

Gist of

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Water and Sanitation

Water Conservation:

Initiatives and Future
Strategies

Impact and Progress

of Namami Gange
Programme

Sustaining **ODF India**

Har Ghar Jal

Swachh Bharat Mission

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04

Ranks in
Top 10

09

Ranks in
Top 20

13

Ranks in
Top 50

22

Ranks in
Top 100



RANK 03

Pratibha Verma



RANK 06

Vishakha Yadav



RANK 08

Abhishek Saraf



RANK 10

Sanjita Mohapatra



RANK 11

Nupur Goel



RANK 12

Ajay Jain



RANK 14

Anmol Jain



RANK 16

Gunjan Singh



RANK 19

Shresta Anupam



RANK 23

Nidhi Bansal



RANK 24

Abhishek Jain



RANK 30

Pari Bishnoi



RANK 34

Apurv Chauhan



RANK 52

Om Kant Thakur



RANK 56

Pankaj



RANK 66

Saurav Pandey



RANK 69

Navneet Mittal



RANK 81

Anil Kumar
Rathore



RANK 84

Jivani Kartik
Nagjibhai



RANK 85

Shubhank Mishra



RANK 96

Hardik Aggarwal



RANK 98

Y Megha Swaroop

INCREDIBLE RESULTS

CSE 2018 Results

11 Ranks in Top 50

28 Ranks in Top 100

183 Ranks in the Final List



Rank 11
Puja Priyadarshni



Rank 16
Dhodmise Trupti Ankush



Rank 21
Rahul Jain



Rank 24
Anuraj Jain

CSE 2017

5 Ranks
in top 50

34 Ranks
in top 100

236 Ranks
in the final list



Rank 3
Sachin Gupta



Rank 6
Koya Sree Harsha



Rank 8
Anubhav Singh



Rank 9
Soumya Sharma



Rank 10
Abhishek Surana

CSE 2016

8 Ranks
in top 50

18 Ranks
in top 100

215 Ranks
in the final list



Rank 2
Anmol Sher
Singh Bedi



Rank 5
Abhilash Mishra



Rank 12
Tejaswi Rana



Rank 30
Prabhash Kumar



Rank 32
Avdhes Meena

CSE 2015

5 Ranks
in top 50

14 Ranks
in top 100

162 Ranks
in the final list



Rank 20
Vipin Garg



Rank 24
Khumanthem
Diana Devi



Rank 25
Chandra Mohan
Garg



Rank 27
Pulkit Garg



Rank 47
Anshul Agarwal

CSE 2014

6 Ranks
in top 50

12 Ranks
in top 100

83 Ranks
in the final list



Rank 4
Vandana Rao



Rank 5
Suharsha Bhagat



Rank 16
Ananya Das



Rank 23
Anil Dhameliya



Rank 28
Kushaal Yadav



Rank 39
Vivekanand T.S

CSE 2013

5 Ranks
in top 50

62 Ranks
in the final list



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Divyanshu Jha



Rank 12
Neha Jain



Rank 23
Prabhav Joshi



Rank 40
Gaurang Rathi



Rank 46
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Team BYJU'S

Gist of Kurukshetra – October 2020

Water and Sanitation

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Chapter 1: Water Conservation: Initiatives and Future Strategies

Challenges:

- Water scarcity and poor sanitation facilities are a bigger challenge than the economic development for India.
- Relentless and unplanned extraction of groundwater exceeding the average annual recharge has resulted in the widespread decline of the water tables, reduced availability of water in the wells.
- There has been a degradation of the water resource manifested through contamination with heavy metals (iron, arsenic, chromium, etc.) and fluoride.
- India generates 140 BCM of wastewater annually, mismanagement of this wastewater leads to contamination of groundwater.
- The lack of proper liquid waste management approaches, poor sanitation conditions and poor hygiene habits have contributed to a major portion of the population suffering from water-borne diseases. Unsafe water sanitation and hand-washing are responsible for 4.6 percent of the disease burden through diarrhoeal diseases and other water-borne diseases (cholera, enteric fever (typhoid) and hepatitis A & E).
- The Global Health Observatory data repository of the [World Health Organization \(WHO\)](#) quotes the number of diarrhoea deaths from inadequate water sanitation and hygiene as 2,43,551 (total of all age groups) and the number of DALYs from inadequate water, sanitation and hygiene as 1,17,31,606 (total of all age groups).

Constitutional provisions related to water and sanitation:

- As per the Indian Constitution, Water and Sanitation are state-subjects under the Seventh Schedule. The responsibility of planning, funding and implementation of water resources and sanitation projects primarily lies with the state governments.
- The Central Government plays an advisory role through the formulation of various policies and model bills.

