India At UNFCCC COP 25

"The future depends on what we do today" – Mahatma Gandhi

- India attended the **25th session of Conference of Parties** under the UN Framework Convention of Climate Change (UNFCC COP 25), in **Madrid, Spain** on 10 December 2019.
- In line with the Mahatma Gandhi's above statement, India has taken several steps to address the issue of climate change.

Steps Taken by India:

- India has **reduced emissions intensity of GDP by 21%** and is on track to achieve the goal of 35% emissions reduction as promised in Paris.
- Under Paris Agreement, India **announced 175 GW** targets for renewables of which 83 GW has already been achieved. Indian PM has subsequently **increased the target to 450 GW** at the recent UN Climate Action Summit.
- **Carbon tax** on coal production is being levied at the rate of $6 per tonne.
- Commercial flight was operated on 100% biofuel and India is targeting **blending of 20% ethanol in petrol** by 2030.
- India has leapfrogged **from BS IV to BS VI** for vehicle emission norms and from 1 April, 2020, vehicles will be BS VI compliant.
- 360 million **LED bulbs** have been fitted in homes, and 10 million conventional streetlights have been replaced with LED lights. 80 million **LPG gas connections** have been provided. India's cooling action plan and adaptation plan are working well.
- India has promised creation of **additional carbon sinks** of 2.5 to 3 billion tonnes of carbon equivalent through increasing green cover. In last 5 years, India's **green cover has increased by 15,000 sq. km**.
- India is investing heavily in water conservation. It has taken up a target for restoration of 26 million of degraded land by 2030 during the **14th COP of UN Convention to Combat Desertification in Delh**i. This is **one of the largest programs** in the world to ensure carbon sink in land resources.
- **100% neem coating of urea fertilizer** is appreciated by the world and 170 million **soil health cards** are taking care of the soil health, thus creating more carbon sinks.
- India has launched the **Coalition for Disaster Resilient Infrastructure,** which is a partnership to support countries through knowledge exchange and provide technical support on developing disaster and climate resilient infrastructure.

Challenges: As Highlighted by India at the Summit

- Developed world **promised 1 trillion dollar** in last 10 years, and **not even 2% has materialized so far**. It has to be public finance and there should be no double accounting.
- The world that benefitted from carbon emissions that made them developed, must repay.
- **Technology development and transfer** at affordable costs is crucial for developing countries. In this regard, India's proposal is to have more joint research and collaboration, grant finance made available for meeting the targets.
- India along with other developing countries expect that guidelines for Article 6 will ensure transition of clean Development Mechanism under Kyoto Protocol and provide the incentives and positive signals to private sector, which had invested in it.
- India also urged support for the vulnerable communities worldwide with a strong Warsaw **International Mechanism for Loss and Damage** with provision for financial support.

Conclusion:

- This is the time for ownership and this is the time for responsible action. India very much believes Thoreau's statement that says, "*What is the use of a house, if you have not got a tolerable planet to put it on?*"

- It has taken the necessary steps to address the issue and expects the same from rest of the world.

Kayakalp: Transforming Public Health Facilities

Mahatma Gandhi's View on Sanitation: Famous Statements

- **"Everyone is His Own Scavenger"**. This statement reiterates the fact that cleanliness is a personal responsibility and the key to removing untouchability.
- **"The Scavenger's Work Must be Our Special Function in India"**. Through this he firmly emphasized on the need for education on hygiene and sanitation among Indians.
- **"Swaraj Ought to Begin with Our Streets"**.
- "**Sanitation is More Important than Independence**".

India's effort:

- Taking inspiration from Gandhiji's idea on hygiene, GoI started a campaign, '**Swachh Bharat Abhiyan' or 'Clean India Mission'**.
- The drive has been categorized in two sub-missions, **Swachh Bharat Abhiyan (Urban)** that operates under the **Ministry of Housing and Urban affairs** and **Swachh Bharat Abhiyan (Rural) that falls and operates under Ministry of Jal Shakti.**
- To contribute to this national movement and addressing the growing challenges of sanitation and hygiene, the Ministry of Health and Family Welfare (MoH&FW) adopted a multi-pronged strategy and launched many initiatives for improving hygiene and sanitation holistically.

