

Vasundhara

LET'S HAVE A
CONVERSATION.
IT'S TIME TO COME CLEAN.

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An Initiative by Eco Club of TERI SAS

SaniTrail



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Editor's Note

I assure you right at the outset that there is nothing new or out of the box that this edition of Vasundhara will bring to your screen. There's nothing in here which perhaps a good internet day or a good library day will not give you. So to what we owe the courage to bring to you this issue?

Answer lies for us in the art of 'seeing', as mentioned by Deleuze as being imperative to Foucault's life and works.

“

The focus on sanitation in India dates to more than 5000 years ago. Remains of the Indus Valley Civilization and several ancient and medieval architecture show a distinct presence of drainage and sanitation system.

Social reformers like Swami Vivekananda, Mahatma Gandhi, Dr. Ambedkar and several others have articulated their position on sanitation in India and its associated inequities. India no doubt has a long trail of sanitation. However, there are still a myriad of questions that remain unanswered.

Dr. Fawzia Tarannum

Asst Professor and Programme Coordinator
Coca-Cola Department of Regional Water Studies

We have approached sanitation in this issue from diverse domains and perspectives. The magazine starts with the genesis of and number story in Swachh Bharat Mission, post which comes a case study showing customization and improvisation on the mission's structure. This is followed by a humbly honest interview to bring about the neglect of the state's policies on the plight of sanitation workers, and then starts a piece on how decentralized treatment technologies can let the true spirit of sustainability prevail. A map of folk songs and cultural tools is then presented to bring about the intricacy with which sanitation is woven in daily life. In the end, we have introduced an art section to let pictures complete what words may have left unsaid.

While this may seem like a multidisciplinary attempt to stitch the status quo; it is in fact far from this magazine's intent. Each piece has been curated and placed to offer you multiple, and often contrasting views. This deliberate attempt is to let you freely 'see' and enquire.

Lastly, coming back to Foucault - he wrote of the omnipresence of power and of power finding its sustenance in knowledge. Anyone who has remotely understood power, governance, sustainability, and human heart will vouch for how transdisciplinary the study of these subjects is. It is our hope that by the end of this issue you will feel the same for knowledge of sanitation.

Ekansha Khanduja

Sanitation Budgets: *The Road from Total Sanitation Campaign to Swachh Bharat Mission*

MS. TRISHA AGARWALA

Ms. Agarwala is a senior research consultant at Centre for Budget and Governance Accountability (CBGA)

Marking the fifth anniversary of the adoption of SDGs in 2020, India has committed to fulfill the SDG 6 that aims to 'ensure availability and sustainable management of water and sanitation for all'. Since 2000, nearly half of the population of India (47%) has stopped practicing open defecation (OD). This not only represents a significant reduction in inequality but also a transformational shift in social norms and public health in the country.

The current Annual Rates of Reduction (ARR) in OD from 2000-2017 has been 2.8% and the required ARR from 2017-2030 needs to be 1.9%. Further, the proportion of population with basic hand washing facilities at home in India is 60% for 2017 and only 30% of domestic wastewater is treated in India. All these facts only go to show that there is a long road ahead for the country to achieve its sanitation goals.

The sanitation sector in India has historically been neglected, and so has its budget. Since the launch of the Central Rural Sanitation Programme in 1986, sanitation was primarily looked at as a toilet construction scheme, however, with the launch of the Total Sanitation Campaign (TSC) in 1999, the concept of behavior change was introduced. The TSC was meant to be a demand-driven scheme and provided monetary assistance to Below Poverty Line (BPL) families, schools, and anganwadis, to construct their own toilets. It also focused on information, education, and communication to change the attitude of the people towards sanitation.

As per government data, there had been a substantial increase in rural sanitation coverage from 21.9% in 2001 to about 67.86% by 2010 - attributed to the scaling up of the TSC, along with higher budget allocation. The Nirmal Bharat Abhiyan (NBA) launched in 2012-13 was a restructured version of the TSC. To build ownership among the community regarding the scheme, the 'Nirmal Gram Puraskar' was introduced wherein monetary assistance and public recognition was given to those Gram Panchayats which achieved an 'open defecation free' status.



Due to efforts of the NBA, access to toilets in rural areas had increased from nearly 33% to 41% between Census 2011 and NSSO survey of 2013. Another milestone in the journey has been the establishment of the Ministry of Drinking Water and Sanitation in 2010, which puts the spotlight on the drinking water and sanitation sector in the country leading to enhanced budgetary resources. Further, sanitation got a renewed impetus with the launch of the Swachh Bharat Mission (SBM) in 2014-15.

This could be seen in the steep rise in budgetary allocation since the financial year 2015 -16. Even in the 2020-21 budget speech, the Finance Minister highlighted the significance of comprehensive sanitation program to support the government's "health vision" and reduce the disease burden among the poor. Additionally, the government has planned to start an Open Defecation Free (ODF)-plus scheme to sustain the current ODF mission.