Government initiatives/interventions:

Jal Jeevan Mission:

- Jal Jeevan Mission (JJM) aims to supply piped water to every rural household.
- The objective of JJM is to ensure that “Every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities.”
- It also focuses attention on source sustainability measures as a mandatory element of the mission programme, such as recharge and reuse through greywater management, water conservation and rainwater harvesting.
- JJM is based on a community approach to water and will include extensive Information, Education and Communication (IEC) as a key component of the mission. JJM looks to create a 'jan andolan' for water.

Jal Shakti Abhiyan:

- The Ministry of Jal Shakti also launched the Jal Shakti Abhiyan in July 2019 in 256 water-stressed districts across the country. This Abhiyan is a mass movement to bring all the stakeholders under one ambit of water conservation drive.
- More than 75 lakh traditional and other water bodies and tanks were renovated as part of this Abhiyan. Water conservation and rainwater harvesting structures were created.

Read more on [Jal Jeevan Mission and Jal Shakti Abhiyan](#).

Atal Bhujal Yojana:

- Atal Bhujal Yojana (ABHY) envisages sustainable groundwater management, mainly through convergence among various on-going schemes. It also involves demand-side measures through the active involvement of local communities and stakeholders.
- ABHY will play a key role in drought-proofing thereby improving climate resilience in select water-stressed areas. Read more on [Atal Bhujal Yojana](#) in the linked article.

Composite Water Management Index:

- NITI Aayog has developed a Composite Water Management Index (CWMI). The CWMI, as a yearly exercise, is an important tool to assess and improve the performance of states/union territories in the efficient management of water resources. The index has been quite successful in sensitizing the states about the impending water scarcity in the nation.

State level schemes and programmes:

- State-level programmes like the Jal Yukt Shivar in Maharashtra, Mukhya Mantri Jal Swavalamban Abhiyan in Rajasthan, Neeru Chettu in Andhra Pradesh, Mission Kakatiya in Telangana, Sujalam Sufalam in Gujarat, Integrated Water Resource Management and Artificial Recharge structures scheme in Karnataka are also doing commendable jobs at the state level.
- Voluntary scheme of “Pani Bachao, Paisa Kamao (PBPK)” by the Government of Punjab aims to encourage farmers to save electricity and reduce the use of groundwater.
- Andhra Pradesh Water Resource Information and Management System (APWRIMS) is a smart water solution platform targeting the overarching objective of sustainable water management in the state.
- The Government of Maharashtra has also taken an innovative step by launching the Draft Maharashtra Water Resources Regulatory Authority, Water Entitlement Transfer (WET) and Wastewater Reuse Certificates (WRC) platform Regulations, 2019 to encourage wastewater recycle and reuse in large water-consuming industrial and urban centres. The regulations also envisage the creation of an immutable distributed ledger-based repository of wastewater reuse certificates which can be easily marketable.

Way Forward:

- In order to achieve sustainable development in the country, there is the need to look for solutions which may result in overhauling of the present mode of operations in the water sector. The following measures can be implemented to make India water-secure and hygienic.

Making water as part of Economic Development:

- The economic benefits of improved water supply and sanitation far outweigh the investment costs. Studies have revealed that the benefit-cost ratio (BCR) is significantly greater than 1. It makes a strong case to increase the budget allocation to the water and sanitation sector and it should be a priority sector for investment.

Introduction of water markets at large scale:

- It is high time that along with the public good, water should also be treated as a high-value economic good.
- There is a need to introduce water markets to make more productive use of water and contribute to sustainable water management. Water markets create an incentive for water to be moved to higher-

value uses. Similar trading can be opted for treated wastewater too to incentivize the use of treated water.

Pollution tax as a remedy to decrease pollution in water bodies:

- Introduction of predetermined water use or charges for wastewater discharge could have a significant incentive effect to prevent and control pollution, maintain proper sanitation and enhance water use efficiency.
- Pollution taxes can lead to significant investment in pollution abatement and technological innovation, thereby lowering the overall cost to society of meeting environmental targets. They also provide revenue to the government which can be used to further the abatement of pollution.

New strategies to support public private partnership in water sector:

- There is a need to attract new investors by enabling public and private actors to earn returns commensurate to the risks they take.
 - The state revolving fund of the U.S. is a unique example of a sustainable infrastructure financing model. Set up with 'Seed Money' from US Congress, the state revolving funds capitalize a state-administered financial assistance programme to build and upgrade wastewater treatment plants and drinking water infrastructure, as well as undertaking investment in other projects to improve water quality.

Chapter 2: Impact and Progress of Namami Gange Programme

Background:

- River Ganga provides economic sustenance, water and food security to more than 43 percent of the country's population.
- Considered as the lifeline for millions of people, River Ganga has been facing several challenges, on the one hand from the pollution of the river from different sources with growing urbanization and industrial growth, and on the other from the excess abstraction of water from the river for agriculture, industrial and drinking needs.

