

Green Files

December 2018



INTERNATIONAL CENTRE FOR ENVIRONMENT
AUDIT AND SUSTAINABLE DEVELOPMENT
JAIPUR



GREEN FILES

(Newsletter on Environment Audit and Sustainable Development issues)

EDITORIAL

Green Files, a quarterly newsletter published by iCED features glimpses of recent environment news, persons and environment projects in focus. Emerging trends in innovation, initiatives and efforts of different environment organizations to protect the environment find occasional reflection in this newsletter. Court judgements on environment issues as well as recent national and international audit reports on environment and sustainable development, are also included in this issue.

During the quarter October- December 2018, iCED conducted its flagship International training programme (ITP) on “Introduction to Environmental Auditing”. Inclusion of modules on “Greening SAIs; Market Based Instruments; Audit of SDGs; Environmental Assessments & its Audit and Renewable Energy and Energy Efficiency” were the highlights of this programme. Continued patronage of various supreme audit institutes reflected in sponsoring participants and their active support in providing faculty constitute critical success factors of this programme. **Marking a first, valediction of this programme on 8th December 2018 was chaired by Mr. Moermahadi Soerja Djanegara, Chairman of the Audit Board of the Republic of Indonesia as the Chair of INTOSAI WGEA. The programme was also graced by Shri A.W.K Langstieh, (Additional Deputy Comptroller & Auditor General).**

iCED also organised a two days training programme for officers of the rank of Chief Commissioner to Joint Director on “*Greening of Offices: Environment Management in Government Establishments*”. This programme was requested by Director General (CBIC). It is a matter of satisfaction that Chairman, CBIC in his valedictory address through video conferencing complemented iCED for conducting this programme.

We at iCED, look forward to your suggestions to make Green Files more useful and appealing. Contributions in any form within the broad scope of the newsletter are encouraged. These may be mailed to iced@cag.gov.in

With regards,

Sunil Dadhe
Director General, iCED

<i>Contents</i>		<i>Page</i>
<i>Editorial</i>		<i>1</i>
<i>Contents</i>		
<i>I. iCED News</i>	<i>Vijendra Tanwar</i>	<i>3</i>
<i>II. INTOSAI and ASOSAI News</i>	<i>Manoj Kumar</i>	<i>5</i>
<i>III. State in Focus :- Telangana</i>	<i>Virendra Jakhar</i>	<i>6</i>
<i>IV. Environmental News</i>	<i>Gaurav Jain and Satpal</i>	<i>9</i>
<i>V. 24th Conference of Parties (COP 24)</i>	<i>Manoj Kumar</i>	<i>15</i>
<i>VI. Case Law - Order of the National Green Tribunal regarding contamination of water bodies at Bengaluru - Bellandur lake, Agara lake and Varthur lake</i>	<i>Manoj Kumar</i>	<i>16</i>
<i>VII. Critical discussion of rules / laws</i>	<i>Pawan Meena</i>	<i>18</i>
<i>VIII. National Audit Report -Performance audit of Rejuvenation of River Ganga (Report 1 of 2018- Government of Uttarakhand)</i>	<i>Sandeep Pawar</i>	<i>20</i>
<i>IX. International Audit Report: Audit Report on Air Quality by National Audit Office, UK</i>	<i>Gaurav Jain</i>	<i>26</i>
<i>X. The 6th International Training Programme on Introduction to Environment Auditing</i>	<i>Thandiwe Kapotwe Sibalwa SAI Zambia</i>	<i>29</i>

I. iCED News

During last quarter iCED conducted the sixth edition of its flagship International Training Programme on “Introduction to Environmental Auditing” as Global Training Facility of INTOSAI WGEA, from 26th November to 08th December, 2018. 19 participants representing 11 Supreme Audit Institutions (SAIs) across the world viz. Bhutan, Botswana, El Salvador, Fiji, Ghana, India, Malaysia, Saudi Arabia, Sudan, Vietnam and Zambia attended the programme. SAIs of Bhutan, Estonia, Indonesia, India and European Court of Auditors contributed trainers for various modules. Important topics such as “Greening SAIs”; “Market Based Instruments”; “Audit of SDGs”; “Environmental Assessments and its Audit” and “Renewable Energy and Energy Efficiency” were also included in addition to other topics in this programme.



Participants of International Training Programme with Director General, iCED

Teaching methods during the training programme included both formal lectures as well as various individual and group exercises, etc. Each topic was divided into theory and practical part comprising case studies.

During the programme, a field visit to Tarun Bharat Sangh (TBS), a non-governmental organization located at Kishori- Bhikampura in Alwar district of Rajasthan was organised to

illustrate sustainable water conservation practices.



Participants of International Training Programme at Tarun Bharat Sangh

As a part of biodiversity module, trip to Keoladeo National Park, Bharatpur was organized. The park is a world heritage wetland and a Ramsar site.



Participants of International Training Programme at Keoladeo National Park

Mr. Ajit Uchoi, Dy. Conservator of Forest (Wildlife), Bharatpur also briefed the participants about biodiversity and habitat conservation measures undertaken by forest department and the challenges due to socio-political conflict over resources.

Participants also visited Taj Mahal at Agra and were overwhelmed by craftsmanship.



Participants of International Training Programme at Taj Mahal

Feedback from the participants was highly motivating and indicated that they learnt a lot and training enhanced their understanding of various subjects and associated issues. Commenting on the quality and usefulness of the training programme, Ms Simbalwa Thandiwe from SAI, Zambia expressed that *“The onus for sustainably managing our environment to save our globe cannot be overemphasized. The course was structured to include all aspects of environmental issues that affect the planet and all of us could relate to them in one way or another during our lessons. With the knowledge obtained we shall therefore be able to use tools and principles learnt in various audits in our country. The quality of audits would obviously be enhanced with the tools that we have learnt from the training. This will help us in improving the quality of our work.”*

Mr. Stephen Narkotey from SAI, Ghana stated that *“This training has given us opportunity to share experience with fellow participants on environment related issues. Experiences from countries like Estonia on waste management was shared with us by the faculty, experiences from European Court of Auditors on climate change, experiences from Indonesia on water harvesting matters were all shared by the faculty. We are taught that various goals of SDGs are interlinked and can be approached. We are also taught how to audit preparedness for implementing the SDGS in our various countries. All the other*

environmental issues were tackled and we have been taught the tools that we can use to conduct the environmental audits successfully for example direct analysis, audit methodology, stake holder analysis, Audit design matrix and RACI (responsible, accountable, consulted and informed). We have also learnt ISSAIs that will give public confidence about the work we do. We should learn how to green our SAIs we should start and others will follow. All participants are now prepared to conduct more audits on environment related issues in our countries.”

