

**OFFICE OF THE PR. ACCOUNTANT GENERAL (A&E)
HIMACHAL PRADESH, SHIMLA-171003**

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Dated :-04/08/2022

Circular

The International Centre for Environment Audit and Sustainable Development (iCED), Jaipur has present their 42nd volume of “Green Files” – a quarterly newsletter on environmental matters. They have initiated publishing specific environmental theme based Research Papers. The following Occasional Research Papers are available on iCED website.

1. “Review of Urban Transport Challenges and Sustainable Urban Transport Policies for Jaipur City”.
2. “Busa Rapid Transit In India-A Compendium Report”.
3. “Causes, impacts. Risk and mitigation of Urban Flood Management in India”.

They requested to share suggestions and feedback about this newsletter through e-mail. They also welcome any inputs/material relating to the environment and sustainable development at e-mail.

The officers/ officials of this office can sent their suggestions/ feedback for the above mentioned newsletter through e-mail : iced@cag.gov.in.

Encls:- as above.

Jaisi Ram Sharma
Senior Accounts Officer

Ends:- Admn./G-1(iv)/Deput./2022-23/1646-48

Dated:-04/08/2022

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Jaisi Ram Sharma
Senior Accounts Officer



Green Files

April to June 2022 | Volume 42



लोकहितार्थ सत्यनिष्ठा
Dedicated to Truth in Public Interest



Editorial



This year the world is commemorating the 50th anniversary of the first world conference on the environment namely "United Nations Conference on the Human Environment". This was the first concerted global effort to mainstream the environment as a major theme of international engagement. The world leaders gathered at Stockholm from 5-16 June 1972 and recognized a collective responsibility to protect the environment for peace, prosperity and sustainable progress. In this context, this edition of iCED's quarterly newsletter-cum-journal of "Green Files" covers an event by the UN General Assembly with important takeaways.

This edition also incorporates environmental awareness articles and news which include issues related to climate transitions, sustainable development and auditing of the environment related issues. We continue some of our earlier features such as a State-Centric look. In this issue we focus on the State of Tamil Nadu and an examination of priority sectors related to the environment.

Green Files features glimpses of recent environmental news, key events, some print media news briefs and emerging trends, which can act as a corpus of information for environment audits in particular. The newsletter further covers a gist of the trainings/workshops/other activities at iCED and recent happenings in INTOSAI WGEA during the period April-June 2022. To enthuse about environmental awareness, we have commenced a Cross Word in this edition entitled "Cross The Green Word".

In the section "Green Initiatives", we have featured an article on conservation efforts in Kibber village to conserve snow leopards and other high-altitude wildlife.

In "From the Archives", spot we have featured an article of Ms Sucheta Deb, Former Young Professional at iCED, Jaipur on "Making Water and Sanitation a part of the Nation's economic development".

As is the trend in previous editions, we showcase selected Environment Audit Report of both a national and international nature. The Performance Audit Report by Australian National Audit Office assesses the effectiveness in responding to non-compliance with plant and animal bio-security.

The Compliance Audit of Development of Sewerage Infrastructure in Patna under Namami Gange Programme highlights key findings and challenges pertaining to the status and management of Sewerage Infrastructure in the city of Patna under the Central scheme of Namami Gange.

A list of References is also included in this newsletter to provide further reading material on featured themes. Recently we have uploaded some useful reference material and case studies on Environmental issues on the web-site. The links to these are available in the selected Bibliography section.

We at iCED, look forward to your suggestions to make Green Files more informative and user friendly. Your contributions within the broad scope of the newsletter will be highly appreciated, including any feedback you may like to share on the featured articles.

Sayantani Jafa

**ADAI and Director General,
iCED, Jaipur**

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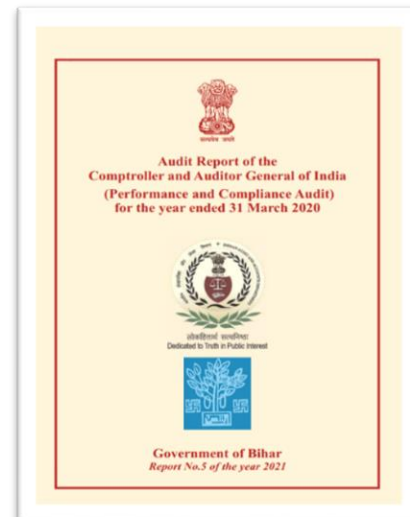
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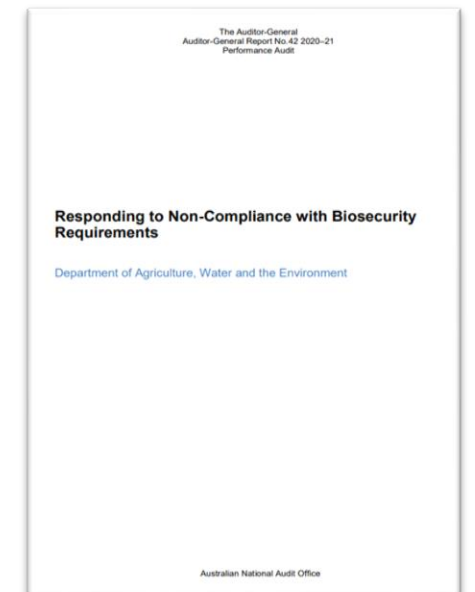
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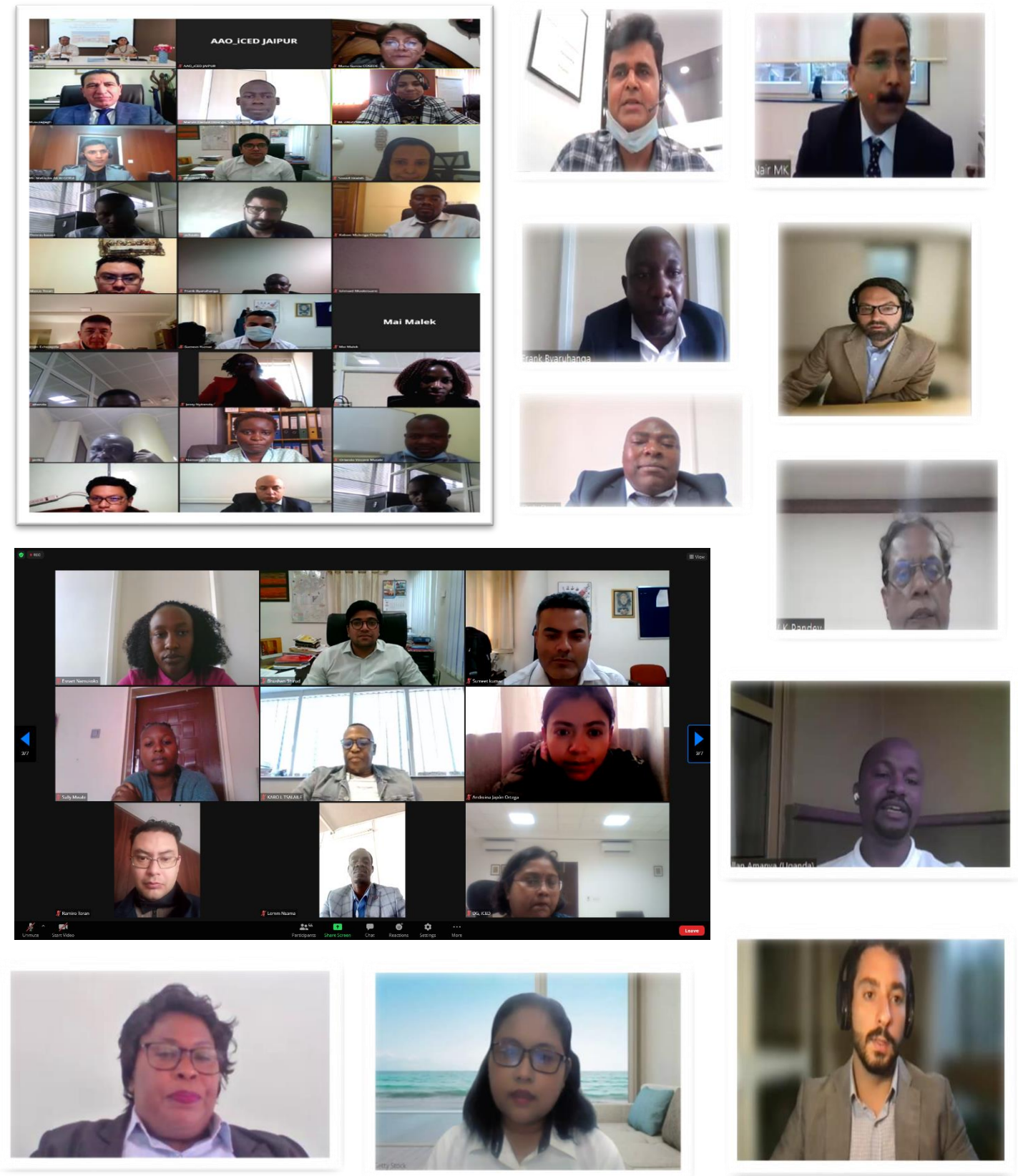
by Kailash Bajya, AAO

1. International Training Program on “Audit of Extractive Industries” International Centre for Environment Audit and Sustainable Development (iCED), Jaipur is the Global Training Facility of INTOSAI Working Group on Extractive Industries. An International Training Program on “Audit of Extractive Industries” was organized from April 25 to April 29 2022 through virtual mode. Ms Sayantani Jafa, Additional Deputy Comptroller and Auditor General and Director General, iCED inaugurated the Programme.



Ms Sayantani Jafa, ADAI and DG, iCED during Inauguration of the International Training Program on “Audit of Extractive Industries”.

The program was attended by 64 participants from 12 Supreme Audit Institutions (SAIs). During the training program, experts from SAI Indonesia, SAI Brazil, SAI Zambia, SAI Uganda and SAI India covered the themes/ topics such as “Introduction to Key Components of Monitoring and Evaluation in Extractive Industries”, “Review of the role of the regulators in Extractive Industries and Available legislation in the Extractive Industries”, “Monitoring and Evaluation Mechanisms & Tracking Methodologies in Extractive Industries sector”, “Downstream Petroleum and Solid Minerals Audits: Monitoring of Supply Outlets, Central Processing Facility (CPF) at Refinery” etc.