Namami Gange programme:

- Namami Gange programme, implemented by the [National Mission for Clean Ganga \(NMCG\)](#) is an integrated mission for the conservation of Ganga and its tributaries.
- The Vision is to restore the wholesomeness of the river ensuring Aviral and Nirmal Dhara, and maintaining its geohydrological and ecological integrity.
- An Integrated River Basin Management (IRBM) approach is being followed. The proposed multi-sectoral and multi-agency interventions include:
 - Pollution abatement (Nirmal Ganga)
 - Improving ecology and flow (Aviral Ganga)
 - Strengthen people river connect (Jan Ganga)
 - Facilitate diversified research, scientific mapping, studies and evidence-based policy formulation (Gyan Ganga).

Pollution Abatement (Nirmal Ganga):

- It aims to tackle all sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, rural sanitation, non-point sources of pollution such as agricultural runoff, open defecation, on-burnt dead bodies, etc.

Sewerage Infrastructure:

- This aspect involves building sufficient infrastructure to prevent untreated wastewater from entering into the river to help bridge the sewage processing gap between sewage generation and sewage treatment capacity.
- The mission has introduced a PPP approach in Hybrid Annuity Mode (HAM) to the sewerage infrastructure sector.
- Wastewater is one of the most under-exploited resources. It is actually a valuable resource from which energy, water, organics, phosphates, nitrogen, and other resources can be extracted. The circular economy principles can help to turn sanitation a sustainable option.

Industrial Pollution:

- To control the industrial pollution in the Ganga, all the Grossly Polluting Industries (GPIs) were identified and annual inspections are undertaken by independent expert institutions.
- Common Effluent Treatment Plant (CETP): Up-gradation of existing CETPs has been undertaken for tannery and textile clusters.
- Industry-specific charters were developed to promote greener technology, reduce effluent generation and reuse/recycle which led to an improvement in several industries.

- An online continuous effluent monitoring system has been installed.

Solid Waste Management:

- Regular cleaning of river banks, installing screens/filter to trap solid waste, ban on single-use plastics and periodical third-party inspections.
- Trash skimmers have been installed.

Rural Sanitation:

- NMCG facilitated the construction of around 11 lakh household toilets in 4465 identified Ganga bank villages.

Water Quality:

- The [Central Pollution Control Board](#) monitors the water quality of River Ganga through 97 manual stations. Community monitoring is also promoted. There is an improvement in meeting Biological Oxygen demand (BOD).

Ecology and Flow (Aviral Ganga):

- Drastic reduction in the flow of the river has a huge ecological cost with long term adverse impact.
- The mission aims to improve flow and overall ecology through a mix of supply as well as demand-side management of water.

Wetland Conservation:

- Wetlands are important for Nirmalta, Aviral Ganga and also for economy, eco-tourism, groundwater recharge and supporting biodiversity.

Afforestation:

- The mission aims to undertake afforestation along the entire length of the Ganga.

Sustainable Agriculture:

- NMCG promotes this through organic farming, eco-agriculture and medicinal plantation. Organic farming corridor along Ganga has been proposed.
- Improving water use efficiency in agriculture is aimed through awareness campaigns, promoting micro-irrigation, policy interventions for cropping pattern, etc.

Small River Rejuvenation:

- This would involve the rejuvenation of small rivulets which feed the Ganga and its tributaries.

People River Connect (Jan Ganga):

- River rejuvenation is a continuous process which needs the involvement of the people.

Jan Bhagidari:

- Community and stakeholder groups have been developed such as Ganga Vichar Manch, Ganga Praharis and Ganga Mitras.

Clean Ganga Fund:

- It provides an innovative step to create an avenue for people and corporates to donate and take up specific projects for this national cause.

Research, policy and knowledge management (Gyan Ganga):

- Mission has given priority to evidence-based policy decisions and to get authentic data and information backed by scientific research.

LIDAR Mapping:

- A High resolution Digital Elevation Model (DEM) and GIS-ready database for 10 km on both sides of Ganga using LIDAR which will for the first time provide data on drainage, flood plains, etc. This will enable better project formulation, monitoring, regulation and conservation.

Microbial diversity mapping:

- The study of water quality and sediment analysis will help understand the special property of Ganga River and also assess the impact of human intervention on microbial diversity.

Arth Ganga:

- Namami Gange is now leading to the development of Arth Ganga Model linking economic development of Ganga Basin, ecological improvement and Ganga rejuvenation.

Conclusion:

- Ganga Rejuvenation is critical for the implementation of the 2030 agenda of [sustainable development Goals \(SDGs\)](#).
- Namami Gange would provide a framework for river rejuvenation which is now being followed for several rivers beyond the Ganga basin.

Chapter 3: Sustaining ODF India

Background:

- SDG Goal 6 aims to achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations by 2030.

