crop
- Reduce cost of fertilizer application
- Slow down the release of fertilizer and make it available to the crop in an effective manner

Expected saving is 10% of urea consumption, thereby resulting in reduced cost of cultivation and improved soil health management.

Paramparagat Krishi Vikas Yojana (PKVY):

- To promote organic farming in the country
- To improve soil health and organic matter content
- Increase net income of the farmer so as to realise premium prices

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY): Launched with the motto of 'Har Khet Ko Paani', the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) is being implemented to –

- Expand cultivated area with assured irrigation
- Reduce wastage of water
- Improve water use efficiency
- Create sources for assured irrigation
- Practice protective irrigation by harnessing rain water at micro level through 'Jal Sanchay' and 'Jal Sinchan'
- Micro irrigation is also incentivized through subsidy to ensure 'Per drop-More crop'.

National Agriculture Market (e-NAM): The National Agriculture Market scheme (e-NAM) envisages –

- Initiation of e-marketing platform at national level

- Support creation of infrastructure to enable e-marketing in 585 regulated markets across the country
- Ensure better price discovery, more transparency and competition to enable farmers to get improved remuneration for their produce moving towards 'One Nation One Market'

Pradhan Mantri Fasal Bima Yojana (PMFBY)/ Restructured Weather Based Crop Insurance Scheme (RWBCIS): To provide comprehensive crop insurance coverage from pre-sowing to post harvest losses against non-preventable natural risks.

- These schemes act as only risk mitigation tools available to farmers at extremely low premium rates payable by farmers at 2% for Kharif crops, 1.5% for Rabi Crop and 5% for annual commercial/horticultural crops.
- The balance of actuarial premium is shared by the Central and State Governments on 50 : 50 basis
- The schemes are voluntary for States and available in areas and crops that are notified by the State Governments.
- Compulsory for loanee farmers and voluntary for non-loanee farmers.

Interest Subvention Scheme (ISS): The Government provides interest subvention of 3% on short-term crop loans up to Rs.3.00 lakh. Presently, loan is available to farmers at an interest rate of 7% per annum, which gets reduced to 4% on prompt repayment. Further, under Interest Subvention Scheme 2016-17, in order to provide relief to the farmers on occurrence of natural calamities, the interest subvention of 2% shall continue to be available to banks for the first year on the restructured amount.

In order to discourage distress sale by farmers and to encourage them to store their produce in warehouses against negotiable warehouse receipts, the benefit of interest subvention will be available to small and marginal farmers having Kisan Credit Card for a further period of upto six months post-harvest on the same rate as available to crop loan.

Other Facilities for Farmers

Support to State Extension Programmes for Extension Reforms – ATMA Scheme

- Setting up of autonomous institutions at the State/District/Block level
- Encouraging multi-agency and broad-based extension strategies adopting group approach to extension
- Facilitating convergence of programmes in planning, executing and implementation

Kisan Suvidha Mobile App: Provides information to the farmers on Weather report, Plant Protection, Input Dealers, Agro-Advisory and Marketing

Krishi Vigyan Kendras (KVKs): On-farm trials, front-line demonstrations, creation of awareness on improved agricultural technologies, etc.

Bringing Green Revolution to Eastern India (BGREI): To address the constraints limiting the productivity of "rice based cropping systems" in eastern India comprising seven (7) States namely; Assam, Bihar, Chhattisgarh, Jharkhand, Odisha, Eastern Uttar Pradesh (Purvanchal) and West Bengal – now a sub-scheme of Rashtriya Krishi Vikas Yojana

Crop Diversification Programme (CDP): A sub scheme of Rashtriya Krishi Vikas Yojna (RKVY), is being implemented in the Original Green Revolution States of Punjab, Haryana and Western Uttar Pradesh from 2013-14 to diversify area from water guzzling crop like paddy to alternate crops like maize, pulses, oilseeds, cotton & agro-forestry plantation

National Mission on Oilseeds and Oil Palm (NMOOP): Transfer of Technology (ToT) component, assistance is provided to States for conducting Farmers Training and Trainers Training Programme, in which training is provided to the farmers and extension workers educating the farmers to avail the benefits of the programme.

Integrated Pest Management (IPM): To keep pest population below economic thresholds level by employing available alternate pest control strategies and techniques viz. preventive measures, cultural, mechanical and biological control with greater emphasis on usage of bio-pesticides and pesticides of plant-origin like Neem formulation, etc.

Mission for Integrated Development of Horticulture (MIDH) envisages production and productivity improvement of horticulture crops like fruits (including apple) and vegetables through various interventions. Capacity building of farmers and technicians are also provided for adopting improved technologies. Scheme also envisages creation of infrastructure for Post-Harvest Management (PHM) and marketing for better price realization of produce.

Must Read: Link 1 + Link 2 + Link 3 + Link 4 + Link 5 + Link 6 + Link 7 + Link 8 + Link 9

Must Solve: Link 1 + Link 2 + Link 3 + Link 4 + Link 5 + Link 6

Rural Development

Mahatma Gandhi once said that the real progress of India did not mean simply the growth and expansion of industrial urban centres but mainly the development of the villages. This idea of village development being at the centre of the overall development of the nation is relevant even today. More than two-third of India's population depends on agriculture that is not productive enough to provide for them and one-third of rural India still lives in abject poverty. That is the reason why we have to see a developed rural India if our nation has to realise real progress.

Rural India is in crisis. As Dr. M.S. Swaminathan, the distinguished agricultural economist, said, "The agrarian crisis has its roots in the collapse of the rural economy... Unemployment leading to out-migration of the asset-less is growing. The minimum support price mechanism is not operating for most commodities. At every level of the livelihood security system, there is a tendency to make profit out of poverty. Something is terribly wrong in the countryside... "

Rural India

- **Census 2011:** 72.18% live in rural areas
- They fall behind national average on all socio-economic parameters

Development of rural economy is one of the prime concerns of Government of India. Despite sincere efforts, the problems of poverty, unemployment, drudgery and migration persist in rural economy.

Some of the measures taken by government to strengthen the rural economy are—

MGNREGA

- It is in consonance with idea of sustainable development which focuses on economic, social and environmental sustainability.
- SAMARTHYA: launched by ministry of rural development (MoRD) as a set of 10 technical training programmes for creation of productive assets.

RSETI

- Rural Self-Employment Training Institute
- *Goal:* to impart technical and skill training among rural youth.
- It opens up new employment opportunities for rural youth paving way for self-employment.
- MoRD has set up one institute in each district of country in collaboration with banks and state governments and they are managed and run by private/public sector banks.
- Different vocations like agricultural process, product and general entrepreneurship development programmes are designed.
- Handholding is also ensured for sustainability of micro-enterprise and credit linkages

SVEP

- Start-up Village Entrepreneurship Programme
- *Objective:* to energize and streamline economic growth by providing necessary thrust from grass roots (villages), towards creation of sustainable self-employment opportunities for inclusive growth.
- It can enhance entrepreneurial opportunities for growing number of rural youth.
- The formal sectors offer greater scope for creating jobs and raising incomes for young worker. Eg: manufacturing sector which can absorb large number of semi-skilled youth and produce for world market.

DAY-NRLM

- Deendayal Antyodaya Mission- National Rural Livelihoods Mission
- NRLM was launched in 2011 to expand livelihoods in rural areas in agriculture, small enterprises and formal sector employment.
- DAY-NRLM has the objective to organise all rural poor households and continuously nurture and support them till they come out of abject poverty.
- It works for bridging gaps between industries and skilled labour, a placement cell linked to Deen Dayal Upadhyay Grameen Kaushalya Yojana is also implemented.