Kayakalp Initiative:

- **Kayakalp Initiative of MoH&FW** began in 2015 with the aim of improving infrastructure upkeep, hygiene and sanitation, and infection control practices in **Central Government institutions and public health facilities** in all the states and UTs.
- Health facilities are **assessed and scored on a number of parameters**, and every year the highest-scoring facilities at each level receive recognition through Kayakalp Awards.
- The scheme has resulted in significant improvement in the level of cleanliness, hygiene, and infection control practices at public healthcare facilities. It has also inculcated a culture of ongoing assessment and peer review to promote hygiene and sanitation.
- MoHFW has also used the platforms of Village Health Sanitation and Nutrition Committees under the National Health Mission and Mahila Arogya Samitis under the NUHM to promote sanitation in vulnerable urban communities.
- Not only healthcare professionals or health department, MoHFW has worked on inter-ministerial collaboration for hygiene and sanitation.
- **MoHFW and Ministry of Jal Shakti** started an integrated scheme, the **"Swachh Swasth Sarvatra"** in December 2016. Under the initiatives, resources have been provided to CHCs located in Open Defecation Free blocks, which are yet to meet Kayakalp criteria.
- In 2019, the **country's three best PHCs Under Kayakalp from Andhra Pradesh, Gujarat and Karnataka were also felicitated by Ministry of Jal Shakti**.
- Swachh Bharat Abhiyan along with Kayakalp has given thrust to the country's efforts to achieve Sustainable Development Goal 3 (Good Health and Well Being) and Goal 6 (Clean water and sanitation) respectively.

Conclusion:

- The overall activities to maintain hygiene have now developed into a habit, sustaining a Kayakalp certification or an ODF certification has led to people practicing hygiene practices in their daily lives.
- The synergy and momentum achieved under SBM shall continue to expand and deliver a 'Clean India, a Healthy India'.

Sustainable Sanitation in the Cities

Urban Sanitation in India

- The Census (2011) revealed that **12.6% of household** in Urban India were practicing **Open Defecation**.
- A bigger cause of worry was that **75% of fresh water resources** used for drinking purpose was contaminated with sewage contributing to 60% of total pollution load.

The Cost of Poor Sanitation:

- As per a UNICEF report (2011), almost **90% of child deaths from diarrhoeal diseases** are directly linked to contaminated water, lack of sanitation, or inadequate hygiene.
- In addition to the impact on the communicable diseases, better sanitation leads to **reduction in occurrence** of low birth weight in babies, **spontaneous abortions** and **occurrences of birth defects**.
- It has significant impact on **social and economic development**, particularly in developing countries. For example, an independent study conducted by UNICEF in India in August 2017 established that **every Indian family will save about Rs. 50,000 annually if open defecation is eliminated**.

Journey to Sustainable Urban Sanitation:

- On 2 October, 2019, Urban India became Open defecation Free and this feat was achieved in only a short span of five years.
- **MoHUA** has been implementing various missions such as Swachh Bharat Mission (Urban), AMRUT, Smart Cities Mission, NERUDP – all of which address the issue of urban sanitation.
- MoHUA has also **partnered with Google** to upload and make available on Google maps all the public and community toilets in cities so that citizens and visitors are able to easily locate these facilities in their vicinity.

A Graded Approach to Scaling Up and Sustaining Urban Sanitation

- GoI launched the **ODF protocol**, a first-of-its-kind initiative in the country where an **independent third party** would certify a city as ODF on satisfactorily complying with the protocol requirements.
- Moreover, in order to prevent slippage of ODF status, the ODF certificate was made valid only for 6 months.
- Despite these efforts, *cities faced different challenges in the form of households with space constraints, residents of slum colonies or any floating population respond to nature's call*.
- For this, **ODF+ Protocol** was launched with the requirement for third party certification as the ODF protocol.

SBM ODF+

- **Definition** - Not a single person is found defecating/urinating in the open and all community and public toilets are functional and well maintained.
- **Indicative conditions** – Toilets constructed in every house with space; Community toilets within 500 m (max.) without space; public toilets within 1Km (max.) in commercial areas/public places.

- The next level of challenges faced was while toilets were now functional and being used, so that OD and open urination were curbed, what was happening with the **faecal sludge being discharged from these toilets**?
- Most of the faecal sludge was **ending up as open discharge** in fields and water bodies, thereby posing even greater damage to the environment compared to OD.
- Hence, next endeavor at sustaining the sanitation impacts was to **launch the ODF++ protocols** to address the issue of complete faecal sludge management.
- It involved scheduled emptying of septic tanks, safe containment and transportation, and finally safe processing of faecal sludge and septage.