SBM (G) phase I (2014-2019):

- Under the [Swachh Bharat Mission](#) (Gramin), about 10.28 crore households constructed individual household latrines (IHHL) during 2014-2019 making more than 600,000 villages across the country Open Defecation Free (ODF).

Success Factors:

- Political leadership, public finance, partnership and people's participation (4 P's) are cited to be at the centre of the success of phase 1 of SBM (G).
- In addition to the above four P's, additional factors like strong capacity development support from partners and the critical role of media have also contributed to the success of SBM (G).
 - Mobilizing stakeholders ranging from faith leaders, political cadres, bureaucrats and communities at large was made possible through active engagement of media. Media has played a central role in communicating the message to a range of audiences.

SBM (G) Phase II:

- SBM (G) phase II has been launched with the objective of leaving no one behind without access to a toilet. The second phase of SBM (G) has been designed and launched with an objective of sustaining the ODF communities.

Scope and focus:

- Key components of the programme include:

Sustaining the ODF

- SBM (G) II intends to ensure that all remaining households get access to toilets, existing toilets are retrofitted to meet safety/technical standards, community sanitary complexes are built for easy access to toilets for everyone.
- SBM(G) phase II is focused on the construction of twin-pit IHHL.

Sustainable solid and liquid waste management:

- It envisages supporting Gram Panchayats (GPs) in implementing solid and liquid waste management (SLWM) initiatives including bio-organic waste, greywater, faecal sludge and plastic waste.

Role of Panchayati Raj Institutions (PRIs):

- SBM (G) II guidelines have explicitly recognized the critical role of PRIs, in line with the [73rd Amendment Act](#)-1992 of the Constitution of India.

- SBM (G) II strategy has highlighted the role of PRIs in achieving safely managed sanitation for all in India.

Making sanitation a part of the GPDP framework.

- GPs are required to prepare inclusive gram panchayat development plans (GPDP) in a participatory way. It is required that sanitation SDGs are part of the GPDP plan, so that they are implemented with priority and ODF is sustained.

Engagement of block and district panchayats:

- The DPs and block panchayats should have a critical role in strengthening and supporting GPs within their jurisdiction, in the planning and implementation of the sanitation plan.

IEC and Role of Media:

- SBM (G) II recognizes the critical role of information education and communication (IEC); 5 percent of the budget is earmarked for a range of social and related capacity development work. SBM (G) phase II is focused on behaviour change communication through community-led total sanitation approach.
- Role of media could be threefold.
 - Sharing information on various aspects of SBM(G) II and entitlements of communities
 - Supporting PRIs by sharing emerging best practices from across the country for replication with or without adaptations
 - Identifications of gaps and delays in programme implementation and sharing the same with the wider public so that the PRIs are held accountable to their citizens.

Conclusion:

- The SBM (G) II provides a sound framework to ensure the sustainability of ODF communities across India and to ensure that country's sanitation practice become at par with economic development.
- Capacity building in both technical aspect, as well as the institutional, social, environmental, financial and behavioural aspect of SBM (G) II, needs to be at the centre of the planning and implementation of the programme.

Chapter 4: Har Ghar Jal

Background:

Water crisis:

- India is facing the “worst water crisis in history” which is threatening “millions of lives and livelihoods”. Around sixty crore Indians face high to extreme water stress and about two lakh people die every year due to inadequate access to safe water.
- By 2030 the country’s water demand is projected to be twice the available supply. This may further create severe water scarcity for crores of people and may lead to an approximate loss of 6 percent in its GDP points.
- Water is important for uninterrupted economic advancement, as by 2030, Indian industries will be using four times more water than they use today.
- India has more than 18 percent of the world’s population but it only has four percent of the world’s renewable water resource of which farmers consume almost 90 percent of the available groundwater.

Status of piped water supply:

- Only one in every five (21.4 percent) households in India has piped drinking water connections. In rural India, just 11.3 percent households receive potable water directly at homes.

Jal Jeevan Mission:

- The scheme promises piped water in every rural household by 2024 and aims to provide 55 litres per capita per day of drinking water, as prescribed, regularly, to every household through a functional household tap.

Salient or key features of the mission:

- Emphasis is on ‘service delivery’ rather than creating infrastructure.
- Gram panchayats are to plan, implement, manage, operate and maintain their own water supply systems. The Ministry, following the principles of Mahatma Gandhiji's 'Gram Swaraj', aims to involve the local village community/Gram Panchayats or sub-committee i.e. Village Water and Sanitation Committee/PaaniSamiti/user groups, etc. in planning, implementation, management, operation and maintenance of water supply systems to ensure long-term sustainability to achieve drinking water security.
- SHGs/community-based organization/NGOs would be involved as implementation Support Agencies to enhance the community's capacity to implement the mission making JJM, truly a 'people's movement'.
- Safe water to be ensured in water quality-affected areas on priority.
- In order to instill the 'sense of ownership' among the community, communities to contribute five percent of the capital cost in cash/kind/labour in villages of hilly and forested areas/NE and Himalayan States and villages having more than fifty per cent SC and/or ST population; for other areas, the community contribution is ten percent of the capital cost.
- Five persons, preferably women, in every village to be trained to check the quality of water supply using simple ready-to-use test kits.
- Rashtriya Jal Jeevan Kosh (RJK) has been set up to mobilize and accept contributions/donations from various sources towards achieving the goal of JJM.