Participants and faculties during the International Training Program on “Audit of Extractive Industries”.

2. National Training Programs at iCED, Jaipur

A National Training programme (NTP) on “**Audit of Health Sector with special reference to SDGs**” was conducted from 09th to May 13 2022 in virtual mode. The programme was attended by 24 participants from Audit Offices around the country. The training programme covered issues relating to Governance Challenges in Health Sector; Developing Audit Approach; Audit of Hospital Management; Waste Management in Health Sector; Financing and Delivery of Health Care System in India; Hospital Management Information System (HMIS); Gender Disparities in access to Health Care Facilities and Audit of Health Sector: A Case study of Ayushman Bharat.

The Training Programme on “**Natural Resource Accounting with special reference to Mineral and Energy Resources**” was conducted from May 23 to May 27 2022. This programme was attended by 11 Participants from Audit offices around the country. During this five day’s training programme, experts from IA&AD and other reputed organizations covered various aspects related to Natural Resource Accounting.

A National Training Program on “**Audit of Water Pollution and Sustainable use of Water**” was conducted at iCED, Jaipur during the period 06-10 June 2022. This program was attended by 12 participants from Audit Offices all over the country. The program covered various aspects related with Water availability and Pollution; Urban River Management Plan; Sewage Management; Conservation and audit of Wetlands.

iCED, Jaipur organised a National Training Programme on “**Environment Audit**” from 13th June to June 17 2022. The training programme was attended by 10 participants from Audit Offices all over the country. The training programme, covered various aspects related with environment auditing, Audit Design Matrix, Use of Geographic Information Systems (GIS) & Remote Sensing (RS), Solid Waste Management, Biodiversity, Water pollution and human health, Air Pollution in India, National Clean Air Programme and Land Management.



Ms Sayantani Jafa, ADAI and DG, iCED and participants of NTP on “Audit of Water Pollution and Sustainable use of Water” and NTP on “Environment Audit”.

3. iCED, Jaipur celebrates its 13th Foundation Day

The International Centre for Environment Audit and Sustainable Development (iCED), Jaipur was established on June 01 2009. To mark the occasion, on June 01 2022, iCED celebrated its 13th Foundation day. One day interaction program was conducted virtually on the theme: “**COP 26 with special reference to Green Finance**”. The program was attended by IA&AS officers posted at Jaipur station and officers/officials of iCED. Ms Sayantani Jafa, ADAI and DG, iCED, inaugurated the program. She highlighted that since the establishment of iCED, it has strived to accomplish its mission to develop high quality products in training and research and enrich environment audit through an interdisciplinary approach enabled by valuable partnerships.

On behalf of SAI India and the CAG of India, iCED has contributed to research papers for various projects under the INTOSAI- WGEA Work Plans and conducted various training programs for the Working Group on Environmental Audit (WGEA) as well as the Working Group on Extractive Industries (WGEI) of International Organizations of Supreme Audit Institutions (INTOSAI) including Indian Technical and Economic Cooperation (ITEC) Program of Government of India.



Participants and Faculties during the Foundation Day of iCED, Jaipur

Distinguished domain experts during the program included Dr Nilanjan Ghosh, Director, Centre for New Economic Diplomacy at Observer Research Foundation (ORF) Kolkata, Dr Armin Rosencranz, Professor and Dean, Jindal Institute of Environment & Sustainability, Sonipat, Ms Mannat Jaspal, Associate Fellow at ORF and Ms Deepthi Swamy, Lead of Climate Program at World Resources Institute (WRI).

The program ended with an expression of thanks by Ms Sayantani Jafa, ADAI and DG, iCED to all experts and participants for making the event successful. A plantation drive was also organized in the iCED Campus during which all iCED officers planted indoor plants on this occasion, as part of the effort to green office spaces.



4. Publishing of an experience sharing report on the Citizen Participatory Audit (CPA) approach written by SAI Philippines

The Citizen Participatory Audit (CPA) Report prepared by SAI Philippines was published by INTOSAI WGEA in the context of the INTOSAI WGEA Work Plan 2020-2022, under Work Package 6 on experience sharing and capacity building.

SAI Philippines has developed a new innovative approach called Citizen Participatory Audit (CPA). In this context, it involves citizens in auditing work related to environmental audit. This new innovative approach does not limit solely to listening to the views of citizens, but it goes further, for instance citizens can take part in collecting and analyzing data, writing reports, drafting inquiries, and generally act as an integral part of auditing work. Since citizens tend to care about the environment, the CPA approach can play a valuable role in the context of environmental auditing. The CPA aims to demonstrate that citizens can be more than just spectators. As the report aptly states: “*democracy is not only for the people, but also by the people*”. The full report can be accessed: <https://wgea.org/media/117686/citizen-participatory-audit.pdf>.



Citizen Participatory Audit by SAI Philippines

5. Celebrating 30 Years of INTOSAI WGEA

In 2022, the INTOSAI WGEA is celebrating its 30th anniversary and the United Nations Environment Program (UNEP) is celebrating its 50th anniversary. This year also marks the 30th Anniversary of the Rio Conference. To celebrate these anniversaries, INTOSAI WGEA has released a short introductory video and a bulletin.



The video and bulletin aim to introduce the work of the INTOSAI WGEA and how environmental auditing and Supreme Audit Institutions can have a positive impact on the environment. The video shows how the work of the INTOSAI WGEA can contribute to reach a common and sustainable future. (<https://youtu.be/qvvpUqpeb90>)

The bulletin can be accessed at <https://wgea.org/media/117696/unep-bulletin-final-25-may-2022.pdf>.

MAKING WATER AND SANITATION A PART OF THE NATION’S ECONOMIC DEVELOPMENT

by Ms. Sucheta Deb, former Young Professional at iCED, Jaipur

A major section of a country’s economy is generated through its agriculture, industry and service sectors which undeniably rely on water and related resources. United Nations World Water Development Report states that half of the world’s workers are employed in water and natural resource dependent industry. There is a positive correlation between the growing economy and access to safe water supply. A 0.3 per cent increase in investment in household access to safe water is associated with a 1 per cent increase in Gross Domestic Product (GDP).

The burden of poor sanitation is the highest in Asia-Pacific, amounting to about 77 per cent of the world total followed by Latin America, Caribbean and Africa each amounting to 10 per cent of the global cost. On national level, in terms of total cost, India suffers the most with US \$ 106.7 billion wiped off the GDP in 2015. It is almost half of the total global losses and 5.2 per cent of the nation’s Gross Domestic Products.

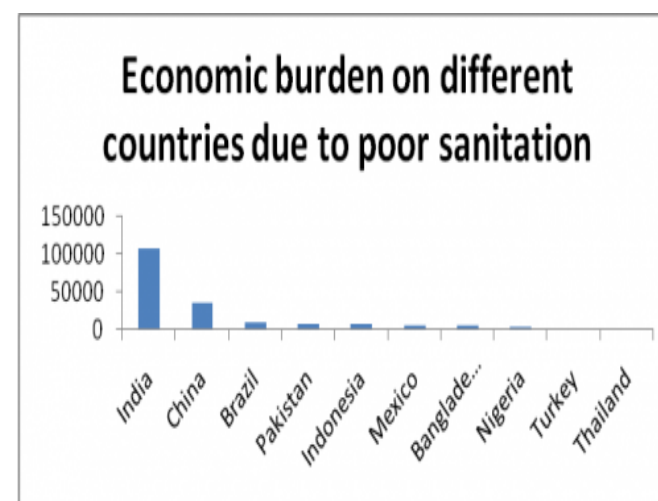
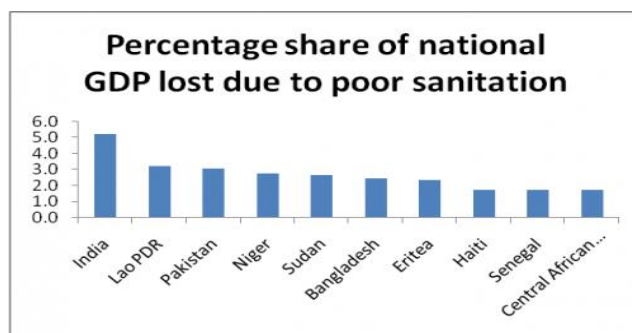
GLOBAL RANKING: Top 10	
COUNTRY	COST (US\$ millions) 2015
India	106,700
China	35,900
Brazil	10,600
Pakistan	7,900
Indonesia	7,400
Mexico	5,800
Bangladesh	5,300
Nigeria	3,800
Turkey	2,500

(Source: The True Cost of Poor Sanitation, 2016)

In 2005, the Central Government established the National Health Mission and introduced structural reforms to strengthen health care and sanitation. The National Health Policy 2017 clearly articulates the government’s commitment to reforming the health sector and achieving universal health coverage by proposing an increase in the health budget to 2.5 per cent of GDP. The Government launched Mission Indradhanush in 2015 to rapidly increase immunisation coverage. Under the Swachh Bharat Mission (Urban) around 4.32 million household toilets and 392,817 community toilets had been constructed. Moreover, 67,085 wards had 100 per cent door-door collection (Solid Waste Management Rules).

World Health Organisation has estimated that if the Government achieves 100 per cent implementation of its cleanliness drive by 2019, the country could be on track to avert 300,000 deaths due to diarrhoeal disease and protein-energy malnutrition (PEM). A recent study by the United Nations International Children's Emergency Fund (UNICEF) on the economic impact of sanitation has estimated that in an open defecation free village, each family saves over Rs. 50,000 per year on account of avoidable medical costs, time and also the lives of their members. Additionally, there is a huge potential of generating wealth from waste through good solid and liquid resource management.

A report published by Central Pollution Control Board (CPCB) highlights that only 23 billion litres of sewage gets treated on a daily basis as compared to 62 billion litres of waste water generated daily in the cities of India. The sewage treatment capacity varies across the States. While Maharashtra generates the highest amount of sewage among the States, it treats 63 per cent of it. Kerala, West Bengal and Bihar treat less than 10 per cent of the sewage they generate. Gujarat as a whole treats 75 per cent of the sewage it generates, the highest among the big States.