Achievement:

- As on date, we have 739 cities already under certified ODF+ and 292 cities certified ODF++. Under AMRUT mission, significant progress has been made in Faecal Sludge management coverage with 637 projects already completed in Sewerage and Septage Management.
- While the faecal sludge was now being managed safely, the **waste water (grey water – from Kitchen; Black water – from toilets)** were flowing into open drains and polluting our water bodies.
- Hence, the **Water Plus protocol** has been launched to ensure that **no untreated waste water is released into environment or water bodies**.

Swachh Survekshan – A Tool for Mission Monitoring and Governance

- The Swachh Survekshan (SS) is an **innovative survey conducted by MoHUA** under SBM-U, to rank cities on various sanitation and cleanliness parameters.

Addressing the Challenge of Manual Scavenging and Hazardous Entry

- Various laws and regulatory reforms have been enacted by the govt. to ensure that the practice of manual scavenging is eliminated comprehensively.
- MoHUA has been constantly endeavouring to ensure that hazardous cleaning of sewers and septic tanks is completely eliminated and even when manual entry is unavoidable, to ensure that it be done with proper safety precautions.

Other Key Enablers: Levraging Technology, Intensive Behaviour Change & Capacity Building of ULBs

- Leveraging technology and 'smart solutions to widen outreach (e.g. Google mapping of public toilets, swachhta app etc.)
- Robust online MIS and portal for real time data capture
- Swachh Manch for large scale citizen engagement
- Behaviour change initiatives (engagement of celebrities as ambassadors, mass media audio/video campaign)
- Continuous capacity building of ULBs

Way Forward:

- The issue of **maintenance of the community/public toilets** needs to be strengthened further to ensure that the toilets do not fall into disuse.
- Similarly, the issue of **safe containment, transportation and disposal** of faecal sludge and septage from toilets, as also the **grey and black water from households** and establishments need to be strengthened further.
- There is need to **institutionalizing the concept of Swachhta**, so that the holistic impacts from safe sanitation are achieved in line with our SDG commitments.
- We will now need to focus on **Sustainable Sanitation and Waste Water Treatment**. All these need to be planned and implemented under the overarching principle of **'Swachhata se Sampannata'**.
- Additionally, an enabling environment would need to be created through conducive policy support and reforms, **leveraging technology** for Mission implementation, robust and real-time, **data-driven monitoring** supported by 3rd party verifications, capacity building of municipal staff and private sector participation.

Water Management: Building a Resilient Nation

UNICEF is a key technical partner to the GoI on water and sanitation programming and is dedicated to supporting the nation's progress towards SDG Goal 6 – Universal access to safely managed water and sanitation by 2030.

Few Success Stories:

> According to a UKAID assessment in 2017, India had lost an average of $170 billion annually over the ten-year period due to weather and other environment related causes.

A. Environment and Community: How Maharashtra is Investing in Women's Leadership for Sustainable Development in Water – Stressed Areas

- Maharashtra has declared drought in three of the past five years. Almost 70% of the state's geographical area lies in semi-arid region, rendering it vulnerable to water scarcity; this is exacerbated by further drought.
- '**Women-led Water, Sanitation, Hygiene and Resilient Practices Project' or W-SHARP** was implemented in 2018 to test the effectiveness of risk-informed planning driven by local contexts and communities such as those of Marathwada, especially during lean periods, March to June.
- W-SHARP targeted **women's and vulnerable families' participation as a core aspect** of the project.
- The project took an innovative approach by positioning women as key change agents who charged forward in mobilizing their communities, local bodies, and government institutions for shared causes.
- One key outcome of this project was to **encourage community participation** in local governance and foster partnership with relevant government and civil society institutions.
- This allowed W-SHARP to provide spaces for peer learning exchanges and dialogue fora.

> - **Water budgeting** involves understanding a household's overall water requirement based on the number of family members, major areas of consumption, and identifying areas for potential reuse for water.
> - It is a simple yet effective tool that allows households to **concretely appreciate utilization of their resources**.