Chapter 5: Swachh Bharat Mission

Background:

- The 1981 Census revealed rural sanitation coverage was only around 1 percent.
- Recognizing the importance of proper sanitation availability, toilets were constructed in large numbers, but the quality of construction remained a concern and there was no focus on changing behaviour at the ground level in the promotion of usage of toilets.
- In 2014, the new government revamped the ongoing Nirmal Bharath Abhiyan into Swachh Bharat Mission (SBM) and introduced two sub-missions –Swachh Bharath Mission (Gramin) and Swachh Bharat Mission (Urban).

Significance of sanitation:

- The lack of sanitation had been a leading cause of diarrhoea among children (under five years), resulting in stunting among children and also resulted in several preventable child deaths.
- Sanitation is also a critical aspect for ensuring the safety and dignity of women.

Swachh Bharat Mission:

- Under SBM, a subsidy is provided by the government for the construction of Individual Household Latrine (IHHL). The subsidy offered has been recently increased from Rs. 10,000 to Rs. 12,000.
- The goal of SBM was to make India ODF by October 2, 2019.
- The target was set to construct 67 lakh individual household toilets and 5 lakh community toilets in urban areas. For the rural areas, the aim was to bring toilet coverage to 100 percent. The SBM was envisioned as a mass movement for cleanliness to fulfil Mahatma Gandhi's dream of a clean and hygienic India.

Objectives of SBM (G):

- Swachh Bharat Abhiyan (Gramin) was implemented with the aim of making rural areas in India open defecation free.
- It aimed to bring about an improvement in the general quality of life in the rural areas by promoting cleanliness, hygiene and eliminating open defecation.
- Accelerate sanitation coverage in rural areas.
- Motivate communities and Panchayati Raj Institutions to work towards developing sustainable sanitation practices and facilities through awareness creation and health education.
- Encourage cost-effective technologies for ecologically safe and sustainable sanitation.
- Scientific solid and liquid waste management systems.
- Create a significant positive impact on gender and promote social inclusion by improving sanitation especially in marginalized communities.

Impact Assessment of SBM:

- The socio-economic impact of SBM has been phenomenal both in terms of improving sanitation in the hinterland and also improvement in health parameters especially for women and children.

Increasing sanitation coverage:

- Since the implementation of SBM, the rural sanitation coverage has increased significantly, from 39 percent in October 2014 to 100 percent in September 2019.
- India has significantly contributed to the global achievement of Sustainable Development Goals (SDG) 6.

Economic impact:

- The [UNICEF](#) studied the financial and economic impact of the Swachh Bharat Mission in India and has noted several socio-economic impacts of SBM.
- Households in ODF villages accrued cumulative benefits of Rs.50,000 per year.
- Financial savings from paying less for medical costs based on reductions in illness episodes.
- Reduced time lost from sickness.
- The study has shown that the Swachh Bharat Gramin was highly cost-beneficial from both a financial and an economic perspective. It has also contributed to improving the quality of life of the population.

Social impact:

- The Mission, with its exclusive focus on Behaviour Change Communication, women's engagement and social inclusion has turned out to be an overwhelming success.
- A study titled - Access to toilets and the safety, convenience and self-respect of women in rural India has noted that a major improvement in the safety of women was evident after the construction of toilets. Around 91 percent of the women reported that they have been able to save up to an hour. Earlier, without access to a private toilet, women would deliberately limit their intake of water and other liquids to control the urge to urinate. This could be avoided due to the availability of toilets.

Reasons for success:

- This transformation has been made possible through a combination of factors including a strong political will and the strong emphasis on behaviour change.
- Also notably, SBM is the first sanitisation program in India that has followed a demand-driven approach as opposed to being supply-driven, along with measuring success in terms of “open defecation free” (ODF) villages and districts, instead of mere toilet construction.
- The unwavering focus on decentralized monitoring through the extensive use of modern technology has also contributed to the success of the programme.
- In 2015 the government launched the Swachh Survekshan, an annual survey of cleanliness and hygiene and sanitation across India's towns and cities. This has played a critical role in assessing the changes on the ground level.
- In addition to Swachh Survekshan, good practices like segregation of waste, scientific waste processing, penalties for littering and dumpsite remediation are being institutionalised through innovative frameworks such as the star rating protocol for garbage-free cities.
- The vision to work towards a single-use plastic-free India by 2022 is also all the more welcome.