Valedictory session was chaired by Mr. Moermahadi Soerja Djanegara, Chair of INTOSAI WGEA and Chairman of the Audit Board of the Republic of Indonesia. Shri A.W.K Langstieh, Additional Deputy Comptroller and Auditor General (ADAI) and Director General (iCED) also graced the occasion.

ADAI in his address remarked that global SAI community is expected to assume responsibility for ensuring accountability in implementation of the agreed Sustainable Development Goals agenda. SAI India has been playing a very active role in the sphere of audit of environment and sustainable development issues. Initiative of capacity building of SAI India with the partnership of INTOSAI WGEA is bearing fruit and iCED is proving to be an important instrumentality of this partnership. iCED assuming this responsibility, hosted first international training programme on introduction to environment audit in November, 2013 and the ADAI expressed his happiness on witnessing the sixth edition of such programme.

Chairman, INTOSAI WGEA in his valedictory address highlighted that environment audits have a significant impact on management of environment and sustainable development issues around the world. We can directly link positive environment results to the input and effect of environment audit. Appreciating the role of iCED he stated that *“Recent surveys indicate that one of the main expectation of WGEA members is to receive training on environmental auditing. Hence, it is rewarding to have iCED as a global training facility in this worthy pursuit.”*

iCED also conducted a two day training programme during 16th -17th November, 2018 for Indian Revenue Service (IRS) officers of the level of Commissioner, Pr. Commissioner/Chief



IRS officers with Director General, iCED

Commissioner of Customs/GST under Central Board of Indirect Taxes and Customs (CBIC) on “Greening of Offices”.

The programme was attended by 25 senior level officers of CBIC. This training programme aimed at generating awareness on concepts like Ecological and Carbon footprint; GRIHA ratings for Green Buildings, Indoor air quality issues, Energy Efficiency, Energy Conservation and Water conservation in buildings and Water Audits for Demand Management. This programme emphasised the need for change of attitudes in addition to adoption of good practices.

Two National Training Programmes viz; “*Audit of initiatives for Sustainable Cities and Communities*” and “*Audit of schemes and interventions towards Affordable Energy*” and training for UN audit teams assigned audits of Vol. I, UNICEF, UNOPS, UNCC & ITC were also conducted during the quarter.

➤ **Vijendra Tanwar**

II. ASOSAI/ INTOSAI News

UN Global Workshop for SDG VNR Knowledge Exchange held in Geneva¹

On 17 October 2018 the INTOSAI General Secretariat participated in Geneva within the UN-DESA Global Workshop for SDG Voluntary National Reviews (VNR). The workshop was a

Knowledge Exchange on approaches and tools for the VNRs to be presented the UN High Level Political Forum.

To offer 50 participating countries the opportunity to learn about different tools, methodologies and approaches that could support them in the preparation of their VNRs, UN-DESA had invited more than 20 UN entities, international organizations, Civil Society Organizations and stakeholders to facilitate an intensive knowledge exchange.

Selected stakeholders - among them INTOSAI - presented in short information “pitches” approaches and tools that could be helpful in the VNR preparation process as well as for implementing the 2030 Agenda more generally.

In addition, six small workshops were organized where the invited organizations acted as knowledge facilitators for the member states. The information on INTOSAI approaches, methods already conducted audits on the preparedness of national governments to implement of the SDG as well as on SDGs related INTOSAI activities were highly appreciated and welcomed by the participants.

12th WGFACML Meeting²

The Supreme Audit Institution of Mexico hosted 12th INTOSAI WGFACML (Working Group on the Fight Against Corruption and Money Laundering) Meeting from 2nd-5th October 2018. The meeting was attended by delegates from 10 member SAIs and chaired by Counsellor, Hesham Badawy, President of the Accountability State Authority of Egypt and WGFACML Chair.

The Working Group is to promote a proactive role and international cooperation between INTOSAI and their members in fight against money laundering in a manner consistent with the competencies and authorities of SAIs and independence requirements of INTOSAI.

The Working Group's aims include

- i. Promotion of international cooperation in fight against money laundering, both

¹Source: <http://www.intosai.org/news/021018-14-asosai-assembly.html>

² Source: <http://www.intosai.org/committeesworking-group/task-forces/goal-3/wgfacml.html>

among SAIs and with other international organizations.

- ii. Identifying and sharing policies and strategies for combating money laundering within competencies and authorities of SAIs.
- iii. Designing and promoting policies, strategies and actions within the international anti-money laundering legal framework of each SAI.

Autumn 2018 INTOSAI Journal³

The Autumn 2018 edition of the INTOSAI Journal was released online at www.intosaijournal.org, highlighting the Sustainable Development Goals and Environmental Auditing. It contains -

- An insightful editorial from Pamela Monroe-Ellis, Auditor General of Jamaica highlighting SAI's journey in contributing to SDGs' achievement.
- Enriching feature stories on SAI Indonesia's use of strategic environmental assessments to address sustainability; SAI Thailand's joint approach combined with experiential learning to improve environmental performance audits and SAI Poland recent experience in auditing national SDGs implementation preparedness.
- The latest SAI news on Auditor Generals appointments, conferences and innovative initiatives along with special reports on goal chair committee meetings, regional congress and assemblies.
- A unique perspective on building SAI's capacity through technical support in this edition's Spotlight on Capacity Building.

➤ **Manoj Kumar**

³ Source: <http://www.idi.no/en/all-news/idi-news/item/291-the-latest-intosai-journal-issue-is-available>

III. State in Focus: Telangana

Telangana is the 29th state of India, formed on the 2nd June 2014. The state has an area of 114,865 sq. km. ranked 12th in India and has population of 35.19 million, as per 2011 census. Telangana region was part of the Hyderabad state from September 17th 1948 to November 1st 1956, until it was merged with Andhra state to form the Andhra Pradesh state.

After decades of movement for a separate state, Telangana was created by passing the AP state Reorganization Bill 2014 in both houses of Parliament. Telangana is surrounded by Maharashtra and Chhattisgarh in the North, Karnataka in the West and Andhra Pradesh in the South and East directions. Major cities of the state include Hyderabad, Warangal, Nizamabad and Karimnagar.