Union Budget Allocation for Swachh Bharat Mission - Rural & Urban, 2014-15 to 2020-21

Programs	2014-15 (A) ₹ crore	2017-18 (A) ₹ crore	2018-19 (RE) ₹ crore	2019-20 (RE) ₹ crore	2020-21 (BE) ₹ crore
Swachh Bharat Mission (R)	2841	16948	12913	8338	9994
Swachh Bharat Mission (U)	859.5	2539	2462	1300	2300

Source: Compiled by CBGA from Union Budget documents, various years
(A - Actual; BE - Budget Estimates; RE - Revised Estimates)

Significance of Sanitation during COVID-19

Given that water, sanitation and hygiene (WASH) solutions are critical in addressing the COVID-19 pandemic, the significance of prioritising WASH has substantially increased. The importance of the much-neglected areas of hand washing and menstrual hygiene management has also come into prominence. More often than not, these issues are not sufficiently or appropriately incorporated into urban/rural planning for water and sanitation priorities and, needless to say, people living in villages and peri-urban settings will be affected the most. Since WASH would be a key part in the post-COVID recovery and to enable the right to potable water and adequate sanitation, it would be imperative to guarantee that everyone has access to a minimum level of water and sanitation; ensure the continuity and safety of WASH services, raise public awareness about hand hygiene, strengthen infection prevention and control, and provide practical and financial support to WASH providers.

However, greater public funding for WASH would be an underlying requirement with increased budgets for sanitation. One would need to keep an eye on such budgetary requirements in order to protect existing public funding for sanitation as well as to maximise its utilisation.

DHAN Foundation commenced sanitation interventions in 2004 through its Self Help Groups (SHGs) called Kalanjams in Karnataka, with the aim to address sanitation and safe water demands of the vulnerable across rural, tribal, urban and coastal contexts. By 2013, the intervention was developed into an exclusive program which was scaled up by Sustainable Healthcare Advancement (SUHAM) Trust, a healthcare vertical of DHAN Foundation. Bannur Mahila Kalanjia Okkuta is one of the DHA Kalanjiam Federations located in Mysore region, Karnataka. These Kalanjams were formed with the primary motive of poverty alleviation for the community. But gradually the impact of sanitation and hygiene on poverty via its impacts on health, nutrition and personal security were seen. Consequently, two clusters - B. Seehalli and Maliyur in this region were selected with the target of freeing them from open defecation and providing total sanitation to the residents. B. Seehalli cluster was associated with 656 members through its 41 Kalanjiam groups. Maliyur cluster had 512 members in its 32 Kalanjams. A baseline survey was conducted on sanitation and hygiene practices in 13 villages of B. Seehali and 2 villages of Maliyur where DHAN was operational.

Forging Mutuality; Bringing Multiplier Effect

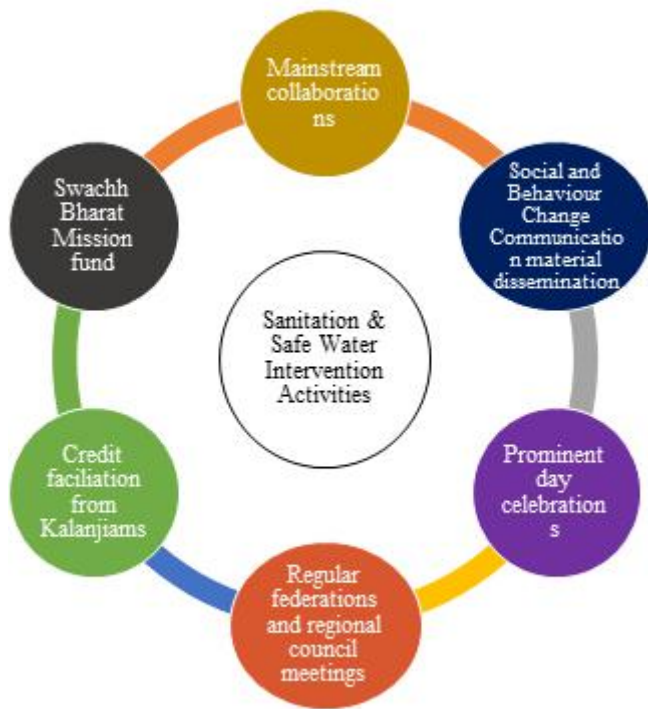
With the spirit of “enabling mode” rather than “implementing mode” to ensure long term sustainability post-interventions, SUHAM commenced its work with seeding the importance of sanitation and implications of unhygienic practices among the members in the community organizations. Demand-based assessments lead the cluster level team to list out 175 Kalanjiam households who needed construction of new toilets. These identified beneficiaries were then given exposure to different cost-effective toilet models available in the market, thereby, giving ownership for the members to comprehend and choose the model which suits their requirements. All the 175 members had been actively involved in Kalanjiam work and had ensured timely repayment and proper savings mostly.

SUHAM's Sanitation and Safe Water Intervention

MR. RAJAPANDIAN AND MS. DEVIKA

Mr. R. Rajapandian is the Chief Executive and Ms. S. Devika is an Apprentice at SUHAM Trust, DHAN Foundation.





Thus, all the members were sanctioned a loan amount of Rs. 15,000 towards toilet construction; a minimum cost estimated by the Civil Engineers associated with DHAN. This was a remarkable departure from SBM's design where building costs are sanctioned post construction. Relevant documents for Individual Household Latrine (IHHL) application under Swachh Bharat Mission were produced before respective block-level administrative departments. Relevant documents for IHHL application under Swachh Bharat Mission were produced before respective block-level administrative departments. Block level officers visited the site pre and post construction; pre for verification and post for inspection and subsidy release. Fund release from the Swachh Bharat Mission after the completion of the toilet structures helped in reducing the financial burden on the member families.