SBM (G)-Phase II:

- For ensuring that open defecation free behaviours are sustained and solid and liquid management facilities are accessible, the government has launched Swachh Bharat Mission (Gramin) phase II, also referred to as ODF-plus, in February 2020.
- The programme would be implemented in a mission mode till 2020-25.
- The SBM-G Phase II is aimed at generating employment and providing impetus to the rural economy through construction of household toilets and community toilets, as well as infrastructure for solid

and liquid waste management such as compost pits, soak pits, waste stabilisation ponds, material recovery facilities, etc. It aims at providing sustainable sanitary facilities to millions of people.



Chapter 6: Clean Water, Sanitation and Health

Relation between water and sanitation with health:

- An adequate quantity of good quality water is essential for health as is access to sanitation facilities with appropriate disposal of sewage. These two elements play a crucial role in reducing morbidity and mortality.
- The [World Bank](#) estimates that 21 percent of communicable ailments are water-borne.
- Diarrhoea is among the biggest killers of children under the age of 5, in addition to neonatal complications, pneumonia and sepsis. Neglected tropical diseases, polio and malaria also have a strong association with poor water, sanitation and hygiene.
- Inadequate water and sanitation-related facilities in health care institutions are severely detrimental for mothers and newborns as it leads to the spread of infectious diseases.
- Poor mechanisms for managing menstrual hygiene management in educational institutions not only pose serious health concerns for girls but also impact their attendance and academic performance adversely.

Government initiatives:

Expanding sanitation coverage:

- India has made tremendous strides in the area of sanitation over the last few years.
- Under Swachh Bharat Mission (SBM), sanitation coverage in rural India increased from 39 percent in October 2014 to 100 percent as of October 2019. Significant progress has also been made in the area of solid waste management with 66 percent of solid waste being processed and 96 percent of wards practising door to door collection of household waste.
- A significant scaling-up of access to toilet facilities coupled with regular usage is starting to impact health outcomes positively.
- UNICEF has estimated that each family in an ODF village in India saves Rs 50,000 per year on account of avoided medical costs less week days and the value of lives saved.
- Similarly, a study conducted by the Bill and Melinda Gates Foundation highlighted that cases of diarrhoea were 46 percent lower among children in villages that had been declared ODF as compared to villages that had not achieved that status.

Improving access to good quality water:

- NITI Aayog has come out with a composite water management index as a useful tool to assess and improve the performance in the efficient management of water resources. This index is an attempt to nudge states towards efficient and optimal utilisation of water and recycling thereof with a sense of urgency.
- In 2017, the Union Cabinet restructured the National Rural Drinking Water Programme (NRDWP) to make it more outcome-based and ensure a greater focus on the functionality of services.
- As part of the programme, 2 percent of the funds were earmarked for Japanese encephalitis affected areas. Similarly the national water quality sub-mission initiated by the Ministry of Drinking Water and Sanitation in February 2017 was included as a sub-program under NRDWP to provide clean drinking water in 28,000 habitations affected by arsenic and fluoride.
- A new Jal Shakti Ministry was created by the government to integrate ministries that were managing water-related issues.

Way forward:

- Involving panchayats and local communities by training them on water quality contamination and management is also critical to sustain and improve the outcomes.
- It is critical that we constantly innovate and develop culturally acceptable, ecologically robust and cost-effective technology options in the sanitization sector that are well suited to local conditions and resource availability.
- Now that sanitization coverage in terms of access to individual household toilets has been ramped up significantly, the focus must shift towards ensuring safe containment, transportation and disposal of faecal sludge and septage from toilets, as well as the grey and black water from households and establishments.



Chapter 7: Health and Hygiene Concerns of Rural Women

Background:

- Health is one of the fundamental human rights. As per Article 47 of the Indian Constitution — The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties.
- The aim of Sustainable Development Goal-3 (SDG-3) is to ensure healthy lives and promote wellbeing for all at all ages.
- As defined by WHO, 'Health is a state of complete physical, mental and social well-being and not mere absence of any disease or infirmity'.

Concerns over women health:

- Girls/women in India suffer from rather high mortality rates, particularly during their childhood as well as the reproductive years of their life (15-45 years) and thereafter.
- Indian women's health and well-being are inherently linked to their status in society.
- Gender discrimination often leads to maltreatment of the girl-child.
- Further, girls and women often have low levels of education, poor vocational skill training, lack of awareness and poor exposure as well as rather poor participation in the organised sector/formal workforce and that too very often with low wages or no wages.