The state has a varied topography ranging from the hill ranges of Eastern Ghats and Nallamalais to Deccan Plateau, river valleys of Godavari and Krishna which supports a variety of eco types, rich in their bio-diversity and supports a variety of floral and faunal forms.

The state is administered in terms of 10 Districts which are further subdivided in to 459 Revenue Mandals.

(a) Forests ⁴

Total recorded forest area in the state is 26904 sq. km. (Reserved forest-20353 sq. km., protected forest - 5939 sq. km. and unclassed forest- 612 sq. km.); constituting 23.42% of the geographical area of the state and 3.52% of India's forest area (Forest Survey Report 2015). The per capita forest area is 0.069 Ha.

Forests of the state are classified as (1) Tropical Dry Deciduous (2) Southern Tropical Moist Deciduous and (3) Southern Tropical Thorn forests. The state is also bestowed with dense Teak forest along the banks of river Godavari right from Nizamabad to Khammam district. These forests are home for several deciduous

⁴ Source: <http://forests.telangana.gov.in/Documents/AAR/AAR14-15.pdf>

species like Nallamaddi, Yegisa, Rose wood, Narepa, Bamboo in addition to Teak.

Most of the forest area were highly degraded owing to biotic pressure and overuse of forest resources. Since last one decade most of the degraded areas have been reclubbed with the implementation of Community Forest Management programme.

The tangible benefits derived from Forests like Timber, Bamboo, Fuel wood, Fodder, Non-Timber forest Products etc., are quantifiable. Intangible benefits like maintenance of ecological balance, Bio-diversity conservation, conservation of soil and moisture, regulating the water flow, Green House Gas mitigation, sequestering carbon-dioxide from the atmosphere etc. are not quantified but are of great significance. The intangible benefits are not taken into account while computing the national income accounts and hence the real contribution of the forestry sector is grossly underestimated.

There has been reduction in area of Moderately Dense Forest and Open Forest to the extent of 15.80 sq. km. and 19.05 sq. km. respectively. Decrease in forest cover were mainly due to rotational/clear felling of commercial plantations, encroachment and other biotic pressures. Positive changes in forest cover of certain districts are attributed to plantation activities.

(b) Biodiversity⁵

Telangana state is known for its rich heritage in biological diversity distributed in nine agro climatic regions.

The state is endowed with rich diversity of flora and fauna with over 2939 plant species, 365 bird species, 108 mammal species, 28 reptile species and 21 amphibian species in addition to large number of invertebrates. Among the fauna, there are 108 species of mammals that include Tiger, Leopard, Sloth Bear, Giant Squirrel, Hyena, Fox, Wild Dog, Wild Boar, Indian Bison(Gaur),

Spotted Deer, Barking Deer, Black Buck, Four-horned Antelope, Blue Bull, Sambar, Mouse Deer, Honey Badger, Civets, Jungle Cats, Otter, Pangolin, Bats, Tree Shrew, Common Langur etc. Important endangered species found in the state are Tiger, Leopard, Indian Gaur, Four Horned Antelope, Black Buck, Marsh Crocodile etc.

Biodiversity Heritage Sites are well defined areas that are unique ecologically fragile ecosystems - terrestrial, fresh water or marine having rich biodiversity comprising any one or more of the components such as

- Species richness
- High endemism
- Rare, endemic and threatened species
- Keystone species
- Species of evolutionary significance
- Wild ancestors of domestic / cultivated species or land races or their varieties
- Areas of fossil beds having cultural, ethical or aesthetic values.

The state biodiversity board, after due consultation with the local bodies and other stakeholders recommends to the state government for setting up of biodiversity heritage sites.

The state government in turn notifies the biodiversity heritage sites after consultation with the central government.

(c) Water Pollution:⁶

Approximately 75% of Telangana's surface water is contaminated by human, animal, agricultural and industrial waste, while its groundwater often contains high levels of fluoride and other contaminants. Water and sanitation-related illnesses account for 70-80% of disease. During the three-month dry season beginning March, water scarcity and drought are common; many women walk over an hour each day to find water that is ultimately still unsafe.

⁵ Source:

<http://www.tsbiodiversity.org/biodiversityprofile.html>

⁶Source:

<https://www.safewatnetwork.org/expansions/telangana,https://www.deccanchronicle.com/lifestyle/pets-and-environment/250716/hyderabad-pollutants-in-musi-rise-river-becomes-sewage.html>

Case 1: Despite several attempts by various governments, the river Musi, which cuts across Hyderabad, continues to be one of the most polluted rivers in the country.

The river, which once upon had clean water, receives nearly 645 million liters per day (MLD) of sewage water and is the eighth most polluted river.

Musi is a tributary of river Krishna and sarcastically referred to as the city's sewage drain because most of sewage generated by Hyderabad ends up there.

As per data of Telangana State Pollution Control Board (TSPCB), main indicators of water quality — the values of biochemical oxygen demand, chemical oxygen demand and total dissolved solids have not improved since 2007. TSPCB monitors water quality at nine points along river. While the BOD figures have doubled, COD has more than tripled. Value of total coliforms is almost the same. The only relief is that compared to figures from 2011-14, only the BOD value has decreased.

According to TSPCB, mixing of sewage is a major issue. It needs to be controlled to improve the water quality. Industrial effluents are also a problem but they just form a small percentage of the pollutants, which get mixed directly into Musi.

Case 2:

Rains always give jitters to the farmers of Patancheru, Jinnaram, Bollaram and Khajipally industrial areas in the Sangareddy district. Farmers from these areas allege that when it rains, the industries situated in the area releases chemical water along with the flood water into open areas, polluting groundwater and tanks. However officials do not take any action.

TSPCB had repeatedly asked industries in district to process polluted water in their wastewater chemical treatment plants and test the water before releasing it into open areas. TSPCB officials have warned them several times and also issued notices. As closure of any firm will affect

the employment of the employees, shutting down such industries forever is also not viable option.

As a result of the irresponsible behavior of the owners of local industries, the ground water in the Patancheru industrial area and some nearby villages have been polluted.

(d) Municipal Solid Waste management ⁷

Solid Waste Management is one of the most vital services for maintaining the quality of life in the urban areas and for ensuring better standards of health and sanitation. Institutional weakness, shortage of human and financial resources, improper choice of technology, inadequate coverage and lack of short and long term planning are responsible for improper management of wastes.