DHAN

(Development of Humane Action) Foundation is a national level professional development organization, working with more than 17 lakh families in 84 districts across the 14 states of India. DHAN envisages in "Building People and Sustainable Institutions with Value Driven, Ethics and Democratic process to enable the poor for Poverty Eradication, Water & nutrition secured, Inclusive and Ecologically Balanced Development)



DHAN ensured that work - site selection, erecting superstructure, installing toilet pan and finishing works were completed within two weeks. The intervention grabbed media attention largely for bringing rapid behavioral change among the communities and converting fifteen Kalanjiam villages into open defecation free villages. The open defecation free status is still maintained, as the most considerable amount of time was spent in the initial phase on changing people's behaviours.

Have sanitation workers benefitted from sanitation programs in the country?

There is a difference in the progress of sanitation in India versus the progress that sanitation workers have made. Efforts for liberation and rehabilitation of manual scavengers have been absent in our sanitation programs. Concrete and progressive efforts for eradication of manual scavenging are still not being undertaken. While construction of toilets may have benefited users, but lives and dignity of those who clean these toilets remain unaccounted for. These workers still have to carry and dispose human excreta. More than seventy years have passed since Independence, Swachh Bharat Mission (SBM) has been undertaken, money has been spent – and yet these workers are not a party to this progress. There has been no improvement in living standards of these workers.

"This community doesn't require any sympathy, what is needed is to understand their perspective and to recognize their efforts."

Why are our policies and programs failing the manual scavengers?

A major failure of the country is that crux of the problem remains untouched by those in power – perspectives of poor and minorities are not understood by power-holders. They curate and run the show without any understanding of the root causes. Take dry toilets (shushka shauchalayas) built under SBM as an example. They require human involvement and hence promote manual scavenging. These toilets are a symbol of shame for because of them an Indian citizen needs to carry human excreta, and yet there's no action to shut them down.

Unlearn. Re-learn. Engage.

in conversation with

Mr. BEZWADA WILSON

Mr. Wilson is an Indian activist and one of the founders and national convenor of the Safai Karmachari Andolan (SKA), an Indian human rights organization that has been campaigning for the total eradication of manual scavenging and the rehabilitation of all scavengers.



"Programs can never be successful if they fail to understand and undermine caste and gender relations in the society."



Sanitation has to be viewed and understood from several ideological debates that we are battling with since time immemorial. Unless the people and GOI open their minds and free themselves of casteism, plight of manual scavengers can never be improved. Obsession with not just caste, but also patriarchy in the society plays a central role in the predicament. Women carry human excreta on their head in states like Uttar Pradesh, Madhya Pradesh, Bihar, Maharashtra, Jharkhand, Uttarakhand and Jammu & Kashmir. National or sub-national programs can never be successful if they fail to understand and undermine caste and gender relations in the society. Mere enactment of acts or fear of punitive measures will also not be enough. Employment of Manual Scavenging and Construction of Dry Latrines (Prohibition) Act has existed since 1993 and yet it has proved insufficient. What is needed is to build a system which mainstreams them into the process of development. This community doesn't require any sympathy, what is needed is to understand their perspective and to recognize their efforts.

You have been in this challenging field for forty years. What keeps you going?

If you really love the people, you will feel happy every day for your struggle. Life and struggle have become interlinked for me. If I don't do anything about the condition of women and sanitary workers, I feel awkward and suffocated. I enjoy when I'm able to liberate even one person from that situation and I celebrate it. I'm not expecting to gain something, I just work for the dignity and self-respect of those workers.

An advice that you would like to give to fellow activists/ social workers?

To lift someone when they fall down is a basic instinct. When there is injustice happening, you must not stay quiet. We all must come out to talk openly. We must create a fearless society where everyone can speak their hearts. We are equal in the eyes of law and this equality must be reflected in all aspects of life.

Decentralized wastewater management: A paradigm shift

DR. MAHREEN MATTO

Dr. Matto is a wastewater management expert and was the former programme manager at water management unit of Centre for Science and Environment.

The world is facing a water availability and quality crisis resulting from continuous population growth, urbanization, land use change, industrialization and lack of wastewater management strategies. It is estimated that by 2030, global water requirements would grow from 4,500 billion m³ today to 6,900 billion m³ (BCM).¹ It is further estimated, 80% of all global industrial and municipal wastewater is released to the environment without any prior treatment, resulting in a growing deterioration of overall water quality with detrimental impacts on human health and ecosystems.

Keeping in view the current water-wastewater paradigm, primary focuses on the supply side management and providing hardware solutions is unsustainable and non-feasible. This problem invites attention towards intermediate solutions which treat sewage in the absence of a centralized sewage treatment plant (STP) or sewer network.²

We need to transform our perspective and approach on wastewater management from a linear 'use and dispose' model to a more holistic and sustainable circular model 'use, treat and reuse', attaching values to the wastewater resource. A starting point could be to look at wastewater as a value-generating resource rather than a nuisance.