(Source: The True Cost of Poor Sanitation, 2016)

A recent CPCB report shows that about 175 or half of the 351 select river stretches in India has pollution levels higher than the prescribed norm. Maharashtra and Gujarat have maximum stretches with extreme contamination. The Biological Oxygen Demand (BOD) level in Bhadar River in Gujarat has reached as high as 426 mg/L whereas, the CPCB norms suggests that BOD less than 6 mg/L is fit for usage (bathing class). In case of Lucknow, only 55 per cent of the city is connected to a sewer network. The city generates 600 MLD of sewage whereas, the city has a capacity to treat only 500 MLD per day.

With rising demand for water and increasing instances of water scarcity and water stress, it is imperative to develop a comprehensive and sustained waste water management in combination with sanitation to improved human health, health of aquatic ecosystems, promote economic development, employment and eradication of poverty. However, even after five years of implementation of Swachh Bharat Mission, the gaps still persist in urban areas affecting achievement of campaign's objectives.

True Cost of Sanitation

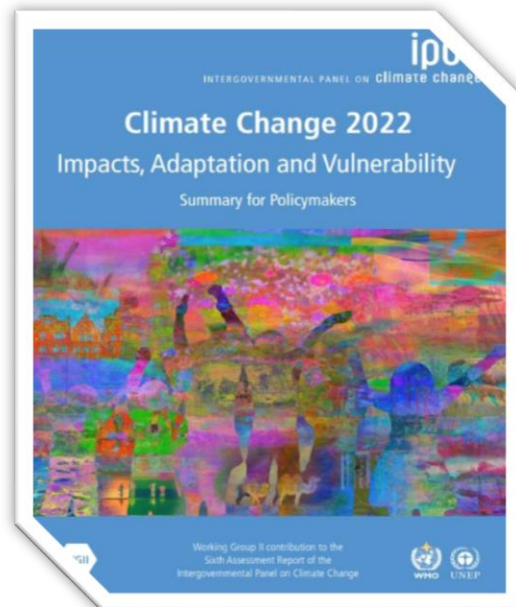
The report "True cost of sanitation" was published jointly by the LIXIL Group Corporation, Water Aid and Oxford Economics in 2016. The report stated that in 2015, the lack of access to sanitation, cost the global economy to US \$ 222.9 billion. This amounts to almost 1.2 times the cost incurred in 2010. The lack of access to water and poor sanitation cost the global economy a burden of US \$ 40 billion in just five years. The report attempts to look at economic development of countries to estimate the global cost incurred due to poor sanitation. It talks about the high economic burden in low-and-middle-income economies.

ENVIRONMENTAL NEWS

by Saurabh Sharma, AAO

IPCC report on Mitigation of Climate Change

The Intergovernmental Panel on Climate Change (IPCC) released a report on “Climate Change 2022 - Impacts, Adaptation and Vulnerability” on 4th April 2022. This report on Mitigation of Climate Change scientifically establishes India’s position on the historical responsibility of developed countries for consuming the carbon budget. As per the report, both cumulative and per capita annual emissions rose during the pre-2020 period.



Climate Change 2022- Summary by policymakers

Pre-2020 emissions reduction in developed countries has been insufficient in comparison to the developing world’s needs for sustainable development. The report underlines the need for deep and urgent global emissions reduction and justifies India’s emphasis on equity at all scales in climate action and sustainable development. It supports India’s view on the necessity of public finance for developing countries and the need for scale, scope and speed in climate finance.

Ban on identified Single-Use Plastic Items from July 01 2022

Carrying forward the spirit of ‘Azadi ka Amrit Mahotsava’, a defining step to curb pollution caused by littered and unmanaged plastic waste was taken by the Government of India. Under this step, India has banned the manufacture, import, stocking, distribution, sale and use of identified single-use plastic items which have low utility and high littering potential, all across the country from July 01 2022. The Central Pollution Control Board (CPCB) has also undertaken comprehensive measures to give effect to India’s commitment.

To create an enabling support system, CPCB is handholding the State Boards to operationalise the advisories issued by conducting meetings so that all the urban and local bodies in the respective states are able to effectively implement the guidelines.

India’s largest floating solar power project commissioned

The National Thermal Power Cooperation (NTPC) has declared Commercial Operation of the final part capacity of 20 MW out of 100 MW Ramagundam Floating Solar PV Project at Ramagundam, Telangana with effect from July 01 2022. With its operationalisation the total commercial operation of floating solar capacity in the southern region has risen to 217 MW.

The 100-MW floating solar project at Ramagundam is endowed with advanced technology as well as environment-friendly features. The project is spread over 500 acres of a reservoir and is divided into 40 blocks, each having 2.5 MW. Each block consists of one floating platform and an array of 11,200 solar modules. The entire floating system is anchored through special HMPE (High Modulus Polyethylene) rope to the dead weights placed in the balancing reservoir bed. All associated electrical equipment is also on floating ferro cement platforms.

Launch of a ‘Digital Dashboard for District Ganga Committee Performance Monitoring System’.

A digital dashboard for ‘District Ganga Committees Performance Monitoring System’

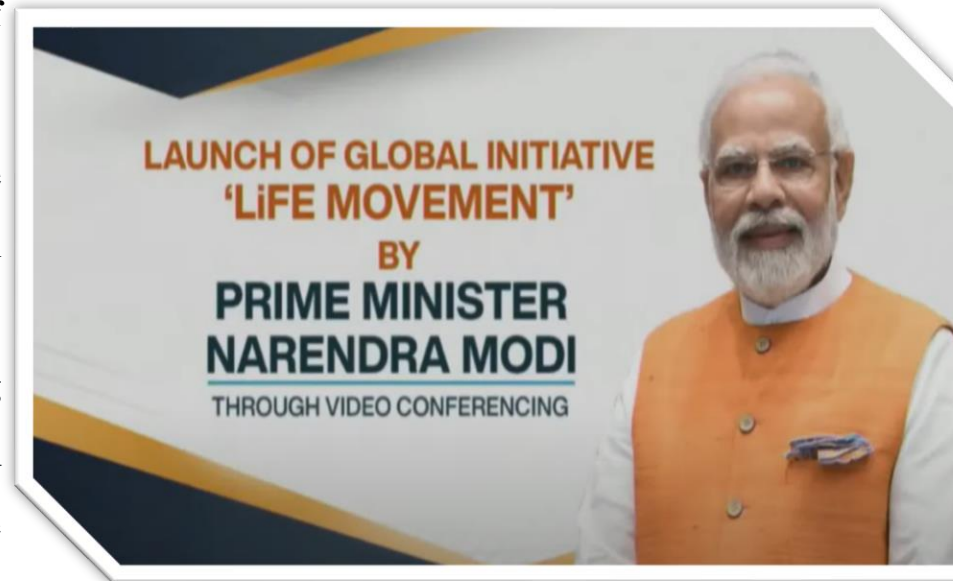


Ramagundam Floating Solar PV Project

has been launched to help the District Ganga Committees (DGCs) in enhancing people-river connections. The dashboard will help in the operationalization of the District Ganga Committee Forum (DGC-4M (Monthly, Mandated, Monitored and Minute)) meetings and will also play an important role in the success of the Namami Gange Programme.

Launching of ‘LiFE Movement’ for Adoption of Environment-Conscious Lifestyle

Prime Minister Shri Narendra Modi launched the ‘Lifestyle for the Environment (LiFE) Movement’ on 5th June 2022 via video conferencing. Also initiated was ‘LiFE Global Call for Ideas and Papers’, inviting individuals, universities, think tanks, non-profits and others worldwide to submit measurable and scalable behaviour change solutions that can drive climate-friendly behaviours among individuals, communities and organisations. The LiFE Movement aims to utilise the power of collective action and nudge individuals across the world to undertake simple climate-friendly

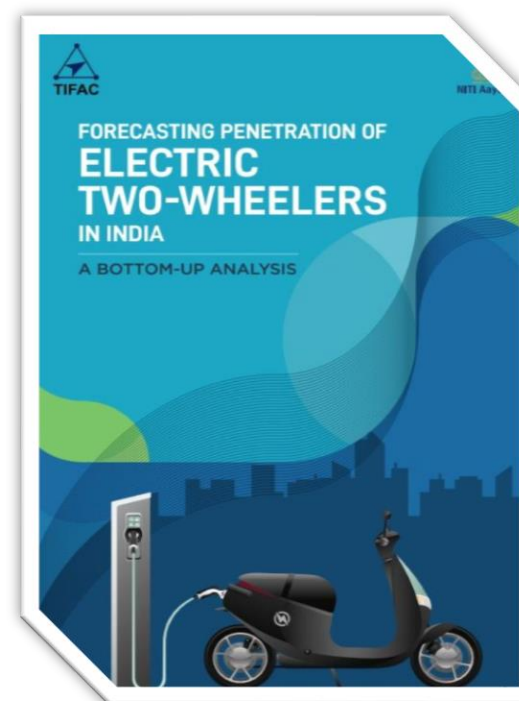


Launch of Global Initiative ‘Life Movement by Prime Minister Shri Narendra Modi, through video conferencing

Report on Future Penetration of Electric Two-Wheelers in the India launched

NITI Aayog and Technology Information, Forecasting and Assessment Council (TIFAC) launched a report titled ‘Forecasting Penetration of Electric Two-Wheelers in India’ on June 28 2022.

The report forecasts that 100 per cent penetration of electric two-wheelers in the Indian market by FY 2026–27. In another scenario, which is technology driven and where current incentives are withdrawn by 2024,



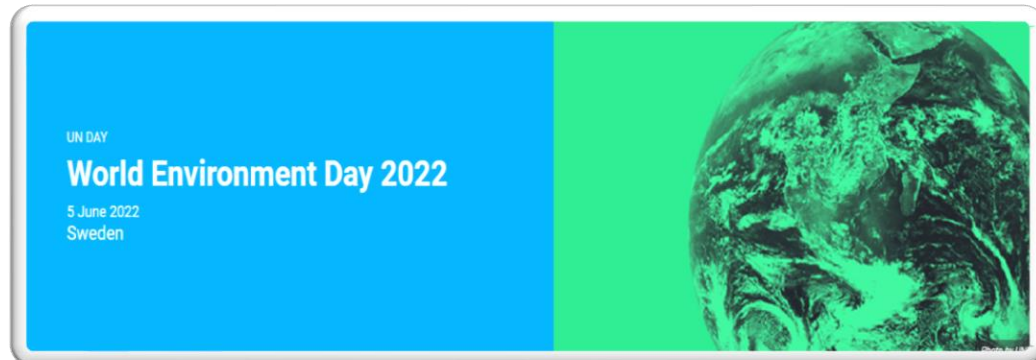
Report on “Forecasting penetration of Electric Two-Wheelers in India”.

actions in their daily lives. The LiFE movement, also seeks to leverage the strength of social networks to influence social norms surrounding climate. The Mission plans to create and nurture a global network of individuals, namely ‘Pro-Planet People’ (P3), who will have a shared commitment to adopt and promote environmentally friendly lifestyles. Through the P3 community, the Mission seeks to create an ecosystem that will reinforce and enable environment friendly behaviours to be self-sustainable. The Mission envisions replacing the prevalent ‘use-and-dispose’ economy—governed by mindless and destructive consumption—with a circular economy, which would be defined by mindful and deliberate utilization.

the report predicts 72 per cent penetration by the year 2031.