Key Interventions:

- **Household-level Engagement**: The Arogya Sakhis mobilized women's groups in their villages to discuss information and practices relevant to good water management practices at the household level. Water budgeting was practiced by all targeted households.
- **Community-level Engagement** – Communities were engaged in discussions on climate resilient practices and options for livelihoods.
- **Convergent Governance**: A unique aspect of this project was the use of National flagship programmes to empower the communities. Construction of soak pits, toilets and adoption of new agricultural innovations were done through convergent funds.

B. Environment and Governance: The Story of Fluorosis Mitigation in Rajasthan

- The state of Rajasthan makes for a classic case on the socio-cultural and environmental implications of sourcing safe drinking water in a semi-arid and water scarce region.
- Over-exploitation of the groundwater, which has increased due to recent climatic changes, along with recurrent droughts have contributed to the leaching of rocks with fluoride compounds, thereby releasing the volatile element into the water sources, making it unsafe for drinking.
- UNICEF supported the Government of Rajasthan in demonstration of **Integrated Fluorosis Mitigation Approach pilot in Dungarpur in 2018**.
- It is a people-centric district platform, led by District Magistrate to have focus on holistic fluorosis mitigation while leveraging programme funds across districts to support the planned activities.

Role Of Community Radio In Disaster Management And Climate – Change communication

- Community Radio provides an opportunity to the community to speak about issues concerning their lives.
- Community radios are also prominently being used in Nepal, Bangladesh, and Philippines for rural development. They are equally popular in Canada, America, Australia, and South Africa.

Development of Community Radio in India

- In December 2002, the Government released a policy that allowed **well-established educational institutions** to set up Community Radio Station.
- The Government in November 2006 implemented **new Community Radio Guidelines permitting non-profit organizations** to own and operate community radio stations.

- At present, there are 78 coastal districts in the country.
- There are 51 operational community radio stations in 26 districts.

Community Radio is useful in:

- **Speaking to communities in local languages** using terms and phrases that are easily and locally understood.
- Communicating local knowledge, needs, and demands beyond the community to inform policy, research, and other communities.
- **Bringing together people** from frequently disconnected stakeholder groups such as livelihoods, community leaders, Organizations and governance.

Community Radio and Disaster Management:-

- The presence of community radio in **every phase of a disaster** (mitigation, preparation, early warning, response, recovery and revitalization) is essential.
- It enables the **exchange and sharing of information** and dialogue among residents as well as the **enhancement of the community's capability** and of **self-governance ability**.
- Community radio can play a crucial role in disaster management via assisting the community at 3 stages:-

Pre-Disaster

- ✓ In the pre-disaster stage community radio stations can provide guidance regarding its preparedness.
- ✓ Information regarding gathering locations and safety shelters can be disseminated.
- ✓ Another important task is broadcasting warning signals in case there is a calamity foreseen or likely to occur.
- ✓ It breaks the barriers of literacy and economic status in bringing people together in times of disaster.
- ✓ While television networks break down almost instantly in face of natural disasters, radio carries with it the potential for continued functioning in such times.

During Disaster

- ✓ At the time of a disaster, most forms of communication are disrupted barring radio signals; Community radio can help the community link with the relief agencies and Government control room.
- ✓ Information and announcement regarding vulnerable areas, which require immediate evacuation, can be broadcasted and the community members can be guided to safety shelters where they can access aid and rescue facilities.
- ✓ Locals can call in and provide firsthand information regarding the ongoing in the affected areas.

Post Disaster

- ✓ Having a medium of communication in their own language or dialect can help in the strengthening the morale of the community.
- ✓ Community radio provides an indigenous solution to a problem that is being faced at a large scale in the country these days.
- ✓ It can be an important component of rescue, relief and rehabilitation efforts.
- ✓ The need is to build the capacity of operating personnel of community radio and equip them to handle and disseminate disaster-related information in an optimal manner.

Conclusion

- During forest fires in summer, landslides in monsoon, etc. rural communities constantly struggle and their isolated situation does not help the cause.

- Community radio has the power to organize and provide information and connect these communities to the much needed aid and relief.
- Also, since the content is in the local dialect it can help curb miscommunication and misinformation in times of panic.

Mitigation of Carbon Footprint

- Global warming with the burgeoning anthropogenic greenhouse gas (GHG) emissions (400 parts per million from 280 ppm CO_2, emissions of pre-industrial era) has been altering the climate, eroding the ecosystem productivity and sustenance of water, thus affecting the livelihood of people.
- GHG footprint needs to be in balance with sequestration of carbon to sustain ecosystem functions.
- **Forests are the major carbon sink** (about 45%) that aid in mitigation global warming.
- The **land use land cover** (LULC) dynamics leading to deforestation and land degradation is the prime driver of global warming due to the loss of carbon sequestration potential as well as emission.