Significance of women's health:

- Poor health of women has repercussions not only for them but for their family's health and well-being too.
- Poor maternal health and malnutrition is the biggest single cause of infant and maternal mortality.
- Undernourished and malnourished women are more likely to bear low-birth-weight (LBW)/small-for-gestational-age (SFGA)/pre-term babies. Such babies would not be able to receive enough nourishment from their weak and poorly nourished mothers. In such scenarios, growth and development (physical and mental development) of the child are adversely affected.
- Rural women are considered the backbone of the Indian economy since they play an important role in managing their homes as well as the agri-farms and livestock. Hence, the health of women must be the concern of family and community.

Interventions for improving health outcomes:

- The National Health Policy of 2017 has identified the following priority areas for improving the health of women through coordinated action.
 - Nirbhaya Nari —action against gender violence
 - Reduced stress and improved safety in the workplace
 - Reducing indoor air pollution
- Apart from the above-mentioned interventions, health system strengthening programmes include [Ayushman Bharat Yojana](#); Pradhan Mantri Swasthya Suraksha Yojana (PMSSY); LaQshya programme (Labour Room Quality Improvement Initiative); National Health Mission, all of which would also improve health outcomes.
- The key components of the National Health Mission (NHM) include—Anaemia Mukh Bharat; organisation of Village Health camp; Nutrition Days as well as sanitation & Nutrition Days (providing maternal/child health services and awareness generation).

- Iron and Folic Acid (IFA) supplementation; calcium supplementation and promotion of iodised salt consumption are important interventions for maternal health.
- The National Health Mission Janani Suraksha Yojana (JSY) is being implemented for reducing maternal and neonatal mortality by promoting institutional delivery among pregnant women belonging to underprivileged families.

Menstrual Hygiene Scheme (MHS):

- In the context of adolescent girls and women, their hygiene and cleanliness related practices during menstruation are of prime importance; not doing so increases their vulnerability to reproductive tract infections and other health risks. Nearly 23 million girls drop out of school annually due to lack of proper menstrual hygiene management facilities.
- Promoting menstrual hygiene among adolescent girls (aged between 10-19 years) in rural areas with the aim to increase their awareness regarding menstrual hygiene and improving access and the use of sanitary napkins and ensuring their safe as well as environment-friendly disposal is indispensable.
- A range of IEC materials (audio, video & print material) has been developed for creating awareness regarding safe and hygienic menstrual health practices among adolescent girls.

General schemes:

- As discussed in earlier chapters, the efforts towards achieving universal sanitation coverage through the Swachh Bharat Mission are indispensable for better health outcomes.
- National Rural Drinking Water Programme (aims at improving the coverage of adequate & safe drinking water to the rural population of the country); and Namami Gange (aims at the effective abatement of pollution, conservation and rejuvenation of the sacred River Ganga) are also commendable interventions.
- Jal Jeevan Mission (JJM) envisioned to provide safe and adequate drinking water through individual household level tap connections by the year 2024 to every household in rural India would ensure safe drinking water to the rural population.

Conclusion:

- Numerous programmes have been implemented for addressing the health needs of women and adolescent girls.
- Women being the usherers of the next generation, their health status and appropriate hygiene should be given due importance so that the inter-generational cycle of malnutrition and poor health does not set in.

Chapter 8: Status of Safe Drinking Water and Sanitation

Introduction:

- Access to safe drinking water, sanitation and hygiene is an important indicator of the level of socio-economic development of a country.
- The adequate provision of safe water, sanitation and hygiene (WASH) is crucial to achieve sustainable development and can contribute greatly for the eradication of poverty, hunger and disease in a country like India where more than one-fourth of the rural population still lives below the poverty line.
- The present worldwide outbreak of the COVID-19 pandemic has strongly demonstrated the critical role of sanitation, hygiene and access to clean water in protecting human health by preventing and containing diseases.

Status of Safe Drinking Water

- As per the latest population census, 82.7 percent population living in rural areas has access to safe drinking water (tap/handpump/tubewell) as against 91.4 percent in urban areas and 85.5 percent in the country as a whole.

Status of rural sanitation

- Due to the special focus on sanitation and cleanliness in rural areas, the country made rapid and remarkable strides in reaching the targets of cleanliness by putting an end to the practice of open defecation. All the villages (6,03,177) spread over 36 States/Union Territories were declared 'open defecation free' on 2nd October 2019.

Economic and Health Effects:

- The lack of sanitation facilities in a highly populated country like India has severely debilitating effects not only on human health but also on the economy of the country.
- The consumption of unsafe water, improper disposal of waste and lack of hygiene are major causes of many diseases in India.
- It is responsible for the stunting of 49 percent children and deaths of over one lakh children in India annually, as per a UNICEF report.
- Due to the lack of proper sanitation in the country, more than 30 million people suffer from waterborne diseases leading to a huge loss of around 73 million working days every year. The resulting economic cost is estimated at over 6 percent of GDP each year, as per World Bank estimates.
- The quality of water, sanitation and hygiene (WASH) has a significant impact on improving the health outcomes and ameliorating the economic conditions of rural masses.

