

IAS PARLIAMENT

A Shankar IAS Academy Initiative

KURUKSHETRA - OCTOBER 2017



SHANKAR IAS ACADEMY™

Plot No.1742, 1st Floor, 18th Main Road, Anna Nagar, Chennai – 600 040.

Phone : 044-26216435, 64597222, 4353 3445, Mobile : 94441 66435

www.shankariasacademy.com

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1. WASTE TO WEALTH: THE WASTE MANAGEMENT ALTERNATIVES

What is the issue?

- The increasing volumes of waste generated calls for a sustainable method of waste management

What is the concern?

- Industrialisation is very significant for developing countries like India having a huge population.
- Rapid increase in urbanisation and per capita income lead to high rate of municipal solid waste generation.
- As more people migrate to urban areas and as incomes increase, consumption levels also increase and so are the rates of waste generation.
- In recent times, E-waste and plastic waste are also contributing considerably to total waste.
- This could get to be a potential hazard to human health and environment if left unaddressed.
- This in turn could lead to groundwater contamination due to percolation, and increase in air pollution due to the release of harmful gases.

How can waste be better managed?

- **Classification** - Wastes are broadly classified into Urban waste, Industrial waste, Biomass waste and Biomedical waste.
- Urban waste includes Municipal solid waste, Sewage and Faecal Sludge.
- Industrial waste could be segregated as Hazardous and Non Hazardous.

- **Waste to energy technologies** - The problems caused by solid and liquid wastes can be significantly mitigated through the adoption of environment friendly waste to energy technologies.
- This will allow treatment and processing of wastes before disposal.
- Though the cost involved is higher than other renewable resources, it is still an attractive option, as it serves a dual purpose of waste disposal and energy production.

What are the benefits of W-E conversion?

- If right technology is employed with optimal processes and all components of waste are used to derive value, waste to energy could be a profitable business.
- The Government of India also provides various incentives to promote waste to energy conversion sector and make it profitable.
- Waste conversion process will also yield co products which offer opportunities for the enterprises to expand their profit.

What are the available technologies for W-E conversion?

- **Thermal Conversion** - The process involves thermal degradation of waste under high temperature.
- In this method complete oxidation of waste occurs at high temperature.
- **Thermo Chemical Conversion** - This process entails high temperature driven decomposition of organic matter to produce either heat energy or fuel oil or gas.
- **Bio chemical Conversion** - This is based on enzymatic decomposition of organic matter by microbial action to produce methane gas, alcohol etc.

- **Electro Chemical Conversion** - It refers typically to microbial fuel cells.
- The immobilised microbial cells are catalytically exploited, for the accelerated transfer of electrons from organic wastes, to generate electricity and bio hydrogen gas.

What are the constraints?

- Waste to Energy is still a new concept in the country.
- Most of the proven and commercial technologies in respect to urban wastes needed to be imported.
- The costs of the projects especially based on biomethanation technology are high, as critical equipments are to be imported.
- In view of low level of compliance of Municipal Solid Waste Rules, 2000 by the Urban local Bodies, segregated municipal solid waste is generally not available at the plant site and make them unavailable for waste to energy plants.
- Lack of financial resources with urban bodies is another major constraint.
- Lack of conclusive policy guidelines from the state governments in respect of allotment of land, supply of garbage and power purchase / evacuation facilities.

2. CREATING A CLEAN INDIA

What is the issue?

The Swachh Bharat Mission aimed at creating an Open Defecation Free India is becoming unique in many ways, moving towards achieving its objectives.

How serious is open defecation?

- The age old practice of open defecation causes over 1 lakh preventable child deaths every year through diarrhoeal deaths.

- A study by the World Bank estimates that nearly 40 percent of India's children are stunted, primarily because of lack of sanitation.
- Lack of sanitation has an adverse impact on economic potential of people and is estimated to cost over 6 percent of GDP.
- Women's safety and dignity are often compromised due to open defecation.