The report provides important insights into the required infrastructure, manufacturing capability, policies, and technology-development priorities in the area and these scenarios can be used by government agencies, the industry, and academic/R&D institutions for evidence-based analysis of policies, market scenarios and technology development strategies.

ENVIRONMENTAL AWARENESS DAY'S (APRIL – JUNE)



World Environment Day - June 05



International Day for Biological Diversity - May 22



World Oceans Day–June 08



Desertification and Drought Day-June 17



World Earth Day-April 22

STOCKHOLM+50: A HEALTHY PLANET FOR THE PROSPERITY OF ALL – OUR RESPONSIBILITY, OUR OPPORTUNITY

By Vijendra Singh Tanwar, AAO

The United Nations General Assembly convened an international meeting in Stockholm on June 02-03, 2022 to commemorate the 50-year anniversary of the holding of the United Nations Conference on the Human Environment. The theme of the meeting was “Stockholm+50: a healthy planet for the prosperity of all – our responsibility, our opportunity”. The General Assembly organized collaborative and multi-stakeholder leadership dialogues addressing the following themes:

- Leadership dialogue 1: Reflecting on the urgent need for action to achieve a healthy planet and prosperity for all;
- Leadership dialogue 2: Achieving a sustainable and inclusive recovery from the corona virus disease (COVID-19) pandemic;
- Leadership dialogue 3: Accelerating the implementation of the environmental dimension of sustainable development in the context of the decade of action and delivery for sustainable development.

Apart from the above three leadership dialogues, Stockholm+50 featured four plenary sessions in which leaders made calls for bold



environmental action to accelerate the implementation of the 2030 Agenda and the Sustainable Development Goals. Hundreds of side events – including several youth-led sessions – and webinars, as well as a series of regional multi-stakeholder consultations in the run-up to the meeting, enabled thousands of people around the world to engage in discussions and put forward their views.

The event provided leaders with an opportunity to draw on 50 years of multilateral environmental action to achieve the bold and urgent action needed to secure a better future on a healthy planet. The two-day international meeting concluded with a statement from co-hosts Sweden and Kenya, drawn from the Member States and stakeholders through the meeting’s plenaries and leadership dialogues. The statement contains several recommendations

for an actionable agenda including, placing human well-being at the center of a healthy planet and prosperity for all; recognizing and implementing the right to a clean, healthy and sustainable environment; adopting system-wide changes in the way our current economic system works, and accelerate transformations of high impact sectors.

The Stockholm agenda: Recommendations following Stockholm+50 are

- Human well-being at the center of a healthy planet and prosperity for all.
- Recognize and implement the right to a clean, healthy and sustainable environment by fulfilling the vision articulated in Principle 1 of the Stockholm Declaration from 1972.
- Adopt system-wide change in the way our current economic system works to contribute to a healthy planet.
- Strengthen national implementation of existing commitments for a healthy planet by enhancing national environmental legislation, budgets, planning processes and institutional frameworks.
- Align public and private financial flows with environmental, climate and sustainable development commitments.
- Accelerate system-wide transformations of high-impact sectors, such as food, energy, water, buildings and construction, manufacturing and mobility.
- Rebuild relationships of trust for strengthened cooperation and solidarity and reinforce and reinvigorate the multilateral system. Recognize intergenerational responsibility as a cornerstone of sound policy making.
- Take forward the Stockholm+50 outcomes by reinforcing and re-energizing ongoing international processes, such as the UN high-level meeting Summit of the Future in 2023.

STATE IN FOCUS- TAMIL NADU

by Manish Mangal, AAO

Tamil Nadu, is the 11th largest State in India and is spread over a 1,30,058 sq. km land mass. It accounts for about 4 per cent of the total area of the country and lies between 8° 05' and 13° 34' North latitudes and 76° 14' and 80° 21' East longitudes. Tamil Nadu is the most urbanized State in India with a population density of 586 persons/sq.km, which is significantly higher than the Indian average of 400 persons/sq.km.



Indian state of Tamil Nadu

Water resources:

Tamil Nadu constitutes only 2.5 per cent of India's water resources. The State is heavily dependent on monsoon rains. The annual average rainfall is around 930 mm (47 per cent during the north-east monsoon, 35 per cent during the south-west monsoon, 14 per cent in the summer and 4 per cent in the winter). There are 17 river basins in Tamil Nadu

The topography of Tamil Nadu broadly consists of the coastal plains in the east, uplands and hills as one proceeds westwards. The central plains account for more than half the area of the State. Tamil Nadu is endowed with rich biodiversity, right from marine coastal systems in the Gulf of Mannar to terrestrial evergreen forests in the Western Ghats. Tamil Nadu shares the Western Ghats with the States of Kerala, Karnataka, Goa, Maharashtra and Gujarat. It shares the Eastern Ghats with the States of Andhra Pradesh and Orissa.

with 61 reservoirs and about 41,948 tanks. Cauvery is the only major basin. At 75 per cent dependability, the annual surface water generated in the State is 692.78 TMC (19,619 MCM). Two hundred and forty one lakh hectares are irrigated by surface water through major, medium and minor schemes. The utilization of surface water for irrigation is about 90 per cent. Seven districts of the State are in a very high water vulnerability index. The major contributing factors include higher drought frequency, lower surface water availability and high crop water stress. The overall water resources vulnerability of the districts is projected to decrease towards mid-and end century when compared to the current conditions for both emission scenarios.

Temperature:

The mean annual temperature is 28.2°C in the coastal plains and 15.2°C in the western hills. Mean annual temperature is projected to increase by up to 2°C by the 2030s and by up to 4.3°C by the end of the century (2100). The maximum temperature across the State of Tamil Nadu is projected to increase by 1°C, 2°C and 3.1°C for the periods 2010-2040, 2040-2070, 2070-2100 respectively with reference to the baseline 1970-2000 (SRES A1B scenario). Higher temperatures and fewer cool nights will increase evaporation of surface waters elevating household demand for water supplies and irrigation. Research has indicated that a one-degree increase in temperature can increase the moisture absorption capacity of the atmosphere by about 7 per cent.

Rainfall:

The state mainly receives majority of its rainfall in three seasons: the south-west monsoon, the north-east monsoon and the pre-monsoon season. The normal average annual rainfall is 958.4 mm. About 50 per cent of the total annual average rainfall is received during the north-east monsoon and about 31 per cent during the south-west monsoon. There has been a significant increase in heavy precipitation events as indicated in the recordings of the India Meteorological Department (IMD) observing stations in the State. Increased precipitation variability can impact the quantity and quality of surface source availability and flows.

Flooding risks and flash flood flows from extreme rainfall events can damage infrastructure (foundations, underground installations, transformation equipment etc.) located in the path of the flow.

Energy:

The state has achieved 100 per cent village electrification level. To satisfy the energy needs of the State, Tamil Nadu Generation and Distribution Corporation Limited has an installed capacity of 18,747.28 MW which includes Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)-owned State projects, share from the Central Generating Stations (CGS) and private producers including renewable energy generators. Other than this, the State has installations in renewable energy sources like windmill, solar, biomass. Of the total renewable energy capacity of about 32,730 MW installed all over India, Tamil Nadu alone has about 8326.86 MW, thus about 25.44 per cent of the total installed capacity. In the important sector of wind energy, this number is even more dominant, with Tamil Nadu having about 34.31 per cent of the total wind energy installed capacity in India. Tamil Nadu has reasonably high solar installation (5.6-60 kWh/sq.m) with around 300 clear sunny days in a year. Average solar irradiation in Tamil Nadu is 1266.52 W / sq.m.

Biodiversity:

Tamil Nadu accounts for the rich floristic diversity by comprising 5745 species of flowering plants including 2757 herbs, 1365 shrubs, 1115 trees and 508 climbers (Irwin et al., 2014). Tamil Nadu also holds the maximum number of endemic angiosperms in the Indian subcontinent; i.e. 410 species (Singh et al., 2015). The faunal diversity of the State includes 165 species of fresh water fishes, 76 species of amphibians, 177 species of reptiles, 454 species of birds and 187 species of mammals. According to the CAMP reports the red-listed species to include 126 species of fishes, 56 species of amphibians, 77 species of reptiles, 32 species of birds and 40 species of mammals. The endemic fauna includes 36 species of amphibians, 63 species of reptiles, 17 species of birds and 24 species of mammals.

Tamil Nadu's Western Ghats sector is identified as one of the most pristine biodiversity hotspots in the country. Due to rapid urbanization and industrialization, the biodiversity of the State is under severe stress. Tamil Nadu has been a pioneer State in setting up Protected Area (PA) Network with establishment of Vedanthangal Bird Sanctuary as the country's first Bird Sanctuary, Nilgiris Biosphere Reserve as country's first biosphere reserve and Gulf of Mannar Biosphere as South Asia's first Marine Biosphere Reserve. Notifying 30.92 per cent (7,073 sq. km.) of the State's forest area under Protected Area network is a milestone in biodiversity conservation.

The State has constituted 5 national parks, 15 wildlife sanctuaries, 15 bird sanctuaries, 3 biosphere reserves, 2 conservation reserves, 4 tiger reserves, 4 elephant reserves and one gene-pool garden. The Western Ghats is one of the global biodiversity hotspots and one of the 3 mega centres of endemism in India. The Eastern Ghats also contribute to the richness of the biodiversity of the State.