Municipal Solid Waste (MSW) are mainly known as “trash or garbage and consists of all domestic refuse and non-hazardous wastes such as commercial and institutional wastes, street sweepings and construction debris”. MSW are primarily generated from households, but also includes wastes from offices, hotels, shopping complexes/shops, schools and institutions etc. In India the City/Town Municipalities are responsible for the collection, transportation, treatment and disposal of municipal waste that are generated in the City /Town. In some regions the collection of waste and its management has been given to the third party.

The main problems of municipalities in solid waste management includes the sharp increase in accumulation of waste and its management, use of open dumps that create and spread health problems, contamination of underground water resources and decreasing capacity of sanitary landfills along with difficulties in establishing new dumpsites. Generally, data on the quantity of MSW generation is maintained by the Urban Local Bodies (ULBs). Data generation based on the quantity of waste collected and transported on a day to day basis, based on the number of trips made or on approximation based on guessed estimates. Normally, there is no practice of

⁷http://cpcb.nic.in/cpcb/old/zonaloffice/banglore/Status_of_MS_W_beng_16.pdf

weighing the MSW or measurement of its volume while transportation.

Hyderabad, capital of the state having a population of 3,943,323 persons according to 2011 census, generates 3500MT of garbage every day. House to House collection of MSW has been started in the city covering 92% of households and 08 % of the waste is being segregated. The MSW that is collected is being transported in covered vehicles to waste processing unit. The city has established compost plant & RDF for processing of 3600 TPD of MSW at Jawahar nagar (V), Shameerpet (M), Rangareddy District. The Greater Hyderabad Municipal Corporation (GHMC) have also constructed the sanitary landfill facility and operating the same.

➤ *Virendra Jakhar*

IV. Environmental News

MoU on Environmental Cooperation among BRICS Nations⁸

A Memorandum of Understanding (MoU) was signed between five BRICS Nations (Brazil, Russia, India, China and South Africa) during the 10th Summit held at Johannesburg, South Africa in July, 2018 for environmental cooperation.

The MoU identifies following areas of cooperation:

- a) Air quality;
- b) Water;
- c) Biodiversity;
- d) Climate Change;
- e) Waste Management;
- f) Implementation of the 2030 Agenda for Sustainable Development and Sustainable Development Goals; and
- g) Other areas of cooperation as mutually agreed upon by the participants.

MoU will enable establishment and promotion of closer and long-term cooperation between the BRICS countries in the field of environment

protection and management of natural resources on the basis of equity, reciprocity and mutual benefits taking into account the applicable laws find legal provisions in each country.

MoU acknowledges the responsibility of BRICS nations towards the protection, preservation and sustainability of the Environment.

Third Decadal International year of Reefs-2018⁹

International Conference on Status and Protection of Coral Reefs (STAPCOR – 2018) with the theme “Reef for Life” was held on 22nd October at Bangaram Coral Island of Union Territory of Lakshadweep (UTL). About 150 International and National delegates attended the event.

Administrator of UTL emphasised on the efforts made by administration for conservation and preservation of coral reefs. He also informed that very soon Lakshadweep will establish an International Atoll Research Centre, with world class infrastructures for scientific research on corals.

Chief Wildlife Warden and Secretary, Environment & Forests, Lakshadweep Administration narrated the effect of climate change and global warming along with El Niño on the corals lead to heavy bleaching internationally during the year 1998. This led to the foundation of STAPCOR and decision to organize international conference every 10 years to review the status and progress of coral reefs all over the world.

MoU Signed Between ICFRE, Navodaya Vidyalaya Samiti and Kendriya Vidyalaya Sangathan to Promote Environmental Awareness among Students¹⁰

Two Memoranda of Understanding (MoU) were signed by Indian Council of Forestry Research and Education (ICFRE), Dehradun with Navodaya Vidyalaya Samiti (NVS) and

⁸ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1550440>

⁹ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1550365>

¹⁰ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1549771>

Kendriya Vidyalaya Sangathan (KVS). ICFRE is an autonomous Council under the Ministry of Environment, Forest and Climate Change.

The MoUs have been signed to launch the programme “PRAKRITI” with the objective to promote awareness about forests and environment, to stimulate interest among the students of NVS and KVS in maintaining a balanced environment and for acquiring skills that reflect care and protection towards forests, environment and society. Another objective is to provide a platform to school children to learn practical skills towards judicious use of our resources and to mobilize a cadre of youth for raising a peoples’ movement committed to conservation of forest and environment.

Through this collaboration, knowledge will be imparted to students/teachers of NVS and KVS on environment, forest, environmental services and contemporary areas of forestry research by way of lectures and interactive sessions by scientists of ICFRE institutes. Visits of students/teachers of NVS and KVS schools will also be arranged to the laboratories and field/experiments of ICFRE institutes for hands-on experiences.

Air Quality early warning system launched for Delhi¹¹

Air quality early warning system was launched for NCT Delhi with an outlay of Rs. 1151.80 crore under the new Central Sector Scheme. The Centre has already released Rs. 591.65 crore to Punjab, Haryana, Uttar Pradesh and NCT of Delhi for the promotion of agricultural mechanization for *in-situ* management of crop residue.

41 teams have been deployed in Delhi and NCR cities of Ghaziabad, Noida, Gurugram and Faridabad to monitor and supervise dust mitigation and other air pollution abatement measures to ensure effective compliance.

Both PM 10 and PM 2.5 which are key indicators of air pollution have shown a significant reduction in the winter months (Sept-Oct) this year as compared to the previous year. A tabular representation is given below:

	Sept 2017	Sept 2018	Oct 2017	Oct 2018
PM10	215	116	262	223
PM2.5	61	44	110	86

There has been a reduction of 46% in the PM10 levels in September 2018 compared to last year and a 15% reduction in October 2018. There has been reduction of 28 % in the PM2.5 levels in September 2018 compared to last year and a reduction of 22 % in October 2018.

The number of active fire detections in 2018 has been less in comparison to 2017 and 2016 till 14th October 2018 (From Sep 1, 2018).

	Active fire detections		
	2018	2017	2016
Punjab	699	2635	4126
Haryana	923	1527	1931

The numbers for active fire detections are 75% lower than last year in Punjab and 40% lower in case of Haryana.

Memorandum of Cooperation between India and Finland on Environmental Cooperation¹²

Memorandum of Cooperation between India and Finland on Environmental Cooperation has been approved by the union cabinet. It will enable establishment and promotion of closer and long-term cooperation between the two countries in the field of environment protection and management of natural resources on the basis of equity, reciprocity and mutual benefits, taking into account the applicable laws and legal provisions in each country.