Carbon Footprint

- Carbon footprint is contributed by emissions from the energy sector (68%), agriculture (19.6%), industrial processes (6%), LU change (3.8%) and forestry (1.9%), respectively in India **with CO_2, emission of about 3.1 MGg** (2017) and **the per capita CO_2 emission of 2.56 metric tonnes**.
- India has committed at the Paris Climate Change Agreement to reduce its emissions by 33-35% by 2030, which necessitates **immediate implementation of carbon capture** (with afforestation of degraded landscapes with native species, regulations of LULC change) and **de-carbonisation** (through large-scale implementation of renewable and sustainable energy alternatives).
- For this, stringent norms must be developed towards (1) potential of **ecologically fragile** regions, (2) dis-incentives for continued higher emission based **on 'polluter pays' principle**, (3) adoption of **cluster-based decentralized development** approaches, and (4) **incentives for reduced emission**.
- The **carbon trading** has demonstrated the potential in monetary values across the globe of Indian forests in capturing carbon.
- The carbon credit mechanism and streamlining stakeholder's active participations would dramatically reduce the abuse of forests.

Water and food security towards sustainable and healthy living:

- Alternations of landscape structure in the catchment areas influence the hydrological regime leading to variations in the hydrological status.
- The streams are perennial when its **catchment is dominated by vegetation** (>60%) of native species. This is mainly due to infiltration or percolation in the catchment as soli is porous with the presence of native species.
- Diverse microorganisms interact with plant roots and soil helps in the transfer of nutrients from the soil to plants and the soil is porous.
- **Fragmented governance** and the **deteriorating ecological ethics** with the **lack of vision** among the decision makers are the principal reasons of deforestation and land degradation.
- Streams with its catchment dominated native species vegetation (>60%) **have higher soil moisture and groundwater** in comparison to the catchment (of seasonal streams) during dry spell of the year. It facilitates **farming of commercial crops** with higher economic returns to the farmers.
- Sustenance of water in a river **ensures the food security** in the region which is dependent on the land use dynamics (forest vegetation cover) in its catchment.

Conclusion:

- Thus, **catchment integrity plays a decisive role** in sustaining water for societal and ecological need.

- It is evident from the occurrence of potential streams in the catchment dominated by native flora, *highlighting the riverscape dynamics with the hydrological, ecological, social, and environmental dimensions linkage and water sustainability*.
- Recent unfortunate instances of floods and subsequent drought (drying up of water bodies) in Karnataka, Maharashtra, and Kerala is a pointer towards the mismanagement of forests in the Western Ghat region.
- Hence, ecologically fragile regions such as Western Ghats needs to be conserved on priority to sustain the agriculture and horticulture in the peninsular India.

Emerging Civil Society Initiatives in Agriculture

- Agriculture of today is witnessing several sustainable initiatives by farmers to improve farming techniques and to prop up their livelihoods and income.
- Government too has, in a way, recognized this changing landscape of agricultural development. The recent **conferment of Padma Shri awards to 12 such farmer-leaders** in 2019 is a case in point.

Innovation in Agriculture

- Farmers play pivotal role in improving technology and productivity. The achievements of some of the awardees endorse this hypothesis.
- One of the Padma Shri awardee farmer, **Vallabhbhai Vasambhai Marvaniya**, has been doing innovation in carrot farming since late 1940s in **Junagadh of Gugrat**.
- Subsequently, he developed '**Mudhuvan-Gajar**'. The Rajasthan Agricultural Research Institute tested this variety and endorsed its cultivation.
- Experimenting with cauliflower cultivation since 1970, **Jagdish Prasad Parikh** from Rajasthan developed '"**Ajita Nagar Selection'** variety for **better size and quality**.
- It can be cultivated without much chemical use and the crop tolerates heat waves conditions.
- **Sultan Singh demonstrated** use of **re-circulating aquaculture systems** (RAS) for **fish cultivation** in adverse climate with very limited use of water in Karnal of Haryana.