- It provides umbrella cover to Mahila Kisan Sashaktikaran Pariyojana to meet specific needs of women farmers and achieve socio-economic and technical empowerment of rural women farmers.
- NRLM strategy has led to greater demand expression of rural poor not just through their weekly meetings but also through collective action in production as well as on social issues. Transforming lives through an even larger scale diversification and development of livelihoods is clearly the way forward to reach the Mission Antyodaya objective of Poverty free Gram Panchayats.

Solution to the challenges for rural youth

PM Mudra Yojana (PMMY)

- NSSO survey 2013: there are 5.77 crore small business units, mostly individual proprietorship.
- Most of these 'Owned Account Enterprise' are owned by SC, ST and OBCs.
- 57% of small business comes from rural areas.
- To provide credit, government has started PMMY to provide access to institutional finance to small and micro units.
    - **Shishu loan**: upto Rs. 50,000
    - **Kishor loan**: Rs. 50,000-5,00,000
    - **Tarun loan**: Rs. 5,00,000-10,00,000

Stand Up India

- To promote entrepreneurship among SCs, STs and women.
- Promotion of projects per bank branch per category.
- Under the scheme, 1.25 lakh bank branches will provide loans to SC, ST and women entrepreneurs.

Digital India

- India's top industrialists have pledged to invest as sum of Rs. 4.5 Lakh crore with an aim to upgrade the overall digital infrastructure of the country.
- It gives hope of
    - India becoming a high speed internet territory
    - Citizens will be empowered through wireless mobile networks at public spaces
    - Bridge gap between rural and urban India
    - Boost e-commerce
    - Skill youth
- Developing digital infrastructure will not only help in technological advancement but also bring a large untapped population on the same page as rest of world.
- Activities like banking, providing subsidies, selling crops and other agro-products would become easy and efficient to the rural people.

Though government is going all out to ensure a better life for all sections, yet there are many groups and spaces outside the development net. More focussed programmes are needed for rural, uneducated groups from marginalised community. Government needs to create an environment in villages where rural farmers and craftsmen and others can directly sell their products in open markets. There is also a need to empower adolescent drop-outs and local communities in disadvantaged areas and to incentivise all schools and colleges in the country to ensure the young in their areas complete the education.

When most marginalised, uneducated rural youth will become part of development net- then only idea of Antayodaya will become a reality.

Need to promote agro-tourism in rural areas

- Tourism has registered phenomenal growth worldwide—contributes 11% of the world work force and 10.2% of global GDP.
- A new job is added every 2.5 second to this sector.
- Agro-tourism activities can help in generating more jobs in rural areas which will help in reducing the large scale migration from rural areas.

- Many states are running successful ventures which is helping in augmenting income of rural people
    - Maharashtra State Agro & Tourism (MART)- there are 150 agro-tourism centres in state which are running without government help. The state government has subsidized tourism activities.
    - Rural and health tourism is a successful venture in Kerala.
    - Rajasthan and Gujarat are also tourist destination.
    - Himachal Pradesh government is encouraging people to create required facilities in their home to register for tourism activities.

Promotion of agricultural tourism needs conceptual convergence with rural tourism, eco-tourism, health tourism, adventure tourism and culinary adventure. Potential rural areas should be identified in different states for varied purposes and infrastructure to strengthen the people.

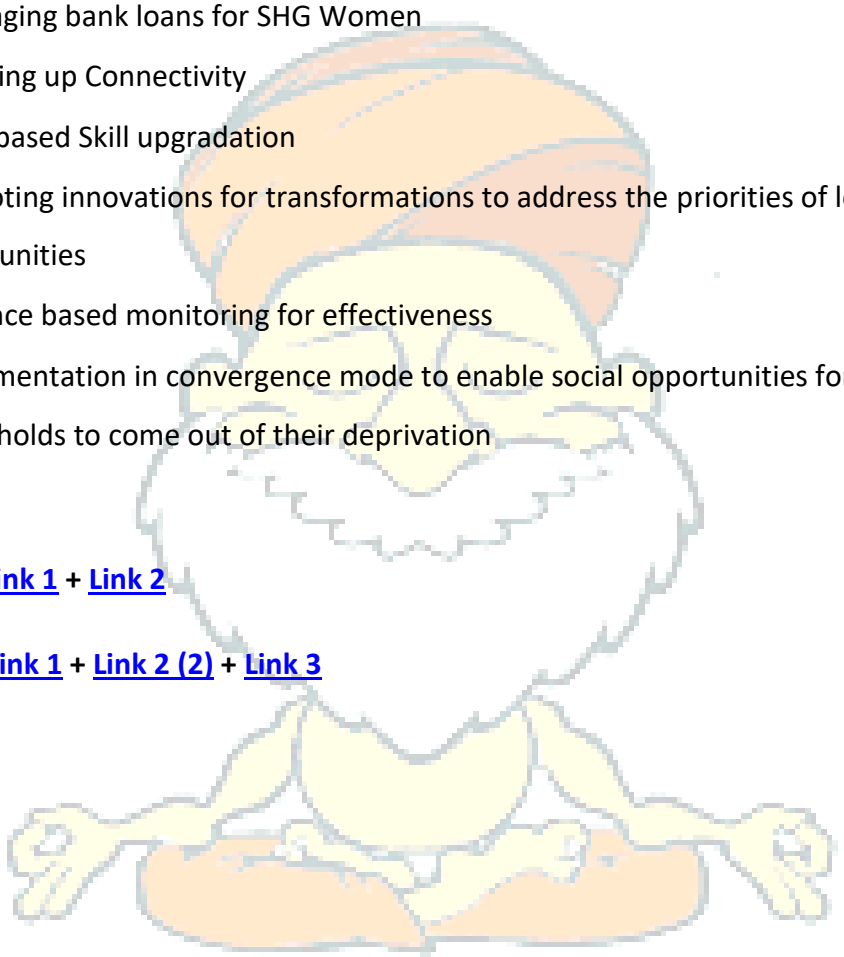
India lives in rural areas and there is a need to make their lives comfortable and lucrative. There is need to develop some more rural centric schemes to enhance rural infrastructure.

Mission Antyodaya scheme aims to converge social welfare plans and schemes across ministries, and target these to reach individual households.

- Simplifying the access to benefits of a plethora of social welfare schemes and can also help ensure the greater transmission of the scheme benefits.
- Since this scheme is expected to encompass schemes from ministries of health, education, employment and social security (insurance schemes under financial services), the recipient can access varied benefits under one umbrella. The transmission due to such a convergence is likely to be very high and could also enable extensive coverage.
- This can go a long way in helping the government achieve its aim of reaching the poorest of the poor and the disenfranchised.
- Also, the convergence of multiple schemes under a single scheme could enable the government to migrate all these to the digital Aadhar-enabled platform thereby contributing further to the Digital India mission aims.

Need of the hour:

- Interventions have to be scaled
- Thrust on water conservation and livelihood security
- Citizen centric approach to improve accountability and increase participation for increased ownership
- Transparency through IT/DBT and use of Aadhaar
- Effective use of space technology (geo tagging)
- Leveraging bank loans for SHG Women
- Speeding up Connectivity
- Need based Skill upgradation
- Promoting innovations for transformations to address the priorities of local communities
- Evidence based monitoring for effectiveness
- Implementation in convergence mode to enable social opportunities for deprived households to come out of their deprivation



Must Read: Link 1 + Link 2

Must Solve: Link 1 + Link 2 (2) + Link 3

Innovative Reforms for New India

India aims to 'Cultivate One Million Children and youth as the Innovators of Tomorrow'

Atal Innovation Mission (AIM)

The Government has set up Atal Innovation Mission (AIM) in NITI Aayog with a view to strengthen the country's innovation and entrepreneurship ecosystem. In 2016-17, the following major schemes were rolled out:

- Atal Tinkering Labs- To foster creativity and scientific temper in students, AIM is helping students design and make prototypes to solve challenges they see around them, using rapid prototyping technologies that have emerged in recent years.
- Atal Incubation Centres- it will help startups expand quicker and enable innovation-entrepreneurship, in core sectors such as manufacturing, transport, energy, education, agriculture, water and sanitation, etc. AIM will provide financial support of 10 crore.