How can it be addressed?

- The various goals under the Swachh Bharat Mission has a bearing on overall sanitation.
- The objectives include:
 - i. Eliminating open defecation.
 - ii. Conversion of insanitary toilets to pour flush toilets.
 - iii. Eradication of manual scavenging.
 - iv. 100% collection and scientific processing/disposal, reuse/recycle of Municipal Solid Waste.
 - v. Bringing about a behavioural change in people regarding healthy sanitation practices.
 - vi. Generating awareness among the citizens about sanitation and its linkages with public health.
 - vii. Strengthening urban local bodies to design, execute and operate systems,
 - viii. Creating an enabling environment, in this regard, for private sector participation in Capital Expenditure and Operation & Maintenance (O&M) costs.

How has it been a unique initiative?

- **Behaviour change** - SBM (Swachh Bharat Mission) is about bringing changes in people's minds and not just about creating infrastructure.
- This essentially makes it different from earlier sanitation programs.

- The behavioural change is achieved through Information, Education and Communication (IEC).
- **Approach** - The approach is certainly shifting the focus from outputs to outcomes in assessing the success.
- Also, waste is now seen as a resource as different from many earlier programs.
- Effective recovery tools are being implemented to manage and reduce solid and liquid wastes.
- The private sector is encouraged to contribute not only in terms of funds under CSR, but also leveraging their human and managerial resources to help the direct implementation of SBM.
- **Community Participation** - The community is at the centre of the entire mission process.
- Virtual classrooms are being run by the Ministry of Drinking Water and Sanitation to scale up the participation of community.
- The SBM aims to create at least one Swachharaghi per village, who is trained in community approaches to sanitation to eliminate open defecation.
- The GOI also organized a special event for awarding 6000 women sarpanches on International Women's Day, to promote and encourage their participation.
- **Mass Awareness** - Electronic and print media are being used as platforms to reinforce the sanitation messages and broaden its appeal.
- Film stars and other popular personalities are roped in for campaign on TV, radio and outdoor hoardings across the country.
- **Monitoring** - The ODF status declaration and verification involves a third party, which helps to identify the gaps if any and to take remedial measures.
- **Incentive mechanisms** - are being developed for sustaining ODF, including prioritizing ODF villages for centrally sponsored schemes like piped water supply.
- Districts are also being ranked based on the performance under "Swachhta Darpan" which leads to a healthy competition in promotion of SBM.

3. SWACHHATHON: HARNESSING THE CREATIVITY OF MILLIONS FOR SWACHH BHARAT

What is Swachhathon?

- Swachhathon 1.0 – Swachhata Hackathon is an attempt to crowd source solutions for some of the pressing problems faced by the country in Sanitation and Hygiene.

What are the features?

- Ministry of Drinking Water and Sanitation (MoDWS) invites students from schools and colleges, professionals, organizations, startups and others to come up with exciting, innovative, novel and viable solutions in the categories mentioned below –
 - Monitoring usage of toilets
 - Behaviour Change
 - Toilet technology
 - Operation and maintenance of school toilets
 - Technological solutions for safe disposal of menstrual waste
 - Early decomposition of faecal matter
- It is envisaged to address real problems being faced by the people attaining complete sanitation.
- The problems range 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.

What are the objectives?