Minimizing Chemical Use:

- Reducing chemical use by following organic methods of agriculture has been the focus of many of these awardees. They also **organize training for farmers** on best agricultural practices and on ways for preserving local cultivars of several crops.
- They encouraged fellow farmers to adopt better agronomic practices by demonstrating **virtues of intercropping and crop rotation**.

Diversification of Agriculture:

- Some of these awardees moved **against traditional cropping pattern**. Rajakumari Devi (Bihar) experimented with food crops in place of mono-cropped tobacco.
- She promoted innovative agronomical methods of cultivation as per the terrain with the knowledge of soils, value addition and marketing.
- A desert like area around **Hulikal village of Ramnagar in Karnataka** was transformed to green belt by the dedicated efforts of **Saalumarada Thimmakka by growing more than 8000 trees**.

Shifting Consumption Patterns:

- As the priority shifts from food security to nutrition security, the focus of the policy makers is moving towards **micro-nutrient dense foods** like minor millets and pulses, often called **'orphan crops**.
- The Government of India declared **2018 as the National Year of Millets** for promoting cultivation and consumption of these foods. It **re-designated coarse cereals** like *sorghum, pearl millet, finger millet, and minor millets* as **nutria-cereals in 2018**.
- All this is in the '**Decade of Action on Nutrition'** (2016-25) as per the **United Nations under SDGs**.

- Research has to focus **on increasing the productivity of minor millets** that has been stagnant since the sixties.
- Therefore, huge task lies ahead for the development community that includes civil society, researchers, and the Government alike in fostering a level-playing field for minor millet farmers.

Urban Agriculture through Terrace Gardening:

- It is desirable to produce as much as possible using urban agriculture methods.
- The most crucial of the urban agriculture is the **rooftop gardening** that can make use of unused open spaces to provide food for the family, apart from reducing carbon load on environment.
- While there are plenty of hobbyists and family-and-friends farmers, **neither the Governments nor the non-profit organizations have recognized the full potential** or need of the process.

Conclusion:

- The activities of these Padam Shri awardees has to be viewed as a **trend of emerging private initiatives** in various parts of the country in the challenging area of agricultural extension.
- These private initiatives have to be tailor- made to the welfare needs of masses and adopt a practical approach to agriculture diffusing good agricultural practices suited to disparate agro-ecological zones.
- Their efforts will achieve better results when they work in **tandem with governmental and quasi-governmental agencies** on addressing key challenges of the times.

Managing Electronic Waste

- Electronic industry is one of the world's largest and fastest growing manufacturing industries. It has provided some leverage to the socio-economic and technological growth of the developing society of India.
- However, it creates **new environmental challenges- "Electronics Waste" or "e-waste"** that consists of obsolete electronics devices.
- Solid waste management, which is already a critical task in India, is becoming more complicated by the invasion of e-waste, particularly computer waste.

e-Waste: Posing Challenges

- Personal Computers (PCs) contain certain components, which are **highly toxic, posing environmental and health challenges**. This fast growing waste stream has been **accelerating** because the global market for PCs is **far from saturation** and the **average life span of a PC is decreasing rapidly**.

In general, electronic goods/gadgets can are classified under three major heads:

1) **White goods**: Household appliances,
2) **Brown goods:** TVs, camcorders, cameras etc.,
3) **Grey goods**: Computers, printers, fax machines, scanners etc.

- Rapid economic growth, coupled with urbanisation and a growing demand for consumer goods, has increased both the production and consumption of electronics and electrical equipments.
- India's recycling sector is still underdeveloped. Most people are unaware of potential negative impact.
- When these products are dumped in landfills or incinerated, they pose health risks because of the hazardous materials they contain.

Statistics:

- The **Global E-waste Monitor**, 2017 published by the **United Nations University** estimated that India generates about **20 lakh ton of e-waste annually**, nearly 82% of which is personal devices.

Effects on Air, Water, and Soil:

- When electronic items containing heavy metals are improperly disposed, these heavy metals **leach through the soil** to reach groundwater channels which eventually run to the surface as streams or small ponds of water.

- Burning of e-waste in open landfill for obtaining gold and other precious metals produces **fine particulate matter** and causes cardio-vascular and pulmonary ailments in children.
- **Drinking water** contaminated with lead affects the central and nervous system and causes poor brain growth, dwarfism, hearing disability, and impaired formation and function of blood cells.
- Since, these chemicals are **not biodegradable**; they persist in the environment for long time, increasing the risk of exposure.