National Intellectual Property Rights Policy

Policy recognises- Abundance of creative and innovative energies that flow in India, and the need to tap into and channelize these energies towards a better and brighter future for all.

Aim-

- To create and exploit synergies between all forms of intellectual property (IP) concerned statutes and agencies.
- Sets in place an institutional mechanism for implementation, monitoring and review
- To incorporate and adapt global best practices to the Indian scenario
- Policy shall weave in the strengths of-> Government + Research and development organizations + Educational institutions + Corporate entities including MSMEs + Start-ups and other stakeholders in the creation of an innovation-conducive environment

- Stimulates creativity and innovation across sectors, as also facilitates a stable, transparent and service-oriented IPR administration in the country.

Objectives:

- IPR Awareness: Outreach and Promotion – To create public awareness about the economic, social and cultural benefits of IPRs among all sections of society.
- Generation of IPRs – To stimulate the generation of IPRs
- Legal and Legislative Framework – To have strong and effective IPR laws, which balances the interests of rights owners with larger public interest
- Administration and Management – To modernize and strengthen service-oriented IPR administration
- Commercialization of IPRs – Get value for IPRs through commercialization.
- Enforcement and Adjudication – To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements.
- Human Capital Development – To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs.

National Intellectual Property Rights (IPR) Policy endeavours for a "Creative India; Innovative India"

Must Read: Link 1

Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- Pradhan Mantri Kaushal Vikas Yojana is a unique initiative by the Government of India that aims to offer 24 lakh Indian youth meaningful, industry relevant, skill based training making every skilled youth employable.
- Under the scheme, monetary reward would be provided to trainees who are successfully trained, assessed and certified in skill courses run by affiliated training providers.
- The objective of this skill certification and reward scheme is to enable and mobilize a large number of Indian youth to take up outcome based skill training and become employable and earn their livelihood.

SWADHAR Greh (A Scheme for Women in Difficult Circumstances)

- The scheme provides shelter, food, clothing and care to the marginalized women/girls who are in need.
- The beneficiaries include widows deserted by their families and relatives, women prisoners released from jail and without family support, women survivors of natural disasters, women victims of terrorist/extremist violence etc.

Some documents/articles to refer:

For a Skilled India:

- Document 1
- Link 1 + Link 2 + Link 3 +
- **Solve:** Link 1 + Link 2 + Link 3 + Link 4

Swachhta

Introduction

Three years ago, the nation accepted to wage a war against filth and objective was to have an open defecation free India by 2nd October 2019, the 150th birth anniversary of Gandhiji, who was the first leader of eminence to have focused his attention on sanitation and hygiene issues.

Swachh Bharat Mission has caught nation's imagination with sanitation coverage in the country going up from 39% to 69%. 4.96 crore toilets have been built since October 2014, 207 districts and more than 2.5 lakh villages have been declared Open Defecation Free (ODF). All the villages on the banks of the Ganga becoming open defection free is the most remarkable achievement of the mission.

The SBM is a globally unique programme, different in scope and scale from any other sanitation initiative in the world. Bringing 55 million rural Indians out of open defecation is unparalleled and carries a high degree of difficulty. It is one thing to build physical infrastructure like roads, bridges, and power plants and changing habits and getting million of people to voluntarily engage in jan andolan to fight the centuries old practice of open defecation is quite another!

Why is it important?

There are compelling socio-economic reasons to make India clean. The World Banh has estimated that nearly **40% of India's children are physically and cognitively stunted, primarily because of the lack of sanitation** which is often responsible for outbreak of deadly diseases such as Diarrhoea. This imposes huge economic cost on the nation as the future workforce is not able to reach their full productive capacity.

Then there is the issue of women's safety and dignity which are often compromised due to open defecation.

UNICEF study on economic impact of sanitation has estimated that in an open defecation free village, each family saves over Rs. 50000 per year on account of avoided medical costs, time savings and lives saved.

What is needed the most?

While building infrastructure us most basic requirement of swachhta, **changing people's mindset towards sanitation and bringing about behavioural change in the society is much bigger and challenging task**. To achieve this it is essential that sanitation becomes everyone's business and **not just the responsibility of government departments alone**. Swachhta has to **become a mass movement**.

Ministers, Parliamentarians, Central and state government officials, celebrities, corporates, locally elected representatives, NGOs, students and civil society organisations have to come together to spread the message of swachhta all over the country.

Swachhta application areas

Solid and liquid waste management, waste to health, ensuring water supplies and sewage networks are some areas that hold tremendous potential to lead the country towards cleanliness. To harness this, there is an urgent need to develop new technologies and to encourage the young entrepreneurs and start-ups to work in this field.

Economics of investing in Swachhta

Open defecation dates back to the beginning of human civilisation. It has been a way of life for millions of people in India for centuries. Successive governments have been running national sanitation programmes since the 1980s but till 2014, only 39 % of Indians had access to safe sanitation facilities. This is because access to sanitation is not only an infrastructure problem, but there is deeper behavioural and socio-cultural context at play.
Influencing a change in behaviour for 60 crore people is a challenge that has probably never been undertaken by anyone in the world. This could only be achieved through an **intensive, time-bound intervention, spearheaded from the highest level and involving all sections of society and government alike.**

The importance of sanitation is well documented, with its effect on child mortality due to diarrhoeal diseases, and the safety, security and dignity of women being clearly established. But the underlying costs of the lack of sanitation are a lot more than meets the eye. WB and UNICEF reports are the proof of same. WB estimated that the lack of sanitation costs India over 6% of our GDP which is greater than fiscal deficit target!

Financial support for SBM

SBM has a budget of more than $20 billion over five years from central and state governments. Additional investments have been coming in from the private sector, developmental agencies, faith based institutions and citizens. The Swachh Bharat Kosh has already collected and released over Rs. 660 crores for specific sanitation projects. Several private companies have worked especially for sanitation in schools through their CSR funds. But there is still a large potential to leverage the private sector's creativity and innovation for the SBM.

How to bring in awareness

- The first key differentiator is the genuine focus on behaviour change through **information education and communication**, and shifting the focus from outputs (toilets built) to the outcomes (ODF villages).

- The **community** is at the centre of the entire process and are leading the Swachhta revolution. Children, women, senior citizens and specially-abled citizens have emerged as the biggest Swachh champions. They are inspiring their communities to come together and fight the menace of open defecation together.
- Lakhs of **sanitation motivators, called Swachhagrahis**, are being trained in community approaches to sanitation. Virtual classrooms are being run by the Ministry of Drinking Water and Sanitation (MDWS) to scale these training up where a central trainer interacts with trainees across multiple locations on tools for effective community mobilization and behaviour change triggering. They work under an incentive-based system at village level to explain the importance of sanitation and trigger behaviour change by stimulating community-level demand for toilets. The SBM aims to have at least one Swachhgrahi per village in Inida.
- Bollywood stars and cricketers are also getting involved. For example, 'Darwaza Bandh' campaign to spread awareness regarding open defecation hazards involves a top Bollywood celebrity who can convince people to use toilets.

Monitoring

Once a village declares itself as ODF at a gram sabha, verification of the later status becomes the key. Currently, verification of ODF villages stands at around 60%, up from 25% a few months ago.