¹¹ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1549747>

¹² <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1549153>

The areas of cooperation under this Memorandum of Cooperation shall include:

- i. Air and water pollution prevention and purification, remediation of contaminated soils;
- ii. Waste management including hazardous wastes, and waste-to-energy technologies;
- iii. Promotion of circular economy, low-carbon solutions and sustainable management of natural resources including forests.;
- iv. Climate change;
- v. Environmental and Forest monitoring and data management;
- vi. Conservation of Marine and Coastal Resources;
- vii. Integrated water management of Oceanic/Sea Islands; and
- viii. Any other areas jointly decided upon.

Report on “Strengthening Forest Fire Management in the Country” released¹³

Forest fire is one of the causes of emission of carbon dioxide that leads to global warming. The report is a timely action to meet India’s climate goals defined under the Nationally Determined Contribution (NDCs) set under the Paris Agreement.

The report discusses policies on forest fire prevention and management and underscores the need to put more emphasis on better fire prevention practices and a well-equipped and trained workforce to fight fires. The report adds that there is an urgent need to fill vacancies for field staff, particularly in fire-prone areas and to make adequate and reliable funding available. The report has been prepared jointly by Ministry of Environment, Forest and Climate Change and the World Bank.

Some of the recommendations include – developing a National Forest Fire Prevention Management Plan (NFFPMP) as an open, consultative and a time-bound process; institute

standard management practices; adapt technology to local conditions as well as scale up the best practices and increase engagement with local communities to ensure that big fire is used in a responsible way and at the same time give communities a greater say in decision-making process.

The Report suggests that the NFFPMP Action Plan should delineate the roles and responsibilities of the MoEFCC, state forest departments, communities and disaster management agencies. It also underlines that there is a need to support forest fire management through improved data, and research to fill critical knowledge gaps. In addition, defining a national research agenda for fire management and provision of funding opportunities for scientific research to help establish formal cooperation between members of the research community and the forest department is emphasised in the report.

India gets UN Environment award for combating trans-boundary environmental crime¹⁴

United Nation Environment has awarded Wildlife Crime Control Bureau (WCCB), Ministry of Environment, Forest and Climate Change, Government of India with Asia Environment Enforcement Awards, 2018 for excellent work done by the Bureau in combating trans-boundary environmental crime.

WCCB has been conferred this award in Innovation category. WCCB has adopted innovative enforcement techniques that have dramatically increased enforcement of trans-boundary environmental crimes in India. Notably it has developed an online Wildlife Crime Database Management System to get real time data in order to help analyze trends in crime and devise effective measures to prevent and detect wildlife crimes across India.

In order to involve the public in the fight against wildlife crime, WCCB has also developed a

¹³ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1549061>

¹⁴ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1553561>

scheme to enroll willing persons as WCCB Volunteers.

India submits Sixth National Report to the Convention of Biological Diversity (CBD)¹⁵

India has submitted its Sixth National Report (NR6) to the Convention on Biological Diversity (CBD). The report was submitted online to the CBD Secretariat during the inaugural session of the 13th National Meeting of the State Biodiversity Boards (SBBs) organized by the National Biodiversity Authority (NBA) in the Ministry of Environment, Forest and Climate Change (MoEFCC), New Delhi. The document 'Progress on India's National Biodiversity Targets: A Preview' was also released on the occasion.

India is among the first five countries in the world, the first in Asia and the first among the biodiversity rich megadiverse countries to have submitted NR6 to the CBD Secretariat. The NR6 provides an update of progress in achievement of 12 National Biodiversity Targets (NBT) developed under the Convention process in line with the 20 global Aichi biodiversity targets. Briefly, the Report highlights that while India has exceeded/overachieved two NBTs, it is on track to achieve eight NBTs and in respect of the remaining two NBTs also India is striving to meet the targets by the stipulated time of 2020.

Submission of India's Second Biennial Update Report (BUR) to United Nations framework Convention on Climate Change (UNFCCC)¹⁶

India would be submitting the second Biennial Update Report (BUR) to the United Nations Framework Convention on Climate Change (UNFCCC) towards fulfilment of the reporting obligation under the Convention.

Salient Features:

- i. The BUR contains five major components — National Circumstances;

National Greenhouse Gas Inventory; Mitigation Actions; Finance, Technology and Capacity Building Needs and Support Received and Domestic Monitoring, Reporting and Verification (MRV) arrangements.

- ii. BUR has been prepared on the basis of a range of studies conducted at the national level.
- iii. The BUR has undergone multitier review process through peer review, review by Technical Advisory Committee of Experts chaired by Additional Secretary (Climate Change) and National Steering Committee chaired by Secretary Department of Environment, forest and climate change (EF&CC).
- iv. In 2014, a total of 26,07,488 Gigagram (Gg) CC-2 equivalent* (around 2.607 billion tonnes of CC-2 equivalent) of GHGs were emitted from all activities (excluding Land use, land-use change, and forestry (LULUCF)) in India. The net national GHG emissions after including LULUCF were 23,06,295 Gg CO₂ equivalent (around 2.306 billion tonnes of CO₂ equivalent). Out of the total emissions, energy sector accounted for 73%, Industrial Process and Product Use (IPPU) 8%, agriculture 16% and waste sector 3%. About 12% of emissions were offset by the carbon sink action of forestland, cropland and settlements.

Submission of India's Second BUR will fulfil the obligation of India to furnish information regarding implementation of the Convention, being a Party to it.

Cabinet approves Coastal Regulation Zone (CRZ) Notification 2018¹⁷

The Union Cabinet has approved the Coastal Regulation Zone (CRZ) Notification, 2018 which

¹⁵ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1557771>

¹⁶ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1557609>

¹⁷ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1557595>

was last reviewed and issued in 2011, with periodic amendments to some clauses.

Salient Features:

(i) Allowing Floor Space Index(FSI) as per current norms in CRZ areas: As per CRZ, 2011 Notification, for CRZ-II (Urban) areas, Floor Space Index (FSI) or the Floor Area Ratio (FAR) had been frozen as per 1991 Development Control Regulation (DCR) levels. In the CRZ, 2018 Notification, it has been decided to de-freeze the same and permit FSI for construction projects, as prevailing on the date of the new Notification. This will enable redevelopment of these areas to meet the emerging needs.