Wastewater can be a valuable resource as it contains a range of nutrients and resources which if recovered can offer various economic returns. Furthermore, water recovered from wastewater treatment can be used for non-potable purposes (irrigation, agriculture, road cleaning, car washing, etc). Thus substituted for fresh water in domestic, industries and commercial spaces decreasing withdrawals from fresh water sources.

This opens a range of benefits of treating wastewater:

- Helps in water augmentation;
- Waterbody rejuvenation;
- Lake management for pollution abatement;
- Improve public health.



¹https://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/sustainability/pdfs/charting%20our%20water%20future/charting_our_water_future_full_report_ashx

² <https://www.cseindia.org/water-sustainability-template-7986>

³ <https://www.cseindia.org/decentralised-wastewater-treatment-and-reuse-5431>

One such alternative approach which can play a crucial role in delivering this new reality is the Decentralized Wastewater Management (DWWM), since this new approach represent comparatively more economically affordable and ecologically sustainable options, which are socially accepted, require low maintenance and help in reducing carbon footprint. The decentralized approach for wastewater management entails treating and beneficially reusing wastewater as close to where it is generated, using technologies appropriate to the scale of the facilities and flexibility in management.³ The key features of the approach are as follows:

- Does not require large and capital intensive sewer trunks;
- Broadens the variation of technological options;
- Reduces the water requirements for waste transportation;
- Adaptable to different discharge requirements;
- Reduces the risk of system failure;
- Increases wastewater reuse opportunities;
- Allows incremental development and investment to the system

.For the past few years, the approach has gained lot of moment, at national level it is addressed in many flagship programs such as Smart Cities, Swachh Bharat Mission (SBM) 2.0, AMRUT and Jal Jeevan Mission aiming to improve water and sanitation in cities. The approach emphasizes on prevention of leakage losses, reduce energy and piped network, reuse/recycle and resource efficiency by treating wastewater close to its origin. Keeping in view the percentage of piped network connections in a city, a combination of approaches i.e. centralized and decentralized wastewater management will be required to address the problems of water pollution and scarcity. Taking the example of India, not only government but also many institutes- IIT Mumbai and CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE (NEERI) and non-profit organisations like Centre for Science and Environment, CDD-BORDA for the past few decades, have been advocating, capacitating and implementing the approach of decentralized



wastewater management, with the aim of recycling and reuse of wastewater. At different scales (individual, institution, zonal/city level), best management practices of successfully implemented case studies of various decentralized wastewater technologies such as DEWAT, DWWT, Soil Biotechnology, Phytoid have been documented and replicated. One can check MOUNT, a web based repository comprising of various high impact and high visibility case studies. With the changing paradigm from “waste” water treatment to resource recovery by decentralized management following the principle of circular economy, the sanitation sector, holds the most optimal potential for progress towards a sustainability transformation. This strategy offers significant opportunities for developing economies to leapfrog and establish new alternatives and more sustainable approaches towards citywide sanitation planning.

<http://lifelink.in/>
<https://cddindia.org/sectors/>
www.cseindia.org
<https://cddindia.org>

Sanitor's Song

Janitors were doorkeepers. Meet the door-openers of hygiene and sanitation

Born in 1950 in Dehradun, Bhajan Daas Verma is a folk singer of Uttarakhand, ranked as B-high by All India Radio in folk genre. He started by composing songs while rearing his cattle and would often write them on stones, with stones. He lacks formal education, but his songs have spread awareness about importance of health and hygiene, education and environment conservation.

The Public Health Engineering Department (PHED) in Assam conveys messages of sanitation in rural areas, through humorous plays, staged with the help of local talent in local dialects. These plays do not have a written script and adapt to the place where they are staged, making extensive usage of Assamese folk songs.

Sant Gadge Baba was a great social reformist born in 1876 in Maharashtra. He strived for the upliftment of the poor and to eliminate superstition, illiteracy and unsanitary conditions. He travelled from one place to another wearing his food pan (gadge) upturned on his head and carrying his trademark broom. The moment he entered a village, he would sweep roads and gutters with his broom. He strived continuously to inculcate community hygiene and to eradicate superstitious beliefs from the society via songs called 'kirtan.'

Hemanti Devi is a trained folk vocalist, lyricist and composer from Rohtas' Semari village in Bihar. She sings at various cultural gatherings, fairs and festivals around her village to spread awareness about sanitation. She is an active member of Self Help Group in her village, where she learnt about health risks of open defecation and now uses her art to spread awareness, in her capacity as a part of SBM and even otherwise..

Sharanappa is a folk artist from Koppal, Karnataka. He uses traditional tunes to spread the message of Swachh Bharat to rural Karnataka. To break the language barrier, he incorporates the message of sanitation and cleanliness into tunes of traditional folk songs which allows the locals to understand and appreciate the message.

A Barakatha is an all-night epic drama about a historic hero and inter-weaving current events with a comical undertone. In Nalgonda district of Andhra Pradesh, actors have been inserting messages on health, hygiene and upcoming water and sanitation projects

Avvaiyar from Sangam period preached messages for daily life called Aathichudi, in the current state of Tamil Nadu. Two of them are:

கந்தல் ஆனாலும் கசக்கி கட்டு"
"kanthal aanalum kasakki kattu"

"Even if you have only torn up cloth, wash and use it."