- **Monitoring Usage of Toilets** - Usage of toilets is the key goal of the Swachh Bharat Mission Gramin.
- Toilet usage is presently measured on a sample basis through household surveys.
- There is however no technological solution available to measure and confirm usage of toilets.
- So, technological solutions are invited for building up toilets which are affordable, scalable, socially acceptable, easy to use and accurate.
- **Triggering Behavioural Change** - Open defecation, as a behaviour persists and prevails in large parts of the country. It is thus essential to make a change in the mindset.
- Several inter-personal techniques through community approaches to sanitation are used in the country to trigger behavioural change.
- The solution can be in the form of a technology, demonstration, technique, pictures, combination of things and others.
- The solutions are expected to be scalable, non-coercive, socially acceptable, and be effective.
- **Decomposition of faecal matter** - As a part of this campaign, solutions are invited to expedite the process of decomposition of faecal matter.
 - This is to decompose faecal material in the shortest possible time, and in a cost effective, scalable, easy to implement, weather proof and environment friendly manner.
- **Disposal of menstrual wastes** - With absence of safe waste disposal system, menstrual waste are often discarded in open fields, water bodies, flushed in toilets or dumped along with the regular solid waste.
 - There is a need for a larger awareness among women and girls to switch towards safe sanitary options to manage their menstrual cycles.
 - The technological intervention in this regard is expected to be environment friendly, not cause any land, water or air pollution, and be cost effective and scalable across schools, colleges, villages, institutions.etc.
 - School Toilets - All Government schools in India have been provided with toilets under the Swachh Vidyalaya initiative.
 - However, due to the lack of human resource and inadequate funds, maintenance of these toilets is ineffective.
 - There are other problems like lack of adequate water.
 - Solutions are expected to ensure effective maintenance of toilets, reduce the time spent and cost on maintenance of school toilets.
 - The solutions have to be socially acceptable in rural India, affordable, equitable and adaptable to varying sizes of school toilets.
- **Toilet Technology** - The Swachh Bharat Mission wants to promote affordable, sustainable and environment friendly toilet technologies across the Nation.
 - However in certain parts of the country, these effective technologies are not successful in being robust and cost effective.
 - This is especially true for areas which are flood prone.
 - It also includes regions that have a hard rock surface and areas which are remote and poorly connected with transportation infrastructure.
 - The proposed options in these regard are expected to be cost effective, sustainable, reliable and durable, user friendly, weather proof, environment friendly, and preferably using locally available material.

4. SWACHHTA HI SEVA CAMPAIGN

Why in news?

- On September 15, 2017, the President of India launched a nationwide sanitation campaign “Swachhta Hi Seva” at Iswarganj village in Kanpur.

What is the campaign about?

- India is fighting a decisive battle for cleanliness and hygiene with Swachh Bharat Mission in place.
- As the fight for cleanliness is more a multi-stakeholder national movement and need actions beyond the sanitation personnel and government departments, mobilising people is essential.
- The Swachhta Hi Seva Campaign seeks to mobilize people to come out and get directly involved with the Swachh Bharat Mission.

What are the outcomes of Swachh Bharat Mission?

- In the last 3 years, under the Swachh Bharat Mission a large number of toilets were constructed and many villages become Open Defecation Free. Individual toilet coverage has increased from 42 percent in 2014 to 64 percent in 2017.
- 5 States have declared themselves open defecation free.
- The Swachh Bharat Mission sought to reform the sanitation sector with the primary focus being on behavioural changes as the fundamental tool for achievement of Open Defecation Free outcomes.
- Inclusiveness under the Swachh Bharat Mission was achieved by designing public and community toilets keeping in mind the special needs of menstruating women, the elderly, specially abled and small children.

- Further the Mission sought to promote gender sensitive information, education and communication/ behavioural changes. The Mission issued Gender guidelines and Menstrual management guidelines.
- An innovative monitoring and evaluation system was put in place, to survey households and villages across the country.
- Eminent and popular personalities are nominated as the Brand Ambassador for the Mission.
- The Swachh Bharat Mission maintained a significant social media engagement for enhancing awareness.
- A newsletter Swachhta Samachar Patrika was published on a regular basis for awareness purposes.
- The Inter-Ministerial Projects included Swachhta Pakhwadas, Namami Gange, Swachhta Action Plan, Swachh Swasth Sarvatra campaign, School Sanitation drives, Anganwadi Sanitation drives, Railway Sanitation etc.