(ii) Densely populated rural areas to be afforded greater opportunity for development: For CRZ-III (Rural) areas, two separate categories have now been stipulated as below:

- CRZ-III A - These are densely populated rural areas with a population density of 2161 persons per square kilometre, as per 2011 Census. Such areas shall have a No Development Zone (NDZ) of 50 meters from the High Tide Line (HTL) as against 200 meters from the High Tide Line stipulated in the CRZ Notification, 2011 since such areas have similar characteristics as urban areas.
- CRZ-III B - Rural areas with population density of below 2161 per square kilometre as per 2011 Census. Such areas shall continue to have an NDZ of 200 meters from the HTL.

(iii) Tourism infrastructure for basic amenities to be promoted: Temporary tourism facilities such as shacks, toilet blocks, change rooms, drinking water facilities etc. have now been permitted along the Beaches. Such temporary tourism facilities are also now permissible in the "No Development Zone" (NDZ) of the CRZ-III areas as per the Notification. However, a minimum distance of

10 m from HTL should be maintained for setting up of such facilities.

(iv) CRZ Clearances streamlined: Only such projects/activities, which are located in the CRZ-I (Ecologically Sensitive Areas) and CRZ IV (area covered between Low Tide Line and 12 Nautical Miles seaward) shall be dealt with for CRZ clearance by the Ministry of Environment, Forest and Climate Change. The powers for clearances with respect to CRZ-II and III have been delegated to the State level with necessary guidance.

(v) A No Development Zone (NDZ) of 20 meters has been stipulated for all Islands: For islands close to the main land coast and for all Backwater Islands in the main land NDZ of 20 m has been stipulated in wake of space limitations and unique geography of such regions, bringing uniformity in treatment of such regions.

(vi) All Ecologically Sensitive Areas have been accorded special importance: Specific guidelines related to their conservation and management plans have been drawn up as a part of the CRZ Notification.

(vii) Pollution abatement has been accorded special focus: In order to address pollution in Coastal areas treatment facilities have been made permissible activities in CRZ-I B area subject to necessary safeguards.

(viii) Defence and strategic projects have been accorded necessary dispensation.

Government launches Asiatic Lion Conservation Project¹⁸

The Ministry of Environment, Forest and Climate Change (MOEF&CC), Government of India has launched the "Asiatic Lion Conservation Project" with the aim to protect and conserve the world's last ranging free population of Asiatic Lion and its associated ecosystem.

The project will strengthen the ongoing measures for conservation and recovery of Asiatic Lion with the help of state-of-the-art techniques/

¹⁸ <http://pib.nic.in/PressReleaseDetail.aspx?PRID=1556880>

instruments, regular scientific research studies, disease management, modern surveillance/patrolling techniques. Total budget of the project for 3 years that amounts to nearly ` 978.4 million will be funded from the Centrally Sponsored Scheme- Development of Wildlife Habitat (CSS-DWH) with the contributing ratio being 60:40 between Centre and State. The project activities is envisaged in a manner to promote habitat improvement, scientific interventions, disease control and veterinary care supplemented with adequate eco development works for the fringe population in order to ensure a stable and viable Lion population in the Country.

MoU signed between India and Japan in the field of Environmental Cooperation¹⁹

The MoU between India and Japan was signed on 29th October 2018 during the visit of Hon'ble Prime Minister of India to Japan.

The MoU will enable establishment and promotion of closer and long-term cooperation between India and Japan in the field of environment protection and management of natural resources on the basis of equity, reciprocity and mutual benefits, taking into account the applicable laws and legal provisions in each country. Further, it entails exchange of information and technology between the two countries.

MoU is expected to bring in the latest technologies and best practices suited for bringing about better environment protection, better conservation, better management of climate change and bio-diversity conservation.

➤ **Gaurav Jain/Satpal**

V. COP24 held at Katowice, Poland during the period 3 Dec 2018 – 14 Dec 2018²⁰

Negotiators from 196 countries and the European Union worked for two weeks (3 Dec 2018 – 14 Dec 2018) on the Katowice Climate Package, implementing the Paris Agreement.

More than a dozen intense meetings enabled negotiations to be successful on different topics regarding principles aimed at implementing the Paris Agreement, which was signed in 2015. For two weeks, a wide range of issues were discussed – some fundamental, others very detailed and technical – which gave birth to a complex and difficult document. Finance, transparency and adaptation are some of its aspects.

“We have been working on this package for three years. When we have to deal with positions of almost 200 Parties, it is not easy to find an agreement concerning a multi-aspect and technical deal. Under these circumstances, each step forward was a great achievement. And I thank you for that. We can be proud of ourselves” said the COP24 President Michał Kurtyka during the plenary session concluding the summit. “Our common efforts didn't consist solely of producing texts or defending national interests. We were conscious of our responsibility to people and commitment for the fate of Earth, which is our home and the home of future generations who will come after us” he added.

In Katowice, within the framework of COP24, many heads of state, government and almost 100 Ministers of the Environment and of Foreign Affairs from all over the world were present. Thanks to the consensus, which has been agreed on by the Parties because of their commitment, Katowice has become, after Kyoto and Paris, another milestone on the way towards a sustainable global climate policy. In the Katowice Rules, different parties adopted a path that will be followed by each of them when it comes to stepping up actions for climate protection.

“I can say it aloud now – interests of all the parties have been taken into account in the Katowice Package in a sustainable and honest way”, said the COP24 President Michał Kurtyka. “But, more importantly, its impact on the world will be positive. Thanks to it, we have taken a big step towards achieving the ambitions set in the Paris Agreement. Ambitions thanks to which our children will look back at some point and

¹⁹ <http://pib.nic.in/PressReleseDetail.aspx?PRID=1554970>

²⁰ <https://cop24.gov.pl/news/news-details/news/success-of-cop24-in-katowice-we-have-a-global-climate-agreement/>

consider that their parents made the right decisions in an important historical moment.”

The Polish Presidency at COP24 also initiated three declarations, which have been broadly supported by the Parties. On the first day at COP24 President Andrzej Duda made a statement about the just transformation based on solidarity. Its adoption was the most important point of the Summit of Heads of States and Governments. The next day, a common initiative of Poland and the UK Katowice Partnership for Electromobility, presented in the presence of the UN Secretary General António Guterres, was presented by Prime Minister Mateusz Morawiecki and the COP24 President Michał Kurtyka. In the second half of the conference the “Forests for Climate” declaration was announced. The Minister of the Environment Henryk Kowalczyk, COP24 President Michał Kurtyka, and Paola Deda representing the UNECE took part in the event.