"கூழனாலும் குளித்து குடி"
"koozhanalum kulithu kudi"

"Even if it is a simple meal, take bath and have it."

KNOWLEDGE UPGRADE

CLIMATE CHANGE

GENDER, CLIMATE AND SECURITY

A joint report titled Gender, Climate and Security: Sustaining Inclusive Peace on the Frontlines of Climate Change was published by the UN Environment Program (UNEP), UN Women, the UN Development Program (UNDP), and the UN Department of Political and Peacebuilding Affairs (UNDPPA), was released on June 9, 2020.

Key links between climate change and security:

- Outcomes of climate change resulting in exacerbated loss of livelihoods, food insecurity, competition over scarce resources.
- Violent conflict and political instability leave communities poorer, less resilient, and ill-equipped to cope with the effects of climate change.
- Pre-existing inequalities, gender-related roles and expectations, and unequal access to resources can deepen inequality and leave some groups disproportionately vulnerable.

Policies to address climate-related security risks should systematically include gender dimensions.

Incorporating women's unique knowledge of natural resources into climate change adaptation can strengthen the design and implementation of adaptation plans.



Source: The Moscow Times

FUEL

OIL SPILLS IN RUSSIA'S ARCTIC REGION

Russia has declared a state of emergency after a power plant fuel leak in Norilsk caused 20,000 tonnes of diesel oil to escape into a local river, turning its surface crimson red. The oil was discharged into the Ambarnaya river. The river is part of a network that flows into the environmentally sensitive Arctic Ocean. Environmentalists have said that the river would be difficult to clean, given its shallow waters and remote

location, as well as the magnitude of the spill. The installed buoys will only help collect a small part of the pollution and nearly all the diesel fuel will remain in the environment. Norilsk is constructed on permafrost and there is a threat to its existence because of melting ice due to climate change. The diesel leak can have a serious impact on the local ecology.



Source: India TV



Source: Mint

NATURAL DISASTER

SUNDARBANS DEVASTATED BY CYCLONE

The powerful cyclone that struck India and Bangladesh last month passed through the vast mangrove forests of the Sundarbans delta. Located on the southwestern part of the delta, the Indian Sundarban constitutes over 60% of the total mangrove forest area. The lives of about 4.5 million people in the region are tied to the fragile ecosystem. Farming, fishing, collecting honey, and tourism are the few employment opportunities available. But climate change has been making their lives harder.

It is the breaking of embankments, resulting in saltwater pouring onto the land, which will lead to the loss of affordable drinking water sources. Saline water kills freshwater fish in ponds and reduces the fertility of the land for extended durations of time.

Impact of Covid-19: The ongoing pandemic has complicated relief work. During the cyclone, villagers huddled in crowded storm shelters, which authorities feared could spread the virus. The storm has also caused a rise in cases from 3,103 to 5,500. The death toll has increased from 181 on the day of the cyclone to over 300.

ENVIRONMENT

ENVIRONMENTAL PERFORMANCE INDEX

This Index was developed from the Pilot Environmental Performance Index, first published in 2002, and designed to supplement the environmental targets outlined in the United Nations Millennium Development Goals. The index ranks 180 countries on 32 performance indicators across 11 categories covering environmental health and ecosystem vitality.

India's performance

- India secured 168th rank. The country scored 27.6 out of 100 in the 2020 Index.
- India's rank was 177 in 2018's ranking.
- All South Asian countries, except Afghanistan, were ahead of India in the ranking.

Suggestions for India:

- India needs to amplify national sustainability efforts on all fronts.
- The country needs to give a high priority to critical issues such as air and water quality, biodiversity, and climate change.

BIO-SHIELDS

NATURAL BARRIERS TO NATURAL DISASTERS

Mangrove wetlands are particularly valuable in minimizing damage to property and loss of human life by acting as a barrier against tropical storms, such as typhoons, cyclones, hurricanes, and tsunamis. Bengal Chief Minister Mamta Banerjee announced a project to plant 5 crore mangrove trees in cyclone-hit Sundarbans.

There are direct and indirect linkages between ecosystems and disasters. Ecosystem-based approaches can be effective tools in reducing all three components of the risk equation:

- Buffering and mitigating hazard impacts
- Reducing vulnerability by providing ecosystem services to reduce vulnerability
- Reducing the exposure of vulnerable natural infrastructure in highly exposed areas.

CLIMATE CHANGE

LOSS OF ICE COVER IN THE ARCTIC SEA



Source: The Washington Post

The National Centre of Polar and Ocean Research (NCPOR) has found the largest decline in the Arctic Sea ice in the last 41 years, owing to global warming. The center claims that if this trend continues, there would be no ice left in the Arctic sea by 2050. They also highlighted significant impacts of the declining ice cover:

- Influence on regional weather: The decline of sea ice may have an impact on evaporation rates, air humidity, cloud cover, and rainfall of neighboring regions.
- Coastal erosion: As sea ice retreats from coastlines, wind-driven waves combined with thawing permafrost may lead to more rapid coastal erosion.
- Impact on global climate: In the Arctic, ocean circulation is driven by the sinking of dense, salty water. Fresh water (from melted ice) coming primarily from the Greenland Ice Sheet could interfere with ocean circulation at high latitudes, slowing it down. Any changes in ocean circulations can have unpredictable global impacts even in lower latitudes such as extreme weather events, droughts, etc.
- Positive feedback cycle (the ice-albedo feedback): Sea ice has a higher albedo than ocean water. Once sea ice begins to melt, a self-reinforcing cycle often begins whereby as more ice melts and exposes more dark water, the water absorbs more sunlight and the sun-warmed water then melts more ice.