5. NATIONAL MISSION FOR CLEAN GANGA: THE CHALLENGES AHEAD

What was the concern with the Ganga?

- Before the advent of the National Mission for Clean Ganga (NMCG), Ganga, the most revered and national river of India, was facing the challenge to its existence due to discharge of increasing quantities of sewage, trade effluents and other pollutants on account of rapid urbanization and industrialization.
- The stretch of Ganga covers a length of 2525 kilometres across five states namely Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal.
- It has a catchment area of 8,61,404 square km covering over a quarter of country's land area

and sustaining 46% of the total population of the country. It touches 118 towns and 1657 Gram Panchayats across 66 districts of 5 states of India.

What does the National Mission aim for?

- The National Mission for Clean Ganga (NMCG), created in June, 2014, is being supported by State level Programme Management Groups (SPMGs) of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand and west Bengal.
- The main activities undertaken under Namami Gange include sewage and effluent management including creation of new and rehabilitation of existing STPs, complete sanitation coverage of Gram Panchayats, development of model cremation/dhobi ghats, development of decision support system in GIS platform for efficient planning and monitoring and creation of an IT based monitoring centre with capabilities of real time alerts and prediction.
- For long term protection and rejuvenation, a provision has been made for 100% funding for the entire life time cost of the treatment of assets created including O&M cost for 10 years.
- Due importance has also been accorded to bio diversity, conservation, maintenance of flow in the river and afforestation along river side with medicinal and native plant species along with conservation of aquatic species.

What is the governmental machinery in this regard?

- The Order issued through the Gazette of India on 7th October, 2016 constituting River Ganga (Rejuvenation, Protection and management) Authorities under the Environment (Protection) Act, 1986 lays down a new institutional structure for policy and implementation in fast track manner and

empowers NMCG to discharge its functions in an independent and accountable manner.

- The said Authority has its jurisdiction spread over 5 states along the main stem of Ganga and 5 states and Union territory of Delhi along the major tributaries of the river Ganga.
- The key principles identified for the Authority are:
 - Maintaining the continuity of the flow without altering the natural season variations.
 - Restoring and maintaining the integral relationship between the surface flow and sub surface water (ground water),
 - Restoration and maintenance of the property and quality of water in time bound manner.
 - Regenerating and maintaining the lost natural vegetation in catchment area,
 - Regeneration and conservation of the aquatic and riparian biodiversity in river Ganga basin,
 - To keep the bank of river Ganga and its floodplains as construction free zone to reduce pollution sources and maintain its natural ground water recharge functions
- Making public participation as integral part of process of rejuvenation, protection and management of the river.

What measures has the Government taken?

- River surface cleaning work has been undertaken in major cities on the bank of River Ganga in collaboration with Corporate bodies and Public Sector undertakings.
- River front/ ghat development work has been taken up in 7 towns of Kedarnath, Haridwar, Delhi, Allahabad, Kanpur, Varanasi & Patna in addition to repair and modernization of existing ghats.
- Under medium term plan Effluents Management activity, real Time Effluent Monitoring stations have been installed in 508 out of 764 grossly polluting industries of

distillery, pulp and paper; tanneries; textile and sugar.

- Regarding Zero Liquid Discharge, action plan has been under implementation for distilleries since the last quarter of 2016. Vigilance squad of Central Pollution Control Board is closely monitoring for improved compliance.
- For water qualities monitoring, in addition to 57 Manual monitoring stations, 113 Real-time monitoring stations are being set up with display boards at selected locations.

- Steps are being taken for public outreach. Resource materials such as posters, flyers, brochures, pamphlets, hoardings etc. have been circulated/displayed among stake holders.
- In view of multi stakeholder nature of the Ganga rejuvenation challenge, 7 Ministries of Govt of India are working together on an action plan since June, 2014.
- Besides, MoU has also been signed between NMCG and 11 Ministries of the Govt of India to ensure convergence of their activities in protection and rejuvenation of river Ganga.