Some solutions addressing the issue:

- The product designers must **ensure the longevity** of the products through their re-use, repair, and/or upgradability features.
- **Recycling and reuse** of materials are next options to reduce generation of e-waste.
- **Recovery** of metals, plastic, glass, and other materials reduce the magnitude of e-waste.
- Clear regulatory instruments adequate to **control both exports and imports** of e-waste and ensuring their environmentally sound management should be in place.
- **Manufactures** of products must be made financially, physically, and **legally responsible** for their products.
- All vendors of electronic devices shall **provide take-back and management services** for their products at the end of life of those products.
- **Collection systems** are to be established so that e-waste is collected from the right places ensuring that this directly comes to recycling unit.
- **Extended Producer Responsibility** (EPR) authorisation has been provided to 726 producers by the CPCB. It specifies the **collection targets** for the specified time (five years); but unfortunately, **no independent mechanism** has been put in place to check or verify the claims made in authorisations **resulting in slack implementation**.
- Recently, Ministry of Electronics and Information Technology (MeitY) has developed a **guideline on uniform inventorisation** of e-waste in the country.
- As per information available with CPCB, 69,414 MT of e-waste was collected, dismantled, and recycled during 2017-18.

Challenges Ahead:

- Only **1.5 per-cent of e-waste generated in India gets recycled**. Lack of awareness about e-waste and its recycling as well as the **role of the unorganised sector** are the added challenges to the problem.
- The **base metals** which can be reused **are lost** and result in soil contamination due to unorganised and crude dismantling.
- A consumer of an electric or electronic device is not apprised of the end of value chain of the product. Often, **information is not provided** along with the product packing about the e-collection centre for the product sold.
- The **responsibility of the consumers** is also not specified along with the product.

Conclusion:

- Technical and policy-level interventions, proper implementation, capacity building, and increasing the public awareness are the need of the time.
- They only can convert this challenge into an opportunity and set global credible standards concerning environmental and occupational health.

Salient features of the E-waste (Management) Amendments Rules, 2018

- The phase-wise collection targets for e-waste in weight shall be 10% of the quantity of waste generation as indicated in the EPR plan during 2017-18, with a 10% increase every year until 2023.
- Separate e-waste collection targets have been drafted for new producers, i.e. those producers whose number of years of sales operation is less than the average lives of their products.

- Producer Responsibility Organisations (PROs) shall apply to the Central Pollution Control Board (CPCB) for registration to undertake activities prescribed in the Rules.

Development and Environment: Maintaining the Fine Balance

- The **Stockholm Conference** 1972, on the "**human environment**" brought to light the urgency of tackling environmental problems through various efforts.
- Environment is a *critical challenge to continuation of our growth and to the extent of which growth translates into improved quality of life*.
- The purpose of economic development in any region is to provide opportunities for improved living and jobs to people. While industrial development invariably creates more jobs in any region, possibilities of adverse effects on the environment also increase.
- Environmental protection measures have become necessary for development and to sustain environment at the same time.

Sustainable Development: A Way Out

- Sustainable development **does not end with sustainability of environment** and resource system; it also **requires sustainability of economic and social systems**.
- Development and environmental protection can easily go together. It would be better to begin new projects with **built-in environmental safeguards** rather than to make haste only to regret later.

India's effort in Creating Environmental Safeguards:

- India's installed capacity of **diesel generating sets forms a third** of its total grid connected capacity. As a deterrent, incentives for both capital investment and power generation by **solar rooftop have been encouraged**.
- The **gap between the thermal power and solar power** has been narrowing. In 2018, renewable energy has reached 73 GW accounting for over 20 per cent.
- The **installed capacity of renewable energy** in the country recorded 83.4 GW as on 31 October, 2019 while **wind energy accounts** for 37 GW and **Solar** 31.7 GW.
- The **growth in clean technology** will further help in making sustainable and safe environment. For example, sustainable mobility solutions can increase access while reducing congestion and increasing productivity.
- The Government has launched **National Clean Air Programme** (NCAP). It is a long-term, time bound, *national level strategy to achieve 20 to 30 percent reduction in PM10 and PM2.5 concentration by 2024*.
- Overall **objective of the NCAP** is comprehensive **mitigation actions** for prevention, control, and abatement of air pollution **besides augmenting the air quality monitoring network** and strengthening the **awareness and capacity building activities**.