There have been instances in previous programmes where ODF declared villages witnessed some 'slip back' into open defecation, as old habits are hard to break out of. Sustaining of ODF is no easy task and states, districts and villages will need to continue the focus on IEC to ensure that they remain ODF. Incentive mechanisms are being developed for sustaining ODF, including prioritising ODF villages for centrally sponsoring schemes like piped water supply.

The MDWS has also issued sustainability guidelines to states and provided a financial incentive framework to them for sustaining the ODF. District are also being ranked under **Swachhta Darpan** based on their performance, sustainability and transparency on SBM-G, spurring healthy competition between districts.

Another very important differentiation between the SBM-G and previous sanitation programmes is the inclusive focus cleanliness through management of soil and liquid waste. In fact, waste is now being viewed as a resource, and the name has been re-christened to solid and liquid resource management (SLRM). Villages are self-ranking themselves on the village swachhta index.

Everyone's business

Sanitation must become everyone's business and not the responsibility of one ministry or department alone.

Even the private sector has been inspired to contribute to SBM, not only by contributing money under CSR, but also leveraging their human and managerial resources to help in direct implementation of SB.

Jan Andolan

SBM-G has launched a slew of new initiatives to engage the general public with the Swachhta revolution in India.

The first of these is Swachhathon- the Swachh Bharat Hackathon which invites innovative technology based solutions to some of the most challenging questions being faced by SBM-G.

The nation has to get involved with a time-bound, nation-wide mass mobilisation campaign to construct twin-pit toilets, clean up public spots and spread awareness about the SBM through Shramdaan. This initiative was called as **Swachhta hi Sewa**.

Conclusion

With all of these initiatives picking up stream, the SBM has become an even stronger force throughout the country and inspiring people to play their part in this transformational journey. This initiative has to be owned by one and all.

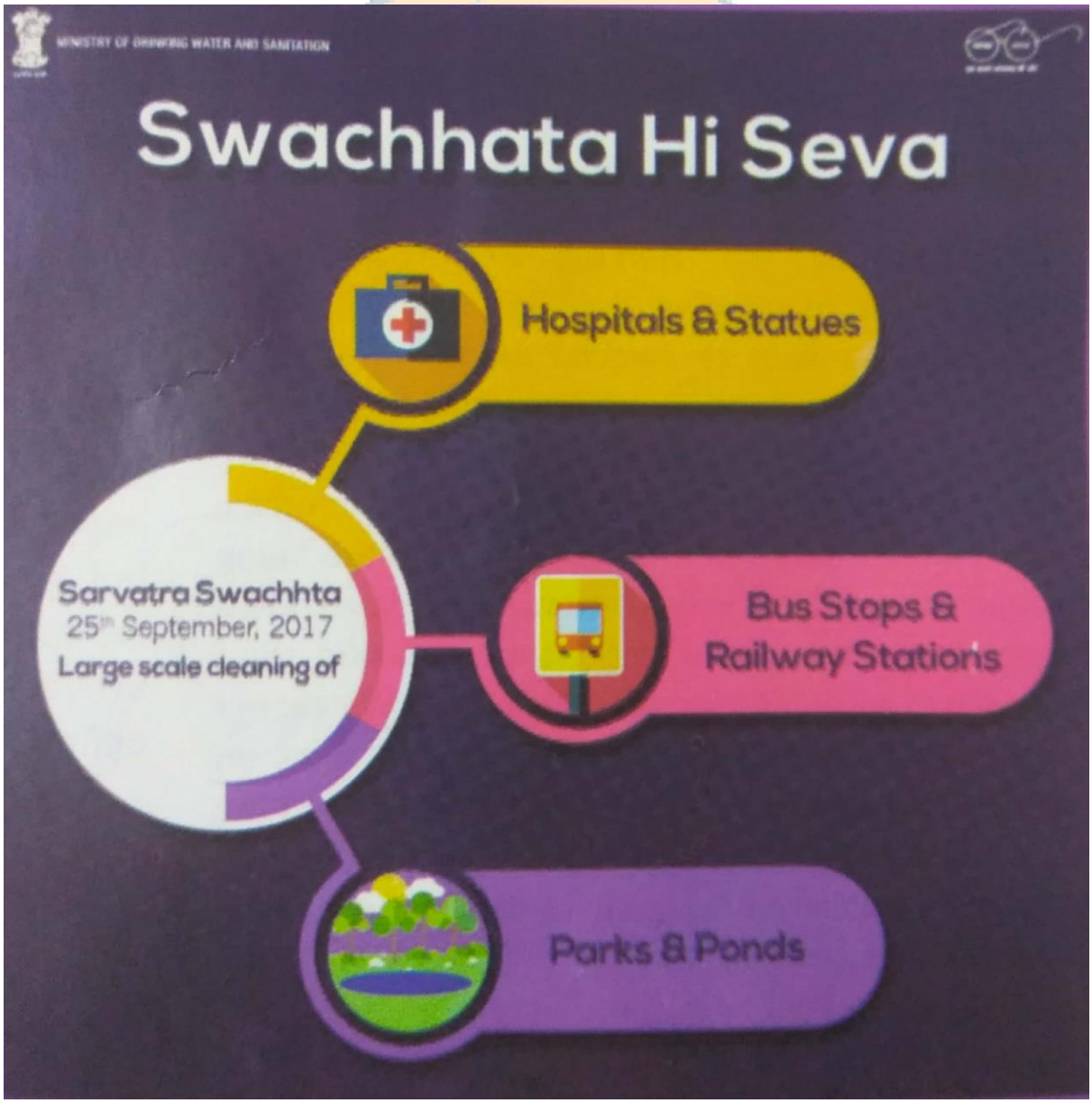
There is still a fair way to go but given the progress made so far, the acceleration expected over the coming 12-15 months and the active engagement of millions of people, the goal is definitely achievable.

‘Swachhta hi Sewa’ campaign

Introduction

Mahatma Gandhi said- ‘sanitation is more important than political freedom’. This statement underscored the criticality of sanitation in society. Today, India is fighting a decisive battle for cleanliness and hygiene.

According to census 2011, India’s 68.84% population lived in villages. The revelation from census that only **32.7% households had access to toilets in rural areas**, which implied that **two-thirds of rural households did not have access to toilets**, stunned the government and development activists. Open defecation is not only a health hazard but also a cause of threat to women residing in rural areas of the country.



Importance of cleanliness

India is a low-income category country. The disease due to open defecation put added financial burden on poor families due to poor hygiene and leave them in the vulnerable situation. Access to clean water and sanitation reduces exposure to pathogens and transmission to pathogens which further results in the reduction in diarrhoea, improvements in anthropometric indexes of children and reductions in total mortality.
Eliminating open defecation and motivating people for constructing the toilets and using them, taboo regarding disposal of faecal waste generated from the septic tank have been observed as the major challenges.

Cleanliness is not the responsibility of only sanitation personnel and government departments. The objectives are generating demand for toiles leading to their construction and sustained use by all household members, promoting better hygiene behaviour amongst the population and improving cleanliness by initiating solid and liquid waste management projects.

Swachh Bharat mission sought to reform the sanitation sector with the primary focus being on behavioural changes as the fundamental tool for achievement of ODF outcomes.
Inclusiveness under the SBM was achieved by designing pubic and community toilets keeping in mind the social needs of menstruating women, the elderly and the specially-abled and small children.
Further, the mission sought to **promote gender sensitive information, education and gender communication/behavioural changes**. This mission issued gender guidelines in 2017 and menstrual management guidelines in 2015.