Challenges:

Water scarcity:

- The total population of India is estimated to reach around 1388 million by 2021. Due to the rapid growth of population, per capita annual water availability in the country came down from 5,177 cubic meters in 1951 to 1,545 cubic meters in 2011. It is estimated to decline further to 1,480 cubic meters by 2021.

- If the current trends in the demand and supply of water continue, then soon India is likely to become a water-scarce country. This will have serious implications for the sustainability of agriculture, food security, livelihoods, rural sanitation and sustainable growth.

Over-exploitation:

- India is the largest user of groundwater in the world. Groundwater (GW) is the source of fulfilling more than 85 percent demand for potable water in rural areas. Overexploitation of groundwater is also a cause of concern.

Contamination:

- In some parts of the country, water is highly contaminated with the presence of arsenic and fluoride.

Way forward:

- To make India a water-secure nation, challenges are needed to be addressed from both the demand as well as the supply side of water.
 - From the demand side, population pressures, changing cropping patterns, high rate of urbanisation, rapid industrialisation and issues relating to climate change need to be urgently addressed.
 - On the supply side, proper conservation, storage and distribution of water are to be prioritised. Public investment for the creation of potable water infrastructure is also required.
- Necessary technology interventions are needed for the treatment and removal of contaminants and promote the re-use of water.
- Rainwater harvesting and artificial recharge of groundwater by utilising surplus rainfall runoff is also the best supply-side water management option for the sustainability of groundwater sources.
- Public awareness regarding the rational use of water and change in the attitude of people towards sanitation need to be promoted through information, education and communication.

Chapter 9: Decentralised Governance: Concept and Implications in Planning and Development

Introduction:

- New modes of governance like 'democratic decentralisation', 'participatory development' and 'civil society' have gained immense importance in the development paradigm.
- Currently, more than half (57 percent) of the world's population lives in some form of democracy compared to 36 percent in 1975.
- Increase in literacy level, access to technology and process of digitalisation are helping public participation in government policy planning.

Forms of decentralization:

- There are three major forms of decentralization, namely 'Deconcentration', 'Delegation' and 'Devolution'.
- Deconcentration is a weak form of decentralisation and refers to the mere shifting of responsibilities from central government officials in the capital city to those working in regions, provinces or districts and grass-root levels.
- Delegation refers to transferring responsibility for decision-making and administration of public functions to semi-autonomous organisations not wholly controlled by the central government, but ultimately accountable to it.
- Devolution is the strongest form of decentralisation, where the central government transfers functions, authority for decision-making, finance, and management to quasi-autonomous units of local government with corporate status.

Significance of decentralization:

- Participation, as a political concept as well as a process, has opened up space for a new relationship between governments and citizens.
- This rapid democratisation has brought the government closer to the people and made the process more participatory.
- The primary aim of democratic governance is to give people an empowered and meaningful role to participate in the decision-making process which has become an essential pre-requisite for improving the performance of the public service delivery system.
- It is expected to contribute to key elements of good governance such as increasing people's opportunities for participation in economic, social and political decisions, assisting in developing people's capacities and enhancing government responsiveness, transparency and accountability.

Decentralised governance in India:

- India has adopted a decentralised and participatory governance system since the inception of the five-year plans through the promotion and strengthening of the Panchayati Raj system.
- The 73rd Constitutional Amendment has formalised the Panchayati Raj institution by giving the constitutional provision to constitute a three-tier panchayat system in each state to emerge as an institute of self-governance.
- PRIs include Gram Panchayats (village level), Mandal Parishad or Block Samiti or Panchayat Samiti (Block level) and Zila Parishad (District level).
- PRIs, under the law, are required to prepare plans for economic development and social justice for their areas, and also implement them.

- The Article 243ZD recommended for the constitution of a District Planning Committee at the district level to integrate plans prepared by panchayats and municipalities and to prepare a draft development plan for the district.

Additional functions of PRIs:

PRI and implementation of Mahatma Gandhi National Rural Employment Guarantee Act:

- Under the Mahatma Gandhi National Rural Employment Guarantee Act ([MGNREGA](#)), recommended work plan needs to be sent to the concerned gram panchayat for community validation and vetting and the final document will reflect the people's suggestion recommended at gram sabhas under gram panchayat involved in those works.

Livelihood Promotion Scheme and PRI:

- In the National Rural Livelihood Mission, the role of PRIs could be to facilitate/support in social mobilisation, institution building, participatory identification of poor (PIP) and its endorsement in Gram Sabha.

Challenges:

- Decentralised and participatory development is not free from criticism and challenges. It is often criticised for an overemphasis on the process of planning.
- Participatory development is also questioned from the standpoint of unequal empowerment. In India, there are instances of women holding formal rather than effective power due to reasons like opposition from the families, interference by husbands, discrimination in meetings, lack of community support, lack of education and dependence on men.

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