Forests:

The State is endowed with rich biodiversity, from marine coastal systems in the Gulf of Munnar to the terrestrial evergreen forests in the Western Ghats and temperate forests in the hilly regions. The Nilgiri Biosphere Reserve represents a unique and threatened ecosystem in the tropics inside the Western Ghats Mountain system and is one of the biodiversity hotspots. Tamil Nadu is famous for its Teak and Sandalwood forests. Plantations of Sandalwood and conservation and management of mangroves and wetlands are priority areas of the State. Recorded Forest Area (RFA) in the State is 22,877 sq. km of which 20,293 sq. km is Reserved Forest, 1,782 sq. km is Protected Forest and 802 sq. km Forests is un-classed. In terms of forest canopy density classes, the State has 3,605.49 sq. km under Very Dense Forest (VDF), 11,029.55 sq. km under Moderately Dense Forest (MDF) and 11,728.98 sq. km under Open Forest (OF).

In Tamil Nadu, during the period January 01 2015 to February 05 2019, a total of 542.40 hectares of forest land was diverted for non-forestry purposes under the Forest Conservation Act 1980 (MoEF & CC, 2019).

A study has indicated that the rising trend in maximum temperature to 3.5 - 3.9o C more than that of present and reduction in annual rainfall projections trend of -1 to -10 per cent by the end of this century will have serious impacts on biodiversity conservation. Remarkable changes have already been noticed in deciduous and thorn forests. Currently, the evergreen forests are also under stress due to changing climate.

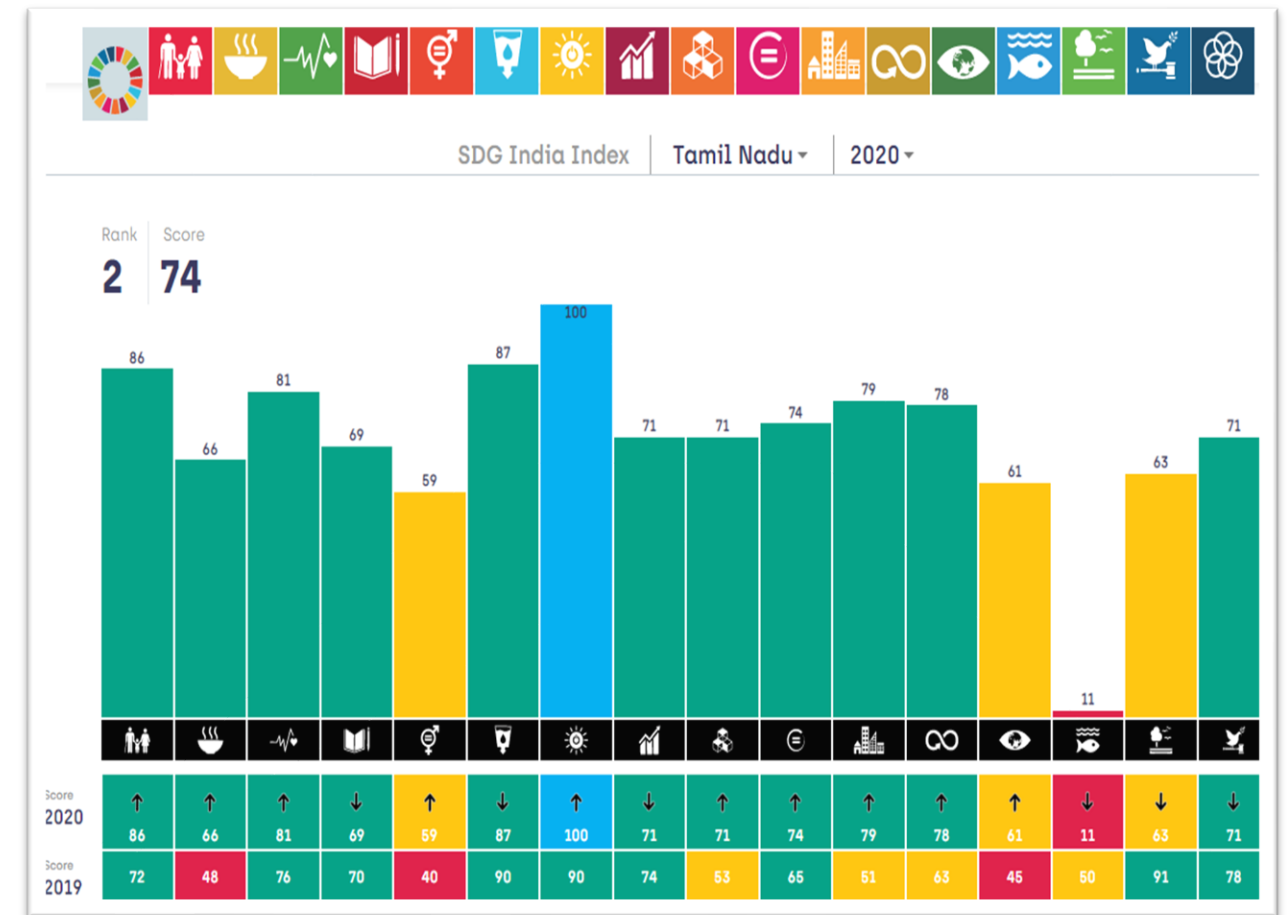
Agriculture:

As a result of the geographic position of Tamil Nadu, it enjoys a semi-arid to dry sub-humid climate, which permits higher crop productivity under irrigation. But it is one of the most water-starved States endowed with only 3 per cent of the Nation’s water resources placing high stress on irrigation water availability and is also vulnerable to seasonal fluctuations causing uncertainty in agriculture production. The net irrigated area in the State is 23.85 lakh hectares for the year 2016-17. The area irrigated by wells accounted for 65 per cent followed by canals (22 per cent) and tanks (13 per cent). Out of Gross Cropped Area under irrigation (28.45 Lakh ha.) 77 per cent is brought under food crops and 23 per cent under non-food crops in the State.

State performance under Sustainable Development Goals:

Tamil Nadu has achieved noteworthy success in implementing the SDGs. The Government of Tami Nadu began implementing the Vision 2030 Agenda in 2016, with the Tamil Nadu State Planning Commission (TN-SPC) coordinating its implementation. The Government of Tamil Nadu set up a High-Power Committee to oversee implementation of the SDGs in Tamil Nadu. The Government of Tamil Nadu also constituted eight Working Groups (WGs) to review and monitor the implementation of the goals and achievement of targets.

As per SDG India Index 2020 Tamil Nadu has second rank with a composite score of 74, shown in the figure (an improvement from a score of 67 in the year 2019) among the Indian states with highest score in SDG 1 (No Poverty) and SDG 7 (Affordable and Clean Energy). However, the state has recorded the lowest rankings under the SDG 14 (Life under water)



Tamil Nadu ranked second in the latest rankings of SDG India Index 2020

COMPLIANCE AUDIT OF DEVELOPMENT OF SEWERAGE INFRASTRUCTURE IN PATNA UNDER NAMAMI GANGE PROGRAMME REPORT NO. 5 OF 2021

By Gaurav Jain Sr.AO

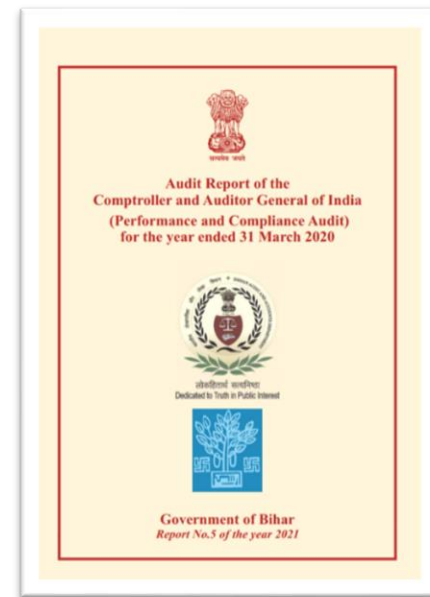
Background:

Increasing population in the Ganga basin with haphazard urbanisation and continuous industrial growth has adversely affected the water quality of River Ganga. The primary sources of pollution in Bihar are untreated sewage /domestic waste-water from cities located on the bank of river. As a result, its water is not suitable for drinking purposes and outdoor bathing.

Audit Objective:

Compliance Audit of Development of Sewerage Infrastructure in Patna under the Namami Gange Programme was undertaken with the objective of ascertaining the overall framework for Sewerage Infrastructure in Patna through a holistic perspective by examining whether:

- 1) There was effective planning to ensure the development of the sewerage networks
- 2) The implementation of the projects had been done in an efficient, economic, and effective manner
- 3) Financial management and utilisation of funds under the schemes were done in adherence to the guidelines of the National Ganga River Basin Authority (NGRBA) Programme Framework.



Audit Scope & methodology:

The audit was conducted (from December 2020 to February 2021) with a view to assessing the specific aspects of the development of sewerage infrastructure in Patna. The methodology included an examination of the following areas/issues:

- The methodology included scrutiny of records pertaining to Sewerage Infrastructure Projects (under the Namami Gange Programme) viz. State Ganga Committee (SGC) i.e. Bihar State Ganga River Conservation and Programme Management Society (BGCMS).

•Bihar Urban Infrastructure Development Corporation (BUIDCO) along with records of Bihar State Pollution Control Board (BSPCB) and Water Resource Department, Government of Bihar. Physical verification of three works was also conducted.

Audit Criteria:

The following audit criteria were used:

- a) Office memorandum and guidelines for implementation of schemes by the Government of India/ Government of Bihar including those of Central/State Pollution Control Board.
- b) Minutes of EC/ ESC of National Ganga River Basin Authority (NGRBA) and its programme framework. Central Public Health and Environment Engineering Organisation (CPHEEO) manual, River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.

Major Audit Findings:

Planning: Bihar State Pollution Control Board (BSPCB) identified (2020) 19 drains in Patna having discharge of 628.505 MLD (566.505 MLD in river Ganga and 62 MLD in its tributary Punpun river). It was also noticed that the assessment of sewage discharge was not based on actual discharge rather it was based on the projected population of the towns. Thus, with the present sanctioned capacity of Sewage Treatment Plants (STPs) in Patna, it was not possible to treat even the current sewage discharge in Patna.

Implementation of schemes: The Audit found irregularities in the construction of STPs in Patna. Non-completion of works was mainly attributed to non-availability of land, pending No Objection Certificate (NOC) from line departments, inadequate house connections etc.

Pending NOC from line Departments and non-availability of land for Sewage Pumping Stations (SPS): Audit observed (2020) that due to the lackadaisical approach of the State Government, out of total required NOC for 366.07 KMs, NOC for 107.97 KM was still (February 2021) awaited from the line departments which resulted in the delay in completion of these works.