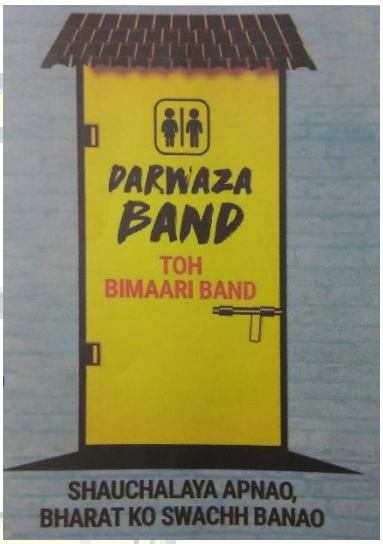
SBM- effective communication strategy for behaviour change

In absence of effective behaviour change communication and information education communication, the earlier sanitation programmes showed a little improvement in terms of coverage of households with toilets and resulted in short term usage of the toilets.

In rural areas, the people follow their own understanding of personal hygiene and cleanliness, but by not connecting the toilets with the sense of impurity and pollution and stubborn habit of open defection have been the reasons for not using the toilets or constructing the toilets inside the houses. The men in rural households prefer to take a walk in the morning in open air to their agricultural field and open defecation has synchronised with their daily life. On the other hand, people residing in the rural areas are mostly dependent on agriculture for their livelihood and they generally borrow the money for farm practices. So, to borrow money to construct toilet is considered as an additional financial burden on them which bar them from owing the toilets.

Sub-group of CMs on Swachh Bharat Abhiyan was formed and it was asked to analyse the size of the problem of open defecation and suggest recommendation on making the country clean.

- It emphasised on **higher allocation towards behaviour change component**, involving political and social/thought leaders, celebrities and media houses and positive/dignified outlook towards cleaning occupation.
- **Education as a strategy for the mission** by making sanitation as a part of school syllabus and harnessing the potential of children as change agents.
- **Behaviour Change Communication (BCC)** is of immense importance as it may serve as a platform for informing, educating and persuading people to realise their roles, responsibilities and benefits accruing from investing in correct sanitation practices.
- **Regular cleanliness campaigns** are being organised by MDWS. Massive media campaigns have been organised at the national level using Audio mediums, Audio Visual mediums, and other famous celebrities and icons from various icons from various walks of life. Social media is also being used extensively.
- **Corporates, civil society organisations and other ministries** and departments have joined in SBM awareness efforts in good measure.
- For the promotion of toilet usage across the country's villages, MDWS has come out with an aggressive view campaign called **Darwaza Bandh**. The campaign has been supported by WB and is being rolled out countrywide immediately after the launch. It is designed to encourage behaviour change in men who have toilets but are not using them. The campaign will have famous female celebrities encouraging women to stand up for this issue in their villages and assume leadership role.

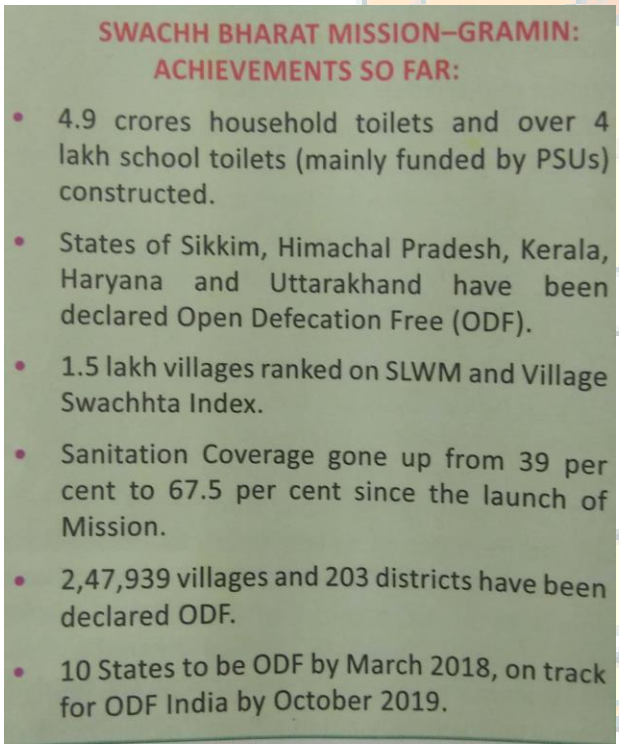


Monitoring and evaluation of the campaign

- An innovative and monitoring and evaluation system was put in place. The **Swachh Sarvekshan** was conducted for rural India and revealed that mandi (HP) and sindhudurg (Maharashtra) were the cleanest districts in India. In September 2017, India had 5.20 crore households without toilets. Out of this, 2.70 crore are within UP and Bihar. Hence, the ministry should come up with the special strategy for these two states to turn the dream of open defecation free India into reality.
- The SBM represents a national movement with diverse stakeholders comprising of central ministries, state government and semi-government agencies, corporates, NGOs, faith organisations and media. The inter-ministerial **projects included**

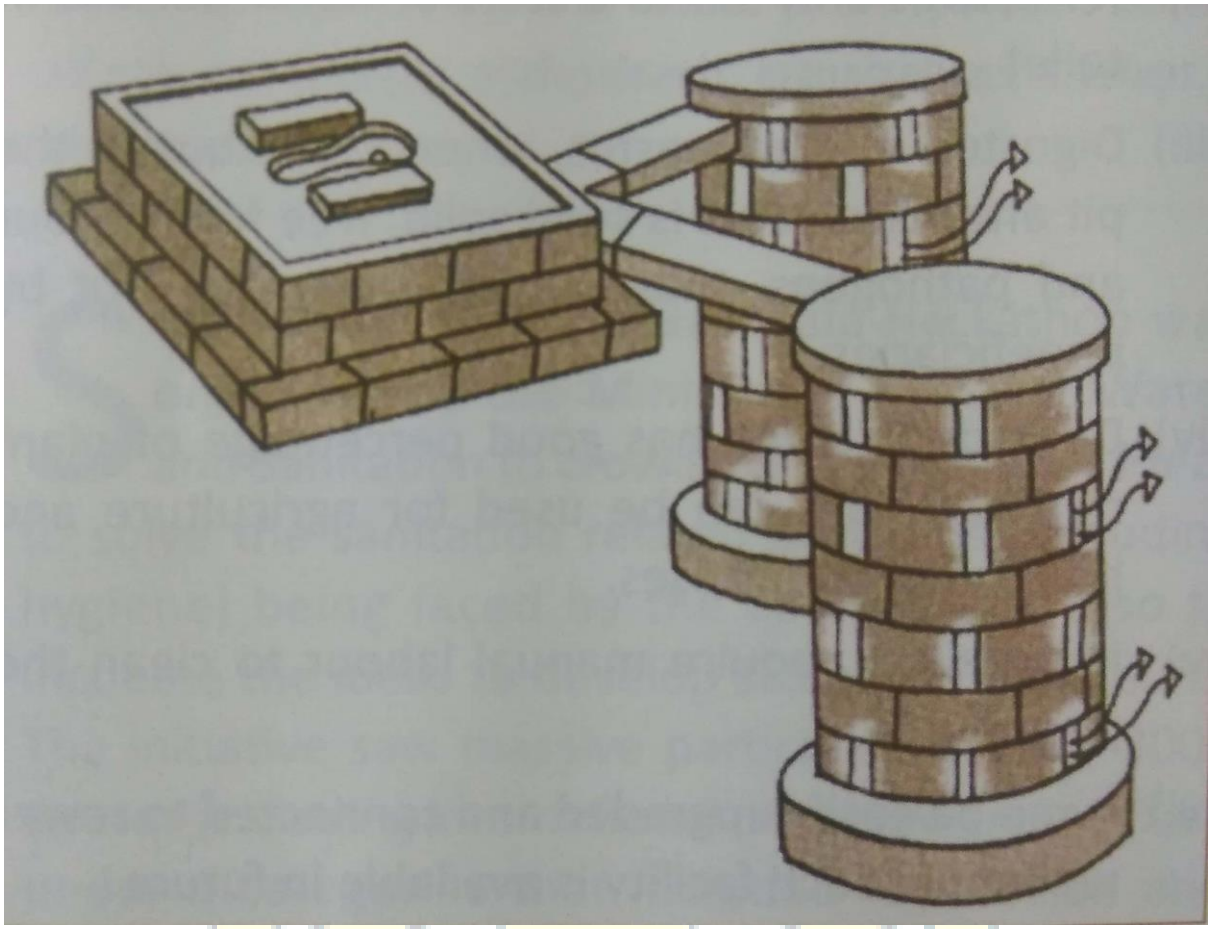
Swachhta Pakhwadas, Namami Gange, Swachhta Action Plan, Swachh Swasth Sarvatra campaign, school sanitation drive, aanganwadi sanitation drives, railway sanitation etc.