➤ **Manoj Kumar**

VI. Case Law - Order of the National Green Tribunal regarding contamination of water bodies at Bengaluru - Bellandur lake, Agara lake and Varthur lake

The National Green Tribunal (NGT) in reference to contamination of water bodies at Bengaluru – Bellandur lake, Agara lake and Varthur lake inter-alia, on account of discharge of untreated sewage and other effluents from residential/commercial/industrial buildings in violation of statutory provisions of the Water (Prevention And Control of Pollution) Act, 1974, particularly Section 25 thereof, referred that the water bodies in Karnataka have been subjected to severe pollution on account of inefficient management of solid waste management as well as discharge of untreated sewage waste, apart from industrial effluents. Toxic snowy froth was widely reported in the media having potential health hazard.

The Bellandur lake, is said to be 130 years old across 9,000 acres of land. The lake was habitat for several species of birds, reptiles and aquatic life which is now severely affected by pollution.

The pollution affected ground water recharge. Waste dumping resulted in foul stench around the lake. The major cause for foam formation was considered to be the discharge of untreated sewage through open drains. There was also failure to prevent dumping of municipal solid waste and undertaking other requisite measures on ‘Precautionary Principle’, basis such as plantation around the Tank of the lake, fencing of the lake, providing screens in major storm drains to prevent carry over waste, construction of adequate STPs and other equipment.

The matter was first taken up by this Tribunal in the year 2014 and considered in the light of reports prepared by the Lake Development Authority, Bangalore (LDA) and the Regional Office of the Ministry of Environment, Forest and Climate Change (MoEF&CC). Various orders were issued by the Tribunal in the subsequent years based on reports by KPSC and reports submitted by committees constituted to inspect the projects where encroachment was alleged on wetland and Rajakaluves.

During this course, the Tribunal noticed that apathy of the State and its instrumentalities was patent. Development of projects was being sanctioned without ensuring preventive, restorative and controlling measures. Accordingly, the industries causing pollution were directed to be closed and direction was issued against dumping of any waste into the lake or in the buffer zone. The Tribunal also appointed a Committee headed by a Senior Advocate of the Tribunal to assess the factual situation and suggest review of the action plan. Accordingly, report was been submitted on 31.05.2018.

The conclusion of the Committee was that the authorities have neglected their duties and have done too little too late. Foam was being formed in the lakes due to sustained inflow and agitation of sewage. Large number of illegal immigrants had encroached the buffer zone on the lake. Untreated sewage was being discharged into the lake through storm water drains. Untreated sewage was flowing into the lake through Rajakaluves which had also been encroached. The water quality had high level of “Oil and Grease (24.74 mg/l) high BOD, (148 mg/l) COD (315 mg/l) and Sulphide (4.0 mg/l). The

Dissolved Oxygen was reported nil for all locations in Bellandur and Varthur lakes and their inlets.”

It was obvious from the resume of the facts and reports noted above that there is a failure of very high magnitude on the part of the State of Karnataka and its authorities, including the BBMP, in protecting the three lakes and also in keeping the Rajakaluves joining the lake clean and free from encroachments.

Accordingly, having regard to the facts and circumstances, the following appropriate and necessary directions have been issued-

- i. Recommendations of the Committee dated 31.05.2018 may be carried out with a view to ensure that no polluted waste water is discharged into the water bodies and no solid waste is dumped therein. The encroachments from catchment areas must be removed. Karnataka SPCB in consultation with the CPCB may set up Real Time Water Quality Monitoring Systems in three lakes at appropriate locations to monitor parameters which are critical like Dissolved Oxygen, Ammonia and others. The online data may be displayed for information. The activities around the three lakes may also be monitored by using drones and satellite imageries.
- ii. Overall responsibility to carry out these directions would be of the Additional Chief Secretary, Urban Development (UD), Karnataka and the BBMP. An action plan be prepared by the State/BBMP forthwith, within one month from today, indicating the timelines for the actions including the budgetary provisions and same would be placed on the website of State UD and BBMP. Execution of such plan may be completed by 30.06.2019.
- iii. The Committee would have such powers as are necessary to ensure execution of this order within reasonable time. The State and all concerned Authorities would cooperate and provide all assistance as may be necessary. The Committee may issue necessary instructions to the authorities from time to time for the purpose. The Committee would be at liberty to co-opt any other expert or take assistance from such person or persons as may be deemed necessary.
- iv. The Committee may set up its own website for receiving and disseminating information and suggestions, including inviting volunteers, as may be deemed proper. Achievements may be put on website so that the same can be replicated wherever relevant.
- v. The Committee may oversee the timelines in the action plan to be prepared by the State UD of Karnataka/ BBMP.
- vi. The State of Karnataka would transfer an amount of ` 500 crores in an Escrow Account for execution of the action plan within one month from today.
- vii. The State of Karnataka would deposit a sum of ` . 50 crores by way of interim compensation for restoration of the environment with the CPCB. For delay, an interest @ 12% would be payable.
- viii. The BBMP would be required to deposit a sum of ` 25 crores in this regard to CPCB separately in the same manner as (ix).
- ix. Out of the amount so deposited, a sum of ` 10 crores would be transferred by CPCB to the Karnataka PCB. The SPCB would defray all expenses of the Committee to provide logistics or otherwise.
- x. The amount can be recovered by the State/BBMP from polluters and the erring officers.
- xi. The State of Karnataka would furnish a Performance Guarantee to the CPCB to execute the action plan in a time bound manner, subject to the timelines being approved by the above Committee. The Performance Guarantee would undertake to pay amount of ` . 100 crores for the

- failure in the execution of the action plan before 30.06.2019.
- xii. The State of Karnataka must identify and declare the persons responsible for executing the action plan and any failure in their performance should be recorded and considered favorably or otherwise for their career progression.
 - xiii. Similar exercise as (xiv) may be undertaken to identify officers responsible for failure in the past. Such exercise may be completed within three months.
 - xiv. Since failure of preventing the pollutants being discharged in water bodies (including lakes) and failure to implement solid and other waste management rules are too frequent and widespread, the CPCB must lay down specific guidelines to deal with the same, throughout India, including the scale of compensation to be recovered from different individuals/authorities, in addition to or as alternative to prosecution. The scale may have slabs, depending on extent of pollution caused, economic viability, etc. Deterrent effect for repeated wrongs may also be provided.
 - xv. MoEF&CC may specify limit for phosphorus in soaps and detergents to prevent damage to the environment and public health.