Arctic sea ice is part of a complex global system, and as a result, it affects communities at all latitudes. The loss of Arctic sea ice can be slowed largely by reducing carbon dioxide and other greenhouse gas emissions and by conserving other natural resources that have global impacts.

WILDLIFE

CENSUS OF THE ASIATIC LION



Census of the Asiatic lion was recently conducted by the Gujarat government and the details have been released. The census is conducted once every five years. This year it was delayed due to Covid induced lockdown. The first Lion Census was conducted by the Nawab of Junagadh in 1936

Key figures this year: 28% rise in population of Lions: Total estimated Lions in Gir region is 674 as compared to 523 in 2015.

36% Expanse in distribution: Inhabiting agro-pastoral landscapes of Saurashtra, their territory is spread over nine districts covering now an area of 30,000 sq. km. This is a 36% expanse in the area which was 22,000 sq. km in 2015.

Factors responsible for the steady rise in population:

- Community participation
- Emphasis on technology
- Wildlife healthcare
- Proper habitat management
- Steps to minimize human-lion conflict

What is "block counting" method?

In this method, census enumerators remain stationed at water points in a given block. They estimate the abundance of lions in that block, based on the sighting of lions who need to drink water at least once in 24 hours during the summer.

Newer methods also now exist - such as camera trapping and identifying lions based on permanent marks on their body; and statistical estimates based on the animals' predatory patterns or numbers of their prey base.

NEW GUIDELINES FOR IMPORT OF EXOTIC SPECIES

The Union Government of India has issued an advisory to streamline the process for import and possession of exotic live species into the country. The move comes in the wake of coronavirus (COVID-19) which has raised global concern about illegal wildlife trade and zoonotic diseases.

New guidelines:

- Environment Ministry will collect stock information from the holders of such species through voluntary disclosure.
- The registration will be done for the stock of animals, new progeny, as well as for import and exchange.
- If documentation relating to the exotic species is produced within six months of the date of the issue of the advisory, the declarer may not be required to do so again.
- For any declaration made after six months, the declarer shall be required to comply with the documentation requirement under the extant laws and regulations.
- Further, a person trying to import a live exotic animal will have to apply for grant of a license to the Directorate General of Foreign Trade (DGFT), under the provisions of the advisory.
- The importer will also have to attach a No Objection Certificate (NOC) of the chief wildlife warden of the state concerned along with the application.

These guidelines are expected to aid in better management of the species and guide the holders about proper veterinary care, housing, and other aspects of the well-being of the species. The database of exotic animals will also help in the control and management of zoonotic diseases for which further guidelines would be issued in due time to ensure the safety of animals and humans.



DISASTER

URBAN FLOODING

Recently, the Ministry of Earth Sciences (MoES) in coordination with the Municipal Corporation of Greater Mumbai developed an Integrated Flood Warning System for Mumbai called **'IFLOWS-Mumbai'**.

IFLOWS-Mumbai is a state of art Integrated Flood Warning system for Mumbai to enhance the resilience of the city by making it possible to have an estimate of the flood inundation three days in advance, along with immediate weather updates. Alerts on rainfall intensity, tide levels and storm-surge will be provided by this system to anticipate probable flooding events. These systems are significant since many Indian cities like Mumbai, Chennai, Delhi, Kolkata, etc. have been experiencing urban flooding with increased periodicity.

The system incorporates weather models from the National Centre for Medium Range Weather Forecasting (NCMRWF), India Meteorological Department (IMD), field data from the rain gauge network stations set up by the Indian Institute of Tropical Meteorology (IITM), Municipal Corporation of Greater Mumbai (MCGM) and IMD, thematic layers on land use, infrastructure, etc. provided by MCGM.

Similar systems are being developed for Bengaluru and Kolkata.

National Disaster Management Authority (NDMA)

guidelines on urban flooding:

- National Hydro-Meteorological Network for providing early warning in all urban centers to be created.
- Local networks for real-time rainfall data collection with a 'Local Network Cell' in the IMD headquarters to be developed.
- Subdivide cities/towns based on watersheds and develop a protocol for forecasting rainfall based on watershed design and management of urban drainage systems.
- A watershed-based and ward-based inventory of the existing storm water drainage system to be prepared.
- Pre-monsoon desilting of all major drains to be completed by March 31 each year.
- Every building in an urban area must have rainwater harvesting as an integral component.
- Concept of rain gardens to be incorporated in planning for public parks.
- Interactions between water and solid waste management to be integrated in planning.



Source: Livemint

ENVIRONMENT

WORLD DAY TO COMBAT DESERTIFICATION AND DROUGHT: JUNE 17

This day was proclaimed by the United Nations General Assembly in 1995, a day after United Nations Convention to Combat Desertification was drafted.