- The Swachhta hi Sewa campaign seeks to mobilize people to come out and get directly involved with the Swachh Bharat Mission by **offering shramdan for swachhta**.
- MDWS has launched a third party verification survey report to take stock of the progress already made by the mission in rural India. The Quality Council of India conducted a transparent third-party assessment of the present status of rural sanitation in all states and UTs, called **Swachh Sarvekshan Gramin 2017**. Overall toilet coverage has been 62.45% in 1.4 lakh villages as per Swachh Survekshan Gramin. The intense behaviour change communication strategy adopted by the government could be a reason for this high percentage of usage of toilets in rural India.



Twin Pit Pour Flush Water Seal Toilet

India still faces the challenge of best suited toilet technology for sustainable and complete disposal of human excreta. In this context, twin pit toilets are the most suitable on-site sanitation measures for houses. Therefore, these toilets are suggested as a self-sustaining and complete human waste disposal system by the MDWS.



What is it?

It is a complete on-site sanitation measure at household level that, on one hand fulfils all the sanitary requirement of a toilet, and on the other hand, provides continuous use of a toilet with minimal maintenance.

- There are two pits, which are used alternatively. Both the pits are connected with a junction chamber at one end. Pit walls have honeycombed structure.
- Bottom of the pit is not plastered and is earthier, depending on the number of users of toilet, size of the pit varies.
- Capacity of each pit is normally kept for three years. First pit, after it gets filled up in about 3 years is blocked at the junction chamber and second pit is put in operation. Water part of excreta percolates in soil through honey combs.

- After 2 years of blocking of first pit, its contents degrade completely and turn to solid, odourless, pathogen free manure.
- It is dug out by beneficiaries and used for agriculture and horticulture purposes
- After the second pit is filled, it is similarly blocked and the first pit is put in use again.
- Thus alternate use of both the pits continues.

Pit toilet is not suitable for

High water table

- In high water table areas, there is chance of ground water contamination.
- Due to high water table, adjoining soil of the pit becomes saturated and further percolation from pit reduces significantly causing frequent filling of the pits.
- In coastal areas also these toilets are not suitable.

Rocky areas

- In case of rocky areas, there is no chance of percolation of water from pits. Consequently, pit gets filled in frequently.
- Due to unavailability of mechanical devices to clean the puts, it is not acceptable by the beneficiaries.

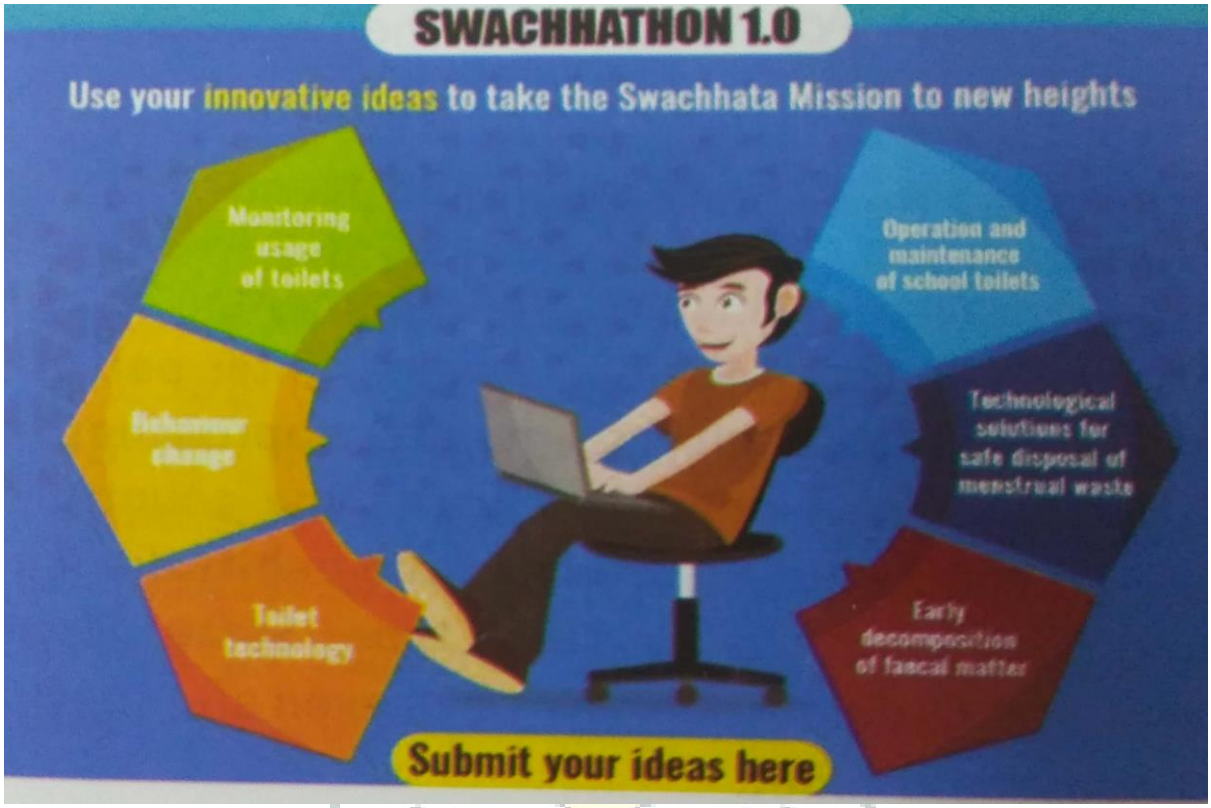
For coastal and other areas having high water table and also for rocky areas, technologies like

- Ecosan toilet
- Bio toilet
- Septic tank toilet are available

ADVANTAGES

1. It is permanent solution for on-site household human waste disposal
1. It requires only 1.5 to 2 litres of water per use of toilet
2. Digested human wastes, when taken out of pit after two years is semi-solid, free from odour and pathogens, that can be easily dug out by beneficiaries
3. Degraded sludge has good percentage of plant nutrients and can be used for agriculture and horticulture purposes.
4. It does not require manual labour to clean the pits.
5. It doesn't require a vent pipe. Gases produced in the pit are diffused in soil through honeycomb structures. The gases are mainly CO2 and methane CH4. The system also helps in reducing air pollution from these GHGs
6. It can be easily upgraded and connected to sewer whenever such facility is available in future.
7. Its maintenance is easy.

Swachhathon



Swachhathon (Swachh Barat Hackathon) was conceptualised as an attempt to crowd source solutions and to engage the general public with the Swachhta revolution in India. It invited innovative technology based solutions to some of the most challenging questions being faced by SBM:

- How to measure usage of toilets in a non-intrusive manner at scale?
- How to leverage technology to spark behaviour change at scale?
- Frugal toilet technology designs for difficult terrains
- Ways to leverage technology to promote maintenance of school toilets
- Technological solutions for safes disposal of menstrual waste and technologies for early/instant decomposition of faecal matter.