Global Commitment:

- The UNFCCC **defines "climate change**" as a change in climate attributed directly or indirectly to human activity that alters the composition of global atmosphere.
- The efforts needed to address climate change include mitigating greenhouse gas (GHG) emissions on one hand and building adaptive capacities on the other. **India is committed to the UNFCCC and Kyoto Protocol**.
- India inked Paris Climate Change deal to combat climate change and limit global temperature rise to well below 2 degrees Celsius.
- India announced its new plan, also known as **Intended Nationally Determined Contribution, (INDC) in 2015** (175 GW of renewable energy capacity by 2022).

- The Indian companies are increasingly **adopting internal carbon pricing** (ICP) as an important tool for managing climate risks. ICP provides **incentives to relocate resources towards low-carbon activities**. Just 478 units reduced 2 per cent of India's annual CO2 emission.

Worrisome Picture:

- Seeking to boost the global economy's shift to clean energy, the **World Bank announced** that it would **stop financing oil and gas exploration** and extraction from 2019.
- Despite such development, however, according to **annual audit report of UNEP**, national pledges on emission reduction made by countries under Paris Agreements **will only account for one-third of what is needed to avoid the worst impact of climate change**.
- Even full implementation of the countries' unconditional 'NDC' (nationally determined contributions) would lead to **temperature increase of at least 3 degree Celsius by 2100**.

Way Forward:

- To a large extent, an **effective pollution regulating system** will reduce the emissions of green house gases.
- At the operational level, the industries have to be **closely monitored by a responsive and competent body**.
- There is need to **improve the capabilities** as well as strengthen our regulatory institutions.
- The Central and state pollution control boards are **understaffed and often lack infrastructure**. There is an urgent need to strengthen these agencies by recruiting professionals, taking up R&D work and provision of better infrastructural support.

Plastic Waste in Construction and Road Making

- The Government of India is encouraging waste plastic usage for roads and highway construction.
- It is not just the accumulation of plastics that harms the environment- it is also the **fragments and toxins released** during photo-decomposition that pollute our soil and water.
- Melting down old plastic waste to repurpose it into useful new items is one of the ways of reducing the plastic in the oceans and landfills.
- **Post- consumer Recycled** (PCR) garbage is used in creating new polymer modified asphalt roads.
- These are found to be more resistant to erosion from weather and vehicle use, and the number of new potholes formed is reduced.

Major Findings:

- Use of plastic along with bitumen in construction of roads not only increases its life and smoothness but also makes it economically sound and environment friendly.
- It has been found that such roads were not subject to stripping when come in contact with water.
- Use of higher percentage of plastic waste reduces the need of bitumen by 10%. It also increases the strength and performance of the road.

National Voters' Day 2020- Electoral Literacy for a Stronger Democracy'

- Mandate for **universal equal suffrage emanates from Article 326** of the Constitution. The Mandate was further enhanced with the Constitution (Sixty-first Amendment) Act, 1988 that **reduced the voting age to 18 years**.
- National Voters' day is celebrated on **25th January since 2011** to mark the **foundation day of the Election Commission of India.** ECI was established on this day in the year 1950.
- The main purpose of the celebration is to encourage, facilitate, and maximise the enrolment, especially for the new voters.
- Theme - 2020- **Electoral Literacy for a stronger Democracy** (In 2019 it was- **No voter to be left behind**)

Some of the innovative steps taken by ECI:

- ECI launched the **Electoral literacy programme under SVEEP** and by now about 5.8 lakh **Electoral Literacy Clubs (ELC), Chunav Pathshalas, and Voter Awareness Forums** have been set up across the country. These forums work on the principle of engaging the target populations through hands- on experience on the electoral process.

Achievements:

- The Lok Sabha Elections 2019 saw a historic **voter turnout of 67.4%**. Voter turnout had increased to a record 66.44% in 2014 from 58.19% in 2009.
- The number of **electors rose to 91 crore** ahead of Lok Sabha Elections 2019. Moreover, **women participation** also **increased to a historic 66.79%** in 2019 **reducing the gender gap** to 0.01%.
- At present, the electoral operations of India are the largest in the world as demonstrated in the Lok Sabha Election 2019 where about 1.2 crore polling officials worked at over 10 lakh polling stations in the country.