Desertification is the degradation of land in arid, semi-arid, and dry sub-humid areas. It is caused primarily by human activities and climatic variations. It occurs because dryland ecosystems, which cover over one-third of the world's land area, are extremely vulnerable to overexploitation and inappropriate land use.

Concerns for India:

- India has witnessed an increase in the level of desertification in 26 of 29 states between 2003-05 and 2011-13, according to the State of India's Environment (SoE), 2019.
- More than 80% of the country's degraded land lies in just nine states: Rajasthan, Maharashtra, Gujarat, Jammu and Kashmir, Karnataka, Jharkhand, Odisha, Madhya Pradesh, and Telangana.
- Main reasons that cause desertification in India are: 1. Water erosion (10.98%) 2. Wind erosion (5.55%) 3. Human-made/settlements (0.69%) 4. Vegetation degradation (8.91%) 5. Salinity (1.12%) 6. Others (2.07%)

SOLAR ENERGY

ONE SUN ONE WORLD ONE GRID



The Ministry of New and Renewable Energy (MNRE) seeks to develop a program called **One Sun One World One Grid (OSOWOG)** for which it has issued a Request for Proposal (RfP) for developing an implementation plan.

Through OSOWOG, India plans to build a global ecosystem of interconnected renewable energy resources, that are seamlessly shared for mutual benefits and global sustainability. The initiative has been taken up under the technical assistance program of the World Bank and is planned across 3 phases:

- **Phase I:** Interconnection of Middle East-South Asia-South East Asia (MESASEA)
- **Phase II:** Interconnection of Solar and other Renewable Energy resources-rich regions.
- **Phase III:** Global interconnection- To achieve the One Sun One World One Grid vision.

Significance:

- It can enable the sharing of renewable energy across international borders which would then help all the participating entities in attracting investments in renewable energy sources as well as utilizing skills, technology, and finances.
- It helps achieve Sustainable Development Goal 7 - Ensure access to affordable, reliable, sustainable, and modern energy through interconnection.
- This creates an opportunity to tap into the potential of so called 'wastelands' (such as deserts and hilly regions) for energy.

- **Environmental benefits:** Increased international cooperation in the field of renewable energy will help countries move towards cleaner sources of energy and fulfill international commitments.
- **As a foreign policy tool:** Through OSOWOG, India can raise its national profile in the field of international renewable energy governance. This strategic move can strengthen foreign relations on several fronts for India.

BIODIVERSITY

INDIA'S FIRST LICHEN PARK

Uttarakhand's forest department has developed the country's first lichen park in Munsiyari, Uttarakhand.

This park has been developed to conserve, protect, and cultivate lichens and to create awareness among locals regarding their importance.

More than 20,000 species of lichens are found in the world and India has around 2,714 of them. Uttarakhand alone is home to more than 600 species of lichens.

Some major uses of lichens:

- Lichens have the ability to separate minerals by eroding rocks.
- Lichens show varying degrees of tolerance to pollutants such as nitrogen and sulphur compounds, hence making them an indicator species for the health of the ecosystem.
- They also absorb and store radioactive substances, such as cesium and strontium compounds.



WASTE

EXTENDED PRODUCER RESPONSIBILITY

Recently, Government of India released draft of 'uniform framework for Extended Producers Responsibility' under Plastic Waste Management Rules (PWMR) 2016. EPR is a strategy used to promote reuse, recycle, and eco-friendly disposal of waste by assigning the responsibility of disposal of the waste to the manufacturer/producer of the goods.

Benefits of EPR framework:

- Waste generated by closed-loop production is used to produce another product. This significantly lowers the cost of producing something new.
- It helps to reduce the hazardous environmental impact of the waste generated. Central Pollution Control Board, India declared 25,940 tonnes of plastic waste being produced per day.
- Shifting the burden of waste disposal to product manufacturers, promotes the adoption of innovative and cleaner production techniques.
- EPR policies ensuring the 3R principle (Reduce-Reuse-Recycle) will facilitate a circular economy and extend life cycle of the product.

BIOMEDICAL WASTE MANAGEMENT



Central Pollution Control Board (CPCB) has released revised guidelines for management of Biomedical waste generated from COVID-19.

Key guidelines for COVID-19:

- Collection and segregation of waste: Use dedicated trolleys and collection bins in COVID-19 isolation wards and label "COVID-19 Waste" to be pasted on these items.
- Transportation and disposal of waste: COVID-19 garbage is collected and taken in a separate vehicle for proper disposal as biomedical waste either to a Common Bio-medical Waste Treatment and Disposal Facility (CBWTF) or a waste-to-energy plant, where it is then either incinerated, autoclaved, or burnt to produce energy.
- Role of nodal authorities - Designated trained nodal officers for biomedical waste management in hospitals must be made responsible for training waste handlers about infection prevention measures.

ENVIRONMENT

SEABED 2030 PROJECT

The Seabed 2030 Project is a collaborative project between the Nippon Foundation of Japan and the General Bathymetric Chart of the Oceans (GEBCO). Recently, researchers under the project have finished mapping nearly one-fifth of the world's ocean floor. The project is aligned with the UN's Sustainable Development Goal (SDG) 14 - conserve and sustainably use the oceans, seas, and marine resources.