Students from schools and colleges, professionals, organisations, startups and others were invited to come up with exciting, innovative, novel and viable solutions for

- Monitoring usage of toilets
- Triggering behaviour change
- Toilet technologies in difficult terrains
- Working solutions for maintenance and operations of school toilets
- Technological solutions for safe disposal of menstrual waste
- Solution for early decomposition of faecal matter

Why?

It was envisaged to address real problems being faced by the people in attaining complete sanitation. The problems ranged from implementation challenges, to those arising due to diversity in cultural and geographical context.

It was thought that such problems from ground level can only be addressed through innovations, ground level up and then only they can be termed as real and sustainable solutions to real problem.

So, technological solutions were invited: adaptable for rural areas to effectively measure usage of toilets and ingrained with following features:

- Affordable
- Scalable
- Socially acceptable
- Easy to use
- Accurate

Triggering behaviour change is of utmost importance as it is fundamental to Swachh Bharat mission. Old habits die hard and that is why several inter-personal techniques are being used across the country to trigger behaviour change.

As part of Swachhathon, solutions were invited to expedite the process of decomposition of faecal material. The proposed technology was supposed to decompose the faecal material in the shortest possible time and had to be cost-effective, scalable, easy to implement, weather proof and environmental friendly.

Toilet technology

SBM wants to promote affordable, sustainable and environmentally friendly toilet technologies across the nation. However, in certain parts of the country, these available technologies have not been successful in being robust and cost-effective. This is especially in areas which are flood-prone, areas which have a hard rock surface, and areas which are remote and poorly connected with transportation infrastructure.

In Swachhathon, the Swachh Bharat Mission-Gramin invited solutions for the innovative toilet technologies from the participants for following areas:

- Remote and poorly connected areas
- Hard rock areas
- Flood prone areas.

Additionally, suggestions were sought for improvement/upgradation of the current technologies being adopted by the ministry, i.e twin pit system.

How?

The hackathon was designed as an open for all (including international entries, all age groups and teams/individuals participation) process through which anybody and everybody could contribute towards 'Clean India'.

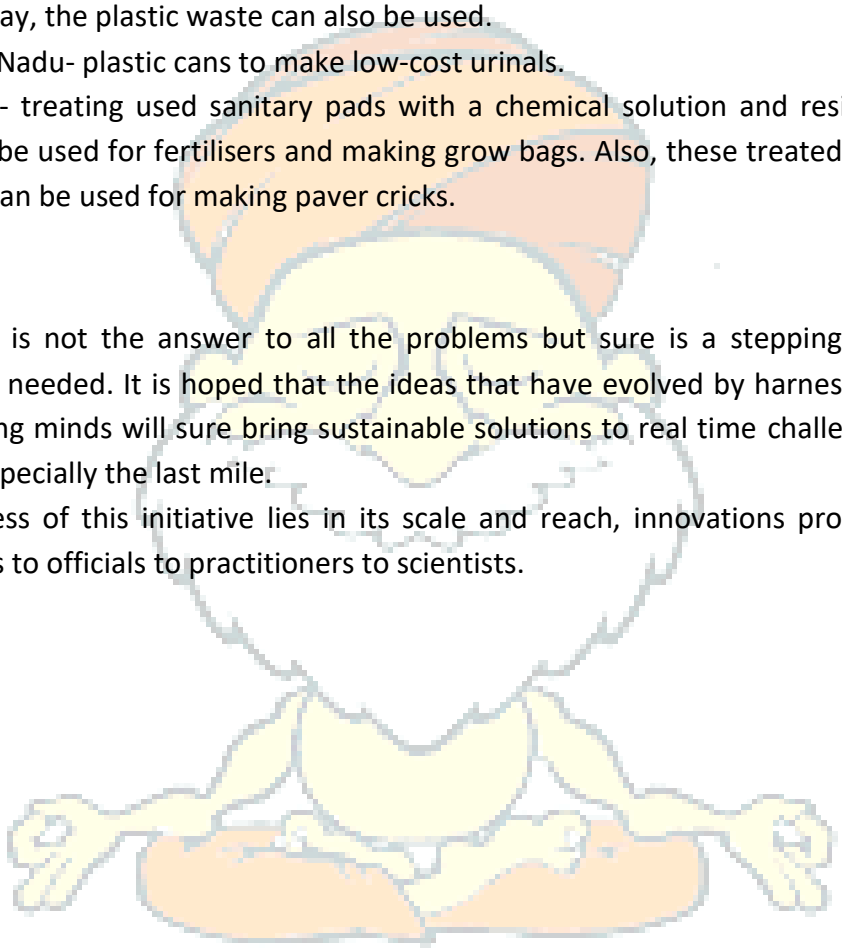
Glimpses of few innovations

- Arunachal Pradesh- instead of bricks as pit walls, bamboo with plastic lining could be used in the twin pit toilet technology. As Arunachal Pradesh has a difficult geographical terrain with less motorable roads, masons and raw material for constructing the toilet comes from Assam which increases the cost of construction. This way, the plastic waste can also be used.
- Tamil Nadu- plastic cans to make low-cost urinals.
- Kerala- treating used sanitary pads with a chemical solution and residue of which could be used for fertilisers and making grow bags. Also, these treated used sanitary pads can be used for making paver cricks.

Conclusion

Swachhathon is not the answer to all the problems but sure is a stepping stone to the change that's needed. It is hoped that the ideas that have evolved by harnessing creativity of bright young minds will sure bring sustainable solutions to real time challenges faced by the nation, especially the last mile.

The uniqueness of this initiative lies in its scale and reach, innovations proposed ranged from students to officials to practitioners to scientists.



Waste to wealth
The waste management alternatives

Industrialisations become very significant for developing countries like India having large number of population. Rapid increase in urbanisation and per capita income lead to high rate of municipal solid waste generation.

In recent times, e-waste and plastic waste also contribute considerably to total waste stream due to utilisation of electronic and other items.

These wastes may cause a potential hazard to human health or environment if any of the aspects of solid waste management is not managed effectively.

Even today, large portion of solid waste is dumped indiscriminately on outskirts of towns or cities without any prior treatment.

This leads to groundwater contamination and increase in air pollution due to leachate percolation and release of gases respectively. Improper waste segregation and other factors lead recycling sector to work on outdated technology.

India- waste generation scenario

- Every year, about 55 million tonnes of municipal solid waste and 38 billion litres of sewage are generated in urban areas of India.
- Additionally, large quantities of solid and liquid wastes are generated by industries. Waste generation in India is expected to increase rapidly in the future.
- As more people migrate to urban areas and as incomes increase, consumption levels are likely to increase as are rates of waste generation.
- It is estimated that amount of waste generated in India will increase at a per capita rate of approx. 1-1.33% annually. This has significant impacts on the amount of land that is and will be needed for disposal, economic costs of collecting and transporting waste and the environmental consequences of increased MSW generation levels.

Types of waste

- Urban
- Industrial
- Biomass
- Biomedical

Growth drivers

The quantum of industrial waste generation is also on a higher side. More than 8 million tonnes per annum is India's present hazardous waste generation. Maharashtra (22.84%), Gujarat (22.68%) and Telangana and Andhra Pradesh put together (13.75%) are the leading

states in country in hazardous waste generation, followed by Rajasthan, Tamil Nadu, Madhya Pradesh and Chhattisgarh.
Just these 7 states contribute nearly 82% of the hazardous waste generated in country.

Importance of waste to energy

Any organic waste from urban and rural areas and industries is a resource due to its ability to get degraded, resulting in energy generation. The problems caused by solid and liquid wastes can be significantly mitigated though the adoption of environment-friendly waste to energy technologies that will allow **treatment and processing of wastes before their disposal**. These measures would **reduce the quantity of wastes, generate a substantial quantity of energy from them and greatly reduce environmental pollution**.