Inadequate number of house connections with sewerage networks: Scrutiny of records revealed that house connection component was not included in agreement under test-checked six projects. Audit also observed that household connections were done ranging from 4 to 28 per cent only (December 2020). The delay in decision to ensure house connection by the contractor affected the overall achievement of the programme.

Unfruitful expenditure:

1. **Treated water quality deteriorated with raw sewage:**

The pre-mature decision of BUIDCO to enter into agreement for Operation and Maintenance (O&M) before completion of sewage network led to unfruitful expenditure of Rs 82.17 lakh as the treated effluent water quality had been compromised and the whole purpose of treatment was eventually defeated.

2. **Re-preparation of Draft Project Report (DPR) for use of treated water:**

Re-preparation of Draft Project Report for the use of treated water for six Sewage Treatment Plants (STP), resulted in unfruitful expenditure of Rs.1.47 crore.

Financial Outlay: Audit observed (November 2020) that only 16 to 50 per cent of funds were not utilised during the period 2016-17 to 2019-20. The progress of works was also very poor and against sanctioned cost, only 35.48 per cent of financial progress was achieved till December 2020. In the case of Kankarbagh and Digha STPs and Sewerage Networks, the financial progress was negligible which denotes poor performance in execution. Further, National Mission for Clean Ganga (NMCG) without ensuring the utilisation of previous instalments, released funds for the next instalments. As a result, huge fund of ₹683.10 crore (September 2019) remain parked in the Savings Bank Account of BGCMS and thus were remain idle.

Monitoring

The lack of effective supervision by the SPMG resulted in inadequate interdepartmental coordination regarding pending/withdrawal of No Objection Certificate from different departments for works of sewerage networks.

Conclusion:

- There was inadequate planning for sewage treatment in Patna town as the sanctioned capacities of STPs were only able to treat, half of the total present sewage discharge.
- Further, the execution of different projects is inordinately delayed due to slow progress by the agencies, non-identification of land for Sewage Pumping Stations (SPSs), puncturing of the effluent line of sewerage networks etc.
- There were issues relating to the injudicious award of work leading to extra expenditure, delay in obtaining NOC for the execution of work from different departments/authorities, inadequate house connection with sewerage networks etc.
- Further, no plan was prepared for the re-use of treated water as the preparation of DPR for the re-use of water is still in progress.
- The qualities of works were found sub-standard and substantive funds were parked in bank accounts.
- The BUIDCO failed to adhere to the stipulated timeline for completion of works, as no STP along with sewerage network completed to date and the discharge of sewage in Ganga and its tributaries could not be stopped in Patna as desired.
- The monitoring mechanism in respect of ensuring timely completion as well as maintenance of proper quality in execution of works was inadequate.

ENVIRONMENTAL SNIPPETS

By Jayant Sharma, Consultant

India achieves 10 per cent ethanol blending ahead of schedule (*The Hindu June 05 2022*)

On the occasion of World Environment Day on 5th June 2022 (Sunday) the Honourable Prime Minister Shri Narendra Modi said that India has achieved the target of 10 per cent ethanol blending in petrol five months ahead of the targeted timeline of November 2022. This is up from 1.5 per cent in 2014. There are three clear benefits of achieving this goal i.e. ethanol blending has led to a reduction of 27 lakh tonnes of carbon emission, saved foreign exchange worth Rs. 41,000 crore and Indian farmers have earned Rs. 40,600 crore in the last eight years. The ‘National Policy on Bio-fuels’ notified by the government in 2018 envisaged an indicative target of 20 per cent ethanol blending in petrol by 2020.

Panchayats with zero carbon footprints to be awarded - says Union Minister for Rural Development and Panchayati raj (*The Hindustan Times June 07 2022*)

The Union Minister for Rural Development and Panchayati raj Shri Giriraj Singh said on 5th June 2022 that climate change is impacting agriculture, not just production but also the quality of crops too. Expressing concern over climate change, the minister urged panchayats to think of planting environment-friendly trees like Sahajan, Peepal, Jamun etc. to reduce the level of carbon emissions. He further, said that the Central Government would now start a practice of conferring the award on village panchayats that have zero carbon footprints. The Central Government gives awards to the best performing village panchayats on National Panchayat Day.

Green Hydrogen: Fuel of the future? (*The Hindu May 27 2022*)

India is committed to reducing its greenhouse gas emissions by 33-35 per cent from the 2005 levels. In order to become energy independent by 2047, the Central Government stressed the need to introduce green hydrogen as alternative fuel.

With the objective of raising non-fossil energy capacity to 500 gigawatts by 2030, on 20th April 2022 India’s first 99.99 per cent pure green hydrogen pilot plant has been set up in eastern Assam with the goal of making the country ready for the production of hydrogen and its use in various applications.

Green hydrogen is the fuel of the future. It is produced through electrolysis using renewable sources of energy such as solar, wind or hydel power. It can be stored for a long period of time and the stored hydrogen can be used to produce electricity using fuel cells.

EV Greenthis incomplete truth (*The Dainik Bhaskar June 27 2022*)

According to ‘Society of Rare Earth’, to make an electric car, 8 kilograms (kg.) Lithium, 35 kg. Nickel and 14 kg. Cobalt is used which produces 4,275 kg of acid waste and 57 kg of radioactive during the removal of these metals from the earth. Thirteen thousand five hundred litres of water is also used for making an EV whereas in the production of a petrol car it is about 4,000 litres only. Therefore, electric cars are not as eco-friendly as we think they are and there is a need for more research in this area.

Glaciers are losing 9.5 million cubic meters of water every year – this is the base of Everest (*The Dainik Bhaskar June 23 2022*)

The glaciers of Mount Everest, the world’s highest mountain, are melting continuously due to excessive human activities and climate change. Every year 9.5 million cubic meters of water is lost by melting ice. It takes two thousand years for glaciers to form while they can melt in 25 years only. According to the report, there is a base camp for climbing Everest on the rapidly melting Khumbu Glacier, from where about 1,500 people reach to climb Everest in the spring season. For this reason, a proposal has been brought to shift the camp to save the melting glacier.

What India is doing to tackle its water crises (*The Times of India June 11 2022*)

In the 75 years since independence, annual per capita availability of water has declined by 75 per cent from 6,042 cubic meters in 1947 to 1,486 cubic meters in 2021. Not only are we staring at depletion of groundwater and pollution of surface water, but also vanishing water bodies. Indiscriminate use of water for irrigation and the absence of conservation efforts also have leftover 10 per cent of water bodies in rural areas redundant.

Looking to the situation as dire, the Central Government started Jal Shakti Abhiyan (JSA) in 2019 as a movement for water conservation, recharge and rainwater harvesting. The JSA covers all 740 districts in the country. States are implementing it, while the Centre provides the nudge. The Centre has urged states to focus on enumerating, geo-tagging and making an inventory of all existing water bodies on priority under the JSA so that encroachment can be prevented.



*Look deep into nature, and
then you will understand
everything better.*

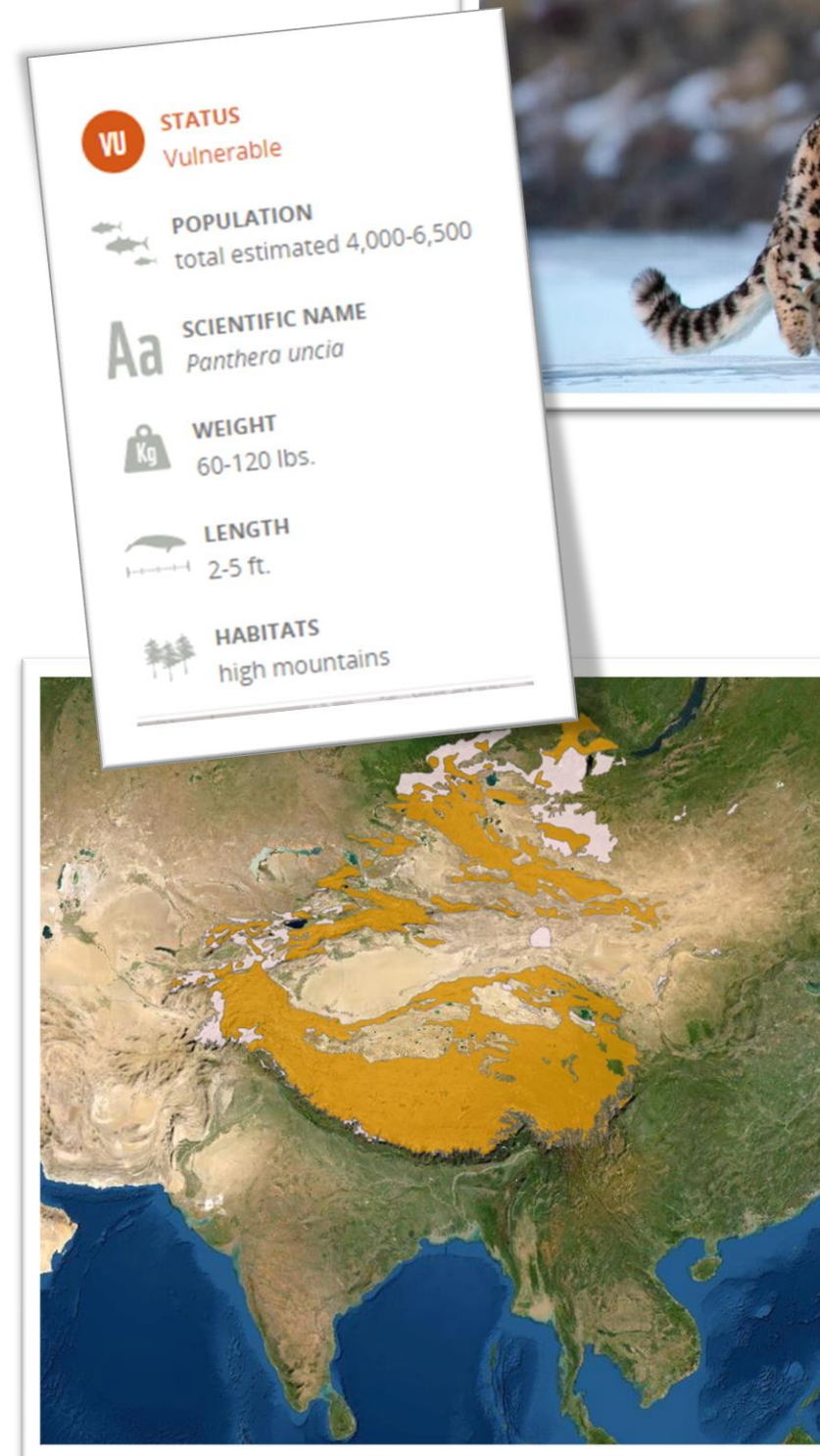
Albert Einstein

GREEN INITIATIVES - CONSERVATION OF SNOW LEOPARDS BY KIBBER VILLAGE COMMUNITY

by Vikas Dhir AAO

Background: The snow leopard (*Panthera uncia*), a high-altitude large cat with smoky-grey fur patterned with dark-grey rosettes, lives in the Indian Himalayas. The snow leopard's habitat range extends across the mountainous regions of 12 countries across Asia: Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Nepal, Pakistan, Russia, Tajikistan, and Uzbekistan. The total range covers an area of close to 772,204 square miles. However, more than 70 per cent of snow leopard habitat remains unexplored. The snow leopard population is very likely declining. Fewer than 700 snow leopards survive in India's high mountains and are classified as 'vulnerable' on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, with a decreasing population trend.