Benefits of seafloor mapping:

- Shape of the seabed is critical to understanding ocean circulation patterns. These affect climate and weather patterns, tides, sediment transport, and resource exploration (oil, gas, and minerals).
- Understanding of climate change: floor features including canyons and underwater volcanoes, influence vertical mixing of ocean water, ocean currents and sea-level rise.
- Better disaster management : sea floor mapping is crucial for understanding tsunami wave propagation, earthquakes, underwater geo-hazards, etc.
- It will empower the world to make policy decisions, use the ocean sustainably, and undertake scientific research based on detailed bathymetric information.

CARBON

DECARBONISING TRANSPORT PROJECT

NITI Aayog and the International Transport Forum (ITF) of The Organisation for Economic Co-operation and Development (OECD) jointly launched the 'Decarbonizing Transport in Emerging Economies' (DTEE) project in India on 24 June.

About the project: The ambitious five-year project will help India develop a pathway towards a low-carbon transport system through the development of modeling tools and policy scenarios. The project will design a tailor-made transport emissions assessment framework for India.

The transport sector of India is the third most greenhouse gas (GHG) emitting sector in the country, where the major contribution comes from the road transport sector. Out of the total CO₂ emissions in India, 13% comes from the transport sector with a projected annual increase of 6%. This project will provide the government with a detailed understanding of current and future transport activities and the related CO₂ emissions as a basis for their decision-making.

BIODIVERSITY

ANTHROPAUSE

This is an unprecedented time in modern history and a unique opportunity for science. A group of researchers last week termed it the "anthropause". It refers to the corona virus-induced lockdown period and its impact on other species. It is also being called the Great Pause.



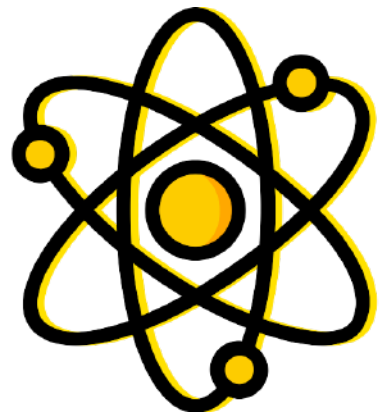
As a result of the lockdown, nature appears to have changed, especially in urban environments. On one end, we have some 'unexpected visitors' benefiting from the situation and on another, we have species who are at a loss. Urban inhabitants like rats, gulls, and monkeys who consume food discarded by humans seem at a loss.

These unprecedented times provide a unique study opportunity for researchers to map human-wildlife interactions. This knowledge can fill gaps in our understanding of natural science and ultimately help us better preserve global biodiversity.

RESEARCH

SPARC

Scheme for Promotion of Academic and Research Collaboration (SPARC) is an initiative of the Ministry of Human Resource Development. The scheme aims at improving the research ecosystem of India's higher educational institutions by facilitating academic and research collaborations between Indian Institutions and the world.



Under this Scheme, 600 joint research proposals will be awarded for 2 years to aid in strong research collaborations between Indian and global research groups at leading universities. This initiative would facilitate advancements in cutting edge science. Indian Institute of Technology Kharagpur is the National Coordinating Institute to implement the program.

This initiative aims at developing alternative technologies to produce green hydrogen to facilitate and promote smoother transition in to a hydrogen-based economy.

Conventional methods of generating hydrogen result in a large quantity of carbon dioxide, a greenhouse gas that imposes serious environmental concerns. This project aims to develop novel low-cost electro catalysts for hydrogen evolution reactions.

Disclaimer: All the news articles have been compiled from various sources.

Vasundhara

Top 8 logo designs

Results from the logo design competition held within TERI-SAS



1 **Bhanvi Singh**
MBA (Sustainability Management)



2 **Prakriti Rajvanshi**
MBA (Sustainability Management)



VASUNDHARA
BY ECO CLUB

3 **Nidhi Chettri**
M.Sc Environmental Studies and Resource Management



4 **Prakriti Rajvanshi**
MBA (Sustainability Management)



5 **Nivedita Jha**
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6 **Shreya Sharma**
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V a s u n d h a r a

7 **Dayadra Mandal**
M.Sc Water Science and Governance



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8 **Nidhi Chettri**
M.Sc Environmental Studies and Resource Management

"Frame" of Reference

Tushar Tambekar explains his paintings



Even today the rural population strives for tap water connection and safe drinking water facilities. People have to walk for miles away from their home to get sufficient quantity of water for their families. So far, in major areas women have been bearing this drudgery of fetching water for their family wasting their major time and efforts throughout the day. Consequently, it leads to loss of their time for education, work and leisure, ultimately resulting in gender-discriminated growth in the society. So, let's come together and take a pledge that we will not misuse the water that is fortunately available to us today!

The water flowing from the tap is yet to meet millions of little hands, and before all of it goes away the thirsty heart is yet to be quenched. In the hope of water little hands are stretched towards the world but the rusty taps in the town are only good for dust and dirt. Even a few drops touch my lips as blessing, I might not get them tomorrow, I'm guessing. Survival is not on the cards with these drops of water, how do we consider living as an option?

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