The government is now keen on using renewable and alternative energy sources. **Waste to energy is one of this**.
Government own figures suggest that **cost of waste to energy is somewhat higher than other renewables sources**, it is still an **attractive option**, as it **serves as dual role of waste disposal and energy production**.

Need for a new energy source

The high volatility in fuel prices in the recent past and the resulting turbulence in energy markets has compelled many countries to look for alternate sources of energy, for both economic and environmental reasons.
With growing public awareness about sanitation, and with increasing pressure on the government and urban local bodies to manage waste more efficiently, the Indian waste to energy sector is poised to grow at a rapid pace in the years to come.

The dual pressing needs of waste management and reliable renewable energy source are creating attractive opportunities for investors and project developers in the waste to energy sector.

In energy to energy generation, waste-to energy can fetch significant monetary benefits. Some of the strategic and financial benefits from waste-to-energy business are

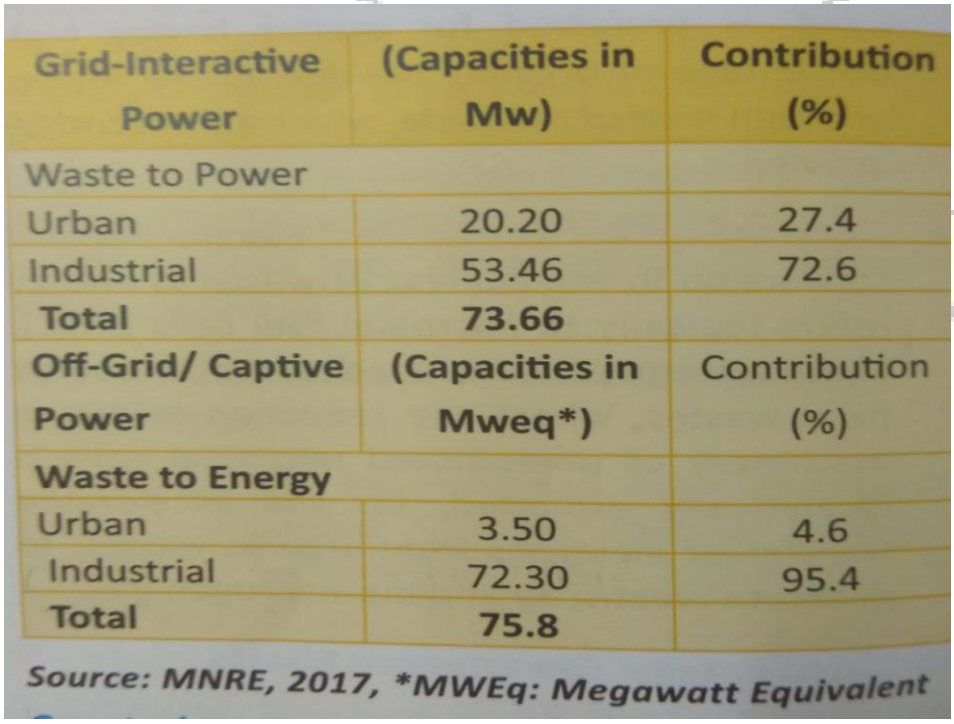
- **Profitability**- if right technology applied with optimal processes and all components of waste are used to derive value, it can be a profitable business.
- **Government incentives**- government of India already provides significant incentives for waste to energy projects, in the form of capital subsidies and feed in tariffs.
- **Related opportunities**- there can be opportunities in sewage waste, industrial waste and hazardous waste. Depending on technology/ route used for energy recovery, eco-friendly and 'green' co-products such as charcoal, compost, nutrient rich digestate or bio-oil can be obtained.

- Emerging opportunities- with distributed waste management and waste to energy becoming important priorities, opportunities exist for companies to provide support services like turnkey solutions. In addition, waste to energy opportunities exist not just in India, but all over world.

Technologies for generation of energy from waste

- **Thermal conversion**- it involves thermal degradation of waste under high temperature. In this, complete oxidation of waste occurs. Major technological option is incineration
- **Thermos-chemical conversion**- it involves high temperature driven decomposition or organic matter to produce their heat energy or fuel oil or gas. They are useful for wastes containing high percentage of organic non-biodegradable matter and low moisture content. Major technological option is pyrolysis and gasification.
- **Biochemical conversion**- the process is based on enzymatic decomposition of organic matter by microbial action to produce methane gas and alcohol. This process is preferred for wastes having high percentage of organic, bio-degradable matter and high level of moisture, which aids microbial activity.
- **Electrochemical conversion**- it refers to a microbial fuel cells where the systems are developed to trap the energy from wastes where reduction –oxidation machinery of immobilised microbial cells is catalytically exploited for the accelerated transfer of electrons from organic wastes to generate electricity and bio-hydrogen gas.

Current Waste-to-energy installed capacity in India



Grid-Interactive Power	(Capacities in Mw)	Contribution (%)
Waste to Power		
Urban	20.20	27.4
Industrial	53.46	72.6
Total	**73.66**	
Off-Grid/ Captive Power	**(Capacities in Mweq*)**	Contribution (%)
Waste to Energy		
Urban	3.50	4.6
Industrial	72.30	95.4
Total	**75.8**	

*Source: MNRE, 2017, *MWEq: Megawatt Equivalent*

Installed Grid Interactive Renewable Power Capacity in India 2017		
Source	Total Installed Capacity (MW)	Target 2022 (MW)
Wind power	32279.77	60,000.00
Solar power	12288.83	100,000.00
Biomass power (Biomass & Gasification and Bagasse Cogeneration)	8182.00	10,000.00
Waste-to-Power	114.08	
Small hydropower	4379.85	5,000.00
Total	57244.23	175,000.00

Source: MNRE, 2017

Off-grid power Capacities in MW	
Source	Total Installed Capacity (MW)
Biomass (non-bagasse) Cogeneration	651.91
SPV Systems	438.95
Biomass Gasifiers	186.88
Waste to Energy	164.45
Water mills / micro hydel	18.81
Aero-Generators / Hybrid systems	2.98
Total	1463.98

Source: MNRE Report 2017

Constraints faced by waste to energy sector

- It is still a new concept in the country, most of the proven and commercial technologies in respect of urban wastes are required to be imported.
- The costs of projects especially based on bio-methanation technology are high as critical equipment for a project is required to be imported.
- In view of low level of compliance of MSW rules 2000 by the urban local bodies, segregated municipal solid waste is general not available at the plant site, which may lead to non-availability of waste to energy plants
- Lack of financial resources with ULBs
- Lack of conducive policy guidelines from state governments in respect of allotment of land, supply of garbage and power purchase/ evacuation facilities.

Conclusion

Population growth and particularly the development of megacities is making SWM in India a major problem. The current situation is that India relies on inadequate waste infrastructure, informal sector and waste dumping. There are major issues associated with public participation in waste management and there is generally a lack of responsibility towards community. There is a need to cultivate community awareness and change the attitude of people towards waste as this is fundamental to developing proper and sustainable waste management systems.

Sustainable and economically viable waste management must ensure maximum resouce extraction from waste, combined with safe disposal of residual waste through the development of engineered landfill and waste-to-energy facilities.

Waste-to-energy plants are among the most efficient ways to convert garbage to electricity. WTE plants reduce the waste volume drastically in most eco-friendly manner, at the same time reducing the necessity of landfills. Garage is a very efficiently utilised, ad much needed electricity is generated, bridging the gap for electricity requirement.
It is time all cities pay attention to this source for power as an economical way to tackle the city waste.

Cleanliness is not third party's responsibility; it is first person task- YOUR Task.

Best Wishes
IASbaba