The snow leopard's habitat in Himachal Pradesh extends throughout the districts of Lahaul-Spiti and Kinnaur. Its potential habitat also includes the upper regions of Shimla, Kullu, Chamba, and Kangra districts. Kibber is a small village located in the Lahaul and Spiti district of the Trans-Himalayan terrain of the Indian state of Himachal Pradesh. The town is close to the Kibber Wildlife Sanctuary, which is home to the elusive leopard.



Snow Leopard range in the mountains of Central Asia



Need for the Initiative: Uncontrolled domestic livestock grazing caused a reduction in the grazing space for wild ungulates like blue sheep and ibex, which in turn caused a sharp drop in the population of the snow leopard's natural prey base. As a result, the number of instances of snow leopards preying on domestic livestock significantly increased. Snow leopard and wolf predation resulted in an estimated annual loss of 12 Per cent of livestock herds in 1996. As a result, the leopards were killed in retaliation, frequently by poisoning the bodies of their prey.

Conservation initiatives and impact: In order to boost the natural prey base by creating village reserves, where communities voluntarily reduce livestock grazing, the Nature Conservation Foundation (NCF) and the Kibber village community launched conservation activities in 1998.

The reserve had a total area of 20 square kilometres as of 2019. Apart from supporting the population of wild ungulates, the village reserves provide ecological services such as carbon storage, erosion control, climate mitigation, and pollination. A community-managed livestock insurance programme was also formed, which compensated members when a carnivore killed their cattle.

In consultation with community members, the Village Council supervises premium collection, verification of depredation incidents reported by locals, and payment of compensation for verified cases. Since its beginning, the community-run livestock insurance programme has reimbursed community members for 500 cases of livestock depredation, with a total compensation payment of more than USD 70,851.6.

To monitor the movements and population of snow leopards, the community has installed cameras across the village reserve. Local guards have been posted in agricultural fields to prevent crop damage from wild ungulates, hence preventing such species from being hunted. There have been no instances of retaliatory killing of snow leopards by locals in the past two decades. The population of Blue sheep in pastures surrounding Kibber has risen from an estimated 100 in 1998 to 400 in the year 2018.

This initiative is being put to use by locals through niche wildlife-based winter tourism. Kibber is quickly becoming the snow leopard capital of the globe. The amount of space required for each animal (based on age and sex), the factors that determine the quality of a range, such as the availability of prey, topography, and disturbance, as well as the Snow Leopard's mobility across barriers both man-made and natural, are all crucial concerns in the conservation of this species.



Community members in Kibber hold a livestock insurance meeting. Photo by NCF India/ Snow Leopard Trust

Additionally, it is crucial to comprehend conflicts and how particular snow leopards fit into them. The initiatives led by the Kibber village community to protect this elusive creature have proved again that humans and nature can live in harmony if they both respect each other's boundaries.

RESPONDING TO NON-COMPLIANCE WITH BIOSECURITY REQUIREMENT- PERFORMANCE AUDIT BY AUSTRALIAN NATIONAL AUDIT OFFICE

*by Anupam Srivastava Sr.AO***Background and rationale:**

In June 2016, the Australian Government introduced a new biosecurity legislative framework, including the Biosecurity Act 2015 (the Act), to manage biosecurity risks in Australia. The Act provides a range of regulatory tools to manage non-compliance. These tools are designed to enable efficient and effective management of non-compliance, targeted to the level of risk.

Tools available to respond to non-compliance include monitoring and investigation powers, engagement and education, administrative actions (such as varying, suspending or revoking permissions), civil sanctions and criminal prosecution. The audit topic was identified as an audit priority for 2019–20 by the Joint Committee of Public Accounts and Audit, the House Standing Committee on Agriculture and Water Resources and the Senate Rural and Regional Affairs Committee. This audit aimed to provide assurance over the establishment of an effective risk-based

approach to respond to non-compliance while minimising the impact on compliant entities, and over the effective implementation of the regulatory tools available to manage non-compliance under the Act.

Audit objective:

The objective of the audit was to assess the Department of Agriculture, Water and the Environment's (the department's) effectiveness in responding to non-compliance with plant and animal biosecurity requirements.

Audit criteria:

- Has an appropriate compliance framework been established?
- Are there appropriate arrangements to detect non-compliance?
- Is the use of regulatory tools in response to non-compliance effective?

Conclusion:

The department's arrangements to respond to non-compliance with biosecurity requirements are largely inappropriate. In the absence of frameworks, plans or targets to determine

the desired outcomes of its regulation, the department is unable to demonstrate that its response to non-compliance is effective at managing biosecurity risks.

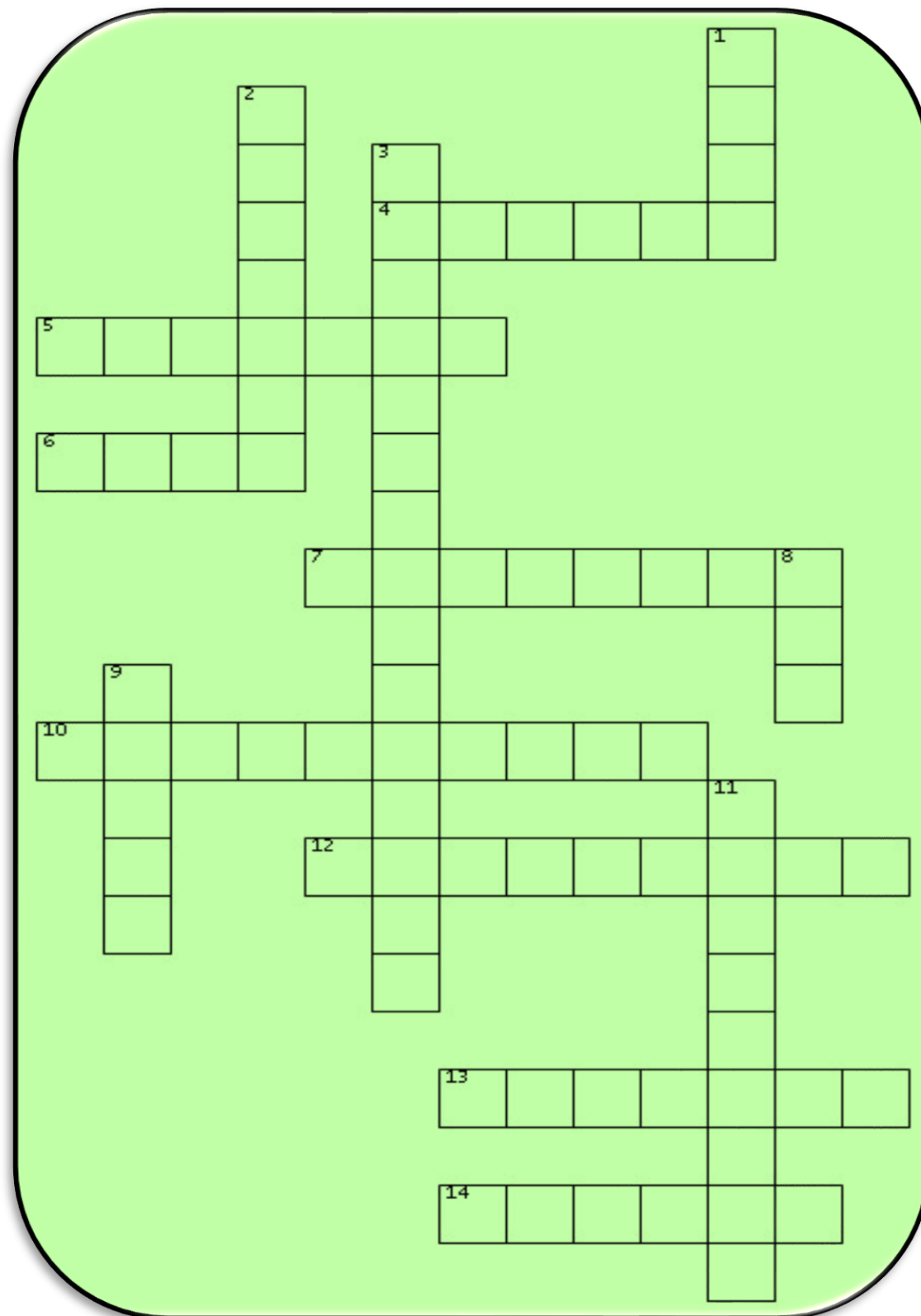
The department's compliance framework is largely inappropriate to support its response to non-compliance with biosecurity requirements. Arrangements to detect non-compliance are partially appropriate. The targeting of detection activities is not supported by a framework to allocate resources to pathways or emerging threats proportionately to risk, but there are partially appropriate processes to target individual items and entities within pathways. Key limitations to procedures, systems and the conduct of detection activities prevent them from fully supporting the detection of non-compliance. Departmental estimates indicate that some detection activities may have become more effectively targeted, but that undetected non-compliance is increasing. The use of regulatory tools in response to non-compliance is partially effective. The department does not effectively use the full suite of regulatory tools available and is not able to clearly demonstrate that the use of these tools supports the management of biosecurity risk. performance measures have only been established to measure the effectiveness of two out of five biosecurity pathways, and the department was unable to demonstrate their use to inform its regulatory approach.

Recommendations:

- The Department of Agriculture, Water and the Environment implement a strategy and accompanying procedural guidance for its use of intelligence in regulating biosecurity by July 01 2022. The strategy and guidance should establish how intelligence needs will be identified and prioritised, how information will be obtained to meet those needs, and how intelligence products will support the range of decisions made by the department.

- The Department of Agriculture, Water and the Environment implement a framework to assess and manage risk across the entire biosecurity system by July 01 2022. The framework should include, for all components of the biosecurity system: processes to assess both the consequences and likelihood of non-compliance; risk tolerances; review arrangements; and arrangements to escalate, communicate and prioritize risks.
- The Department of Agriculture, Water, and the Environment implement and publish a planning framework by July 01 2022 to establish its: approach to biosecurity regulation; long-term strategic goals and approach to achieving them; and regulatory focuses for each year.
- The Department of Agriculture, Water and the Environment implement improved governance arrangements for information system developments to:
 1. Identify and prioritise system redevelopment needs;
 2. Align and coordinate IT redevelopment projects occurring separately to provide the greatest collective benefit; and
 3. Improve project reporting to monitor projects against the intended benefits set out at project commencement.
- The Department of Agriculture, Water and the Environment establish a performance framework for its biosecurity regulation by July 01 2022. The framework should:
 1. Include internal and external measures of effectiveness and efficiency for each biosecurity pathway and the biosecurity system as whole;
 2. Identify how performance measures will be used to inform the department's regulation;
 3. Ensure staff and executive training is undertaken on the requirements of the Commonwealth performance framework; and
 4. Establish how information management issues will be managed to ensure appropriate performance information is available.
- The Department of Agriculture, Water and the Environment implement, by July 01 2022, a framework to ensure the resources allocated to pathways and threats is proportionate to the level of risk. This should align with the risk assessment framework in Recommendation no.2, and should contain arrangements for periodic review.
- The Department of Agriculture, Water and the Environment implement a framework to support the effective use of the full suite of available regulatory tools by July 01 2022, including:
 - policies, procedures and supporting documentation for all available regulatory tools;
 - arrangements to ensure regulatory tools are used in a way that is enforceable and consistent with procedural and legislative requirements; and
 - arrangements to evaluate, monitor and report on whether the use of regulatory tools is effectively and efficiently managing biosecurity risk (this should align with the performance measurement framework outlined in Recommendation no.5).
- The Department of Agriculture, Water and the Environment put in place governance arrangements, by July 01 2022, to ensure that once agreed audit recommendations are implemented, the processes that have been implemented are reviewed and updated at agreed intervals, to ensure they remain fit-for-purpose over time.

CROSS THE GREEN WORD



ACROSS

4. The civic body of this city has started to generate revenue from carbon credits by selling carbon offsets to buyers in the international market.
5. This state has got a new Ramsar site on the occasion of World Wetland Day 2022 (2nd January 2022).
6. The Union government in India, has banned the use of ‘single-use plastic’ from which month of the year 2022?
7. This is the state butterfly of Sikkim. (*Hint- A royal member in blue attire*)
10. The set of five commitments announced by Prime Minister Shri Narendra Modi at CoP 26 in Glasgow.
12. India’s largest floating solar power project is commissioned in this state.
13. UNEA resolution adopted a resolution in March 2022 to bring an end to which type of pollution?
14. The United Nations Food and Agriculture Organisation (UN-FAO) along with Arbor Day Foundation has recognized this city along with Hyderabad as the ‘2021 Tree City of the World’.

DOWN

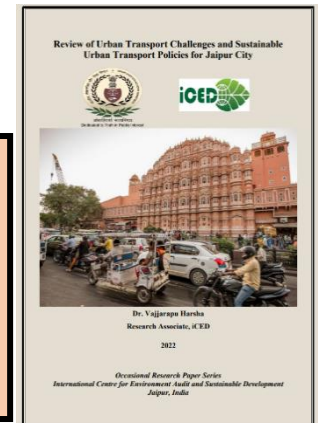
1. The global initiative launched by Prime Minister Shri Narendra Modi on the occasion of “World Environment Day” on June 5, 2022 (An Acronym).
2. Prime Minister Shri Narendra Modi signed a joint declaration of intent (JDI) establishing the Green and Sustainable Development Partnership with this Country.
3. This state launched the “Single-Use Plastic Buy Back Scheme” in June 2022.
8. The plastic waste management rules, of 2016 were amended to include the guidelines on this policy approach (An acronym).
9. A village panchayat in this Union Territory has become India’s first panchayat to become carbon neutral, fully solar energy powered.
11. The first state in the country to surpass 10 GW of cumulative large-scale solar installations.

References

iCED's Occasional Research Paper Series

Occasional Research Paper on “Review of Urban Transport Challenges and Sustainable Urban Transport Policies for Jaipur City” by Dr. Vajjarapu Harsha Research Associate, iCED is uploaded on iCED's website.

The Research Paper can be accessed through this link. <http://iced.cag.gov.in/wp-content/uploads/final%20research%20paper%20sustainable%20transport%20Jaipur.pdf>



iCED/INTOSAI WGEA News

<https://www.environmental-auditing.org/news-events/intosai-wgea-has-published-an-experience-sharing-report-on-the-citizen-participatory-audit-cpa-approach-written-by-sai-philippines/>

<https://www.environmental-auditing.org/>

Environmental News

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1813642>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1835009>

<https://pib.gov.in/PressReleasePage.aspx?PRID=1838489>

<https://pib.gov.in/newsite/PrintRelease.aspx?relid=234925>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1831364>

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1837927>

Making water and sanitation a part of the nation's economic

The True Cost of Poor Sanitation, 2016

Swachh Bharat Mission (Urban) Dashboard. <http://sbm.gov.in/sbmdashboard/IHHL.aspx>

Business Standard, 2018 (https://www.business-standard.com/article/economy-policy/swachh-bharat-sanswachh-cities-post-toilet-crisis-scourge-of-urban-areas-118100100895_1.html)

DownToEarth, (<https://www.downtoearth.org.in/news/waste/lack-of-access-to-sanitation-a-drain-on-global-economy-55604>)

Green Facts, Wastewater management and sustainable development, (<https://www.greenfacts.org/en/wastewater-management/1-2/index.html>)

Stockholm+50: a healthy planet for the prosperity of all – our responsibility, our opportunity

<https://www.stockholm50.global/>

<https://wedocs.unep.org/bitstream/handle/20.500.11822/40110/Key%20Messages%20and%20Recommendations%20-%20Formatted.pdf?sequence=1&isAllowed=y>

Compliance Audit OF Development of Sewerage Infrastructure in Patna under Namami Gange Programme report No. 5 of 2021

https://cag.gov.in/uploads/download_audit_report/2020/05-%20Report%20No-5%20-English%20-%20Chapter%20-%203-06244310a0bd463.62428332.pdf

State in Focus- Tamil Nadu

<https://tnbb.tn.gov.in/tnbb.php>

<https://www.mapsofindia.com/maps/tamilnadu/>

http://tnenvis.nic.in/database/tn-envis_791.aspx

<https://www.environment.tn.gov.in/Document/tnsapcc/Chapter%204.pdf>

<https://www.adb.org/sites/default/files/linked-documents/51308-001-sd-05.pdf>

[https://www.environment.tn.gov.in/template/news/Rare%20and%20endemic%20flora%20of%20Tamil%20Nadu%20book%20-%20final%20\(HQ\).pdf](https://www.environment.tn.gov.in/template/news/Rare%20and%20endemic%20flora%20of%20Tamil%20Nadu%20book%20-%20final%20(HQ).pdf)

<https://tnbb.tn.gov.in/tn-glance.php>

<https://www.environment.tn.gov.in/Document/tnsapcc/Chapter%204.pdf>

<https://tnbb.tn.gov.in/tn-wild.php>

https://www.forests.tn.gov.in/pages/biodiversity_wild

<https://sdgindiaindex.niti.gov.in/#/state-compare?goal=1&area=IND033&timePeriod=2020>

Green Initiatives-

http://www.ecosystemsbasedsolutions.in/index.html_p=95.html

<https://timesofindia.indiatimes.com/city/shimla/forest-guard-captures-snow-leopard-family-on-camera-revives-hopes-for-big-cat/articleshow/63261048.cms>

http://cpreecenvi.nic.in/KidsCentre/Upto30snowleopardsinKibberwildlifesanctuaryofSpiti_5328.aspx

<https://hpforest.nic.in/pages/display/c2RmYTVhiHZkZmE1Ng==project-snow-leopard>

<https://www.outlookindia.com/website/story/first-ever-study-on-snow-leopards-shows-population-in-himachala-has-increased/373534>

<https://www.worldwildlife.org/species/snow-leopard>

Responding to Non-Compliance with Biosecurity Requirement- performance audit by Australian national audit office <https://www.anao.gov.au/work/performance-audit/responding-to-non-compliance-biosecurity-requirements>

Biodiversity in iCED, Jaipur

https://en.wikipedia.org/wiki/Jungle_babbler

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Biodiversity in iCED, Jaipur



Jungle Babbler (*Argya striata*)

© Suman Dutta, AAO,

O/o Director General of
Audit (Central), Kolkata

The jungle babbler (*Argya striata*) is found in the Indian subcontinent. Jungle babblers are gregarious birds that forage in small groups of six to ten birds, a habit that has given them the popular name of "Seven Sisters" in urban Northern India, and Saath bhai (seven brothers) in Bengali, with cognates in other regional languages which also mean "seven brothers". The jungle babbler's habitat is forest and cultivation. They feed mainly on insects, but also eat grains, nectar and berries. It has short rounded wings and a weak flight. They are known to gather and mob potential predators such as snakes.

The jungle babbler lives in flocks of seven to ten or more. It is a noisy bird, and the presence of a flock may generally be known at some distance by the harsh mewing calls, continual chattering, squeaking and chirping produced by its members.

Conservation status



Least Concern (IUCN 3.1)^[1]

Scientific classification

Kingdom: [Animalia](#)

Phylum: [Chordata](#)

Class: [Aves](#)

Order: [Passeriformes](#)

Family: [Leiothrichidae](#)

Genus: [Argya](#)

Species: ***A. striata***

Binomial name

Argya striata

([Dumont](#), 1823)