Conclusion

The State is a trustee of all natural resources which are by nature meant for public use enjoyment. Public at large is the beneficiary of the sea-shore running waters, air, forest and ecologically fragile lands. The State as a trustee is under a legal duty to protect the natural resources. The above judgement indicates the situation wherein it is clear that the governments at all levels have not been able to deliver to the expectations of the stakeholders. The authorities

responsible have equal liability to pay compensation for restoring the damage to the environment and to prevent further damage. The government's apathy, negligence and carelessness are reasons for the deplorable condition of water bodies and storm water drains. This is a hallmark order that will help protect other water bodies also. There have been various audit reports of CAG of India on this issue. It is expected that the NGT order will change the fate of the water bodies as it is hope that the State government and civic agencies will get their act together and rectify the ecological damage wrought on the lakes.

➤ **Manoj Kumar**

VII. Single use plastic in the country by 2022- A Critical Analysis

In May 2012, two Supreme Court judges, Honourable Justice Singhvi and Hon'ble Justice Mukhopadhaya, said that "the next generation will be threatened with something more serious than the atom bomb" unless a "total ban on plastic is put in place" Twenty five Indian states/UTs now have some form of ban on polythene carry bags. Jammu & Kashmir and Maharashtra became the latest states to ban the use of polythene carry bags-in January and March 2018 respectively. Using a plastic bag can attract fines--from Rs 500 to Rs 25,000-- and storage and distribution can lead to imprisonment up to five years. But implementation is often lax and plastic which takes hundreds of years to decompose--continues to be used, which results in their accumulation in water bodies and landfills.

The plastic problem

Every day, Indian cities generate 15,000 tonnes of plastic waste--enough to fill 1,500 trucks, at 10 tonnes per truck--of which 9,000 tonnes are collected and processed/recycled, while the remaining 6,000 tonnes, or 600 truckloads²¹, usually litter drains, streets or are dumped in landfills, according to a January 2015 assessment

²¹ Source: <https://www.indiaspend.com/25-indian-states-ban-plastic-bags-yet-600-truckloads-of-plastic-discarded-every-day-31602/>

report of the Central Pollution Control Board (CPCB).

India generates 5.6 million tonnes of plastic waste annually, and the country accounts for 60% of plastic waste dumped into the world's oceans every year (appx.). Three of the world's ten rivers which carry 90% of plastic in to the world's oceans are in India-Indus, Ganga and Brahmaputra according to an article in Environmental Science & Technology, a global journal (October 2017).

Plastic additives from landfills can cause considerable pollution problems by contaminating the surrounding soil, ground or surface waters, a 2015 study by the CPCB showed.

About 1 million seabirds and 100,000 marine mammals die each year globally from ingesting plastic or by getting tangled in nylon fishing line, nets, six-pack plastic can holders, and plastic rope, according to estimates.

Alternatives to plastic such as cotton or jute bags are often expensive. So, some states permit polythene bags above 50 microns thickness, as it is likely to "increase the cost by about 20% and hence, the tendency to provide free carry bags will come down and collection by the waste-pickers will also increase to some extent", according to the Plastic Waste Management Rules 2016.

Several authorities are mandated to enforce the ban, often leading to "shunting responsibility" from one department to the next. The ban will be effectively enforced only when there is a robust system to aggregate the proofs of enforcement while also giving due credit to the concerned officers and departments.

The complete ban vs partial ban confusion

In some states, there is confusion about whether the ban is complete or partial.

In Arunachal Pradesh it is said that polythene carry bags are not completely banned, whereas CPCB showed that there is a complete ban. The restriction is only on polythene bags of thickness of less than 50 microns, in some districts, it is completely banned, but in most of the districts, it is partially banned.

There needs to be proper awareness about the harmful effects. "People find it easy to use plastic, but don't know its negative impacts."

In Uttar Pradesh, lobbying has led to dilution of the blanket ban to a partial ban on bags with thickness below 50 microns. resulted in alteration of the ban.

There are also challenges in differentiating between the thicknesses of polythene bags. It can't be determined with the naked-eye; there has to be some instrument.

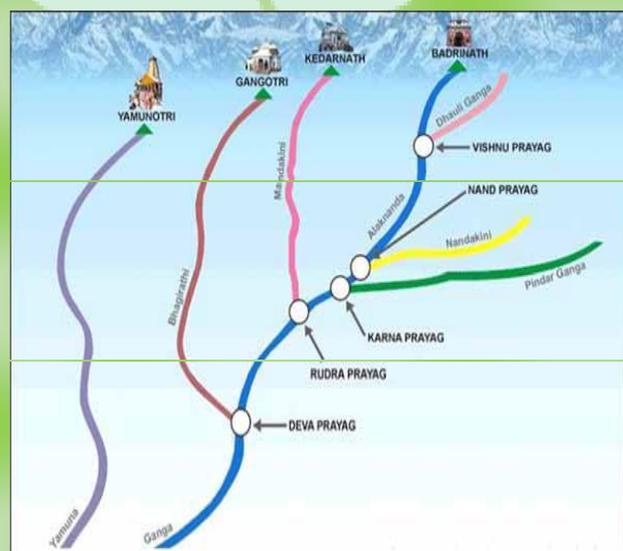
➤ Pawan Meena

VII. Performance Audit Report on Rejuvenation of River Ganga

(Report No.1 of 2018- Government of Uttarakhand)

Introduction

The Bhagirathi River, which originates from the Gangotri glacier at *Gomukh* is considered to be the source of River Ganga. The Bhagirathi and the Alaknanda rivers join at Devprayag to form the River Ganga. The river traverses a length of 2,500 km from its origin at the Gangotri glacier to its entry into the Bay of Bengal, out of which a stretch of 294 km falls in the State of Uttarakhand. Six longest tributaries of river Ganga in the state are Alaknanda, Dhauliganga, Nandakini, Pindar, Mandakini and Bhagirathi.



Ganga basin in Uttarakhand

The Ganga Action Plan (GAP) was initiated by Government of India (GoI) in 1985. Subsequently in 2009 the 'National Ganga River Basin Authority' (NGRBA) was set up as an empowered planning, financing, monitoring and coordinating authority for the River Ganga, to ensure effective measures for prevention, control and abatement of pollution in Ganga and rejuvenating the river to its natural and pristine condition. As a comprehensive approach to rejuvenating the River Ganga and all its tributaries, GoI approved (13 May 2015) the Namami Gange programme.

Under Namami Gange the seven main thrust areas covering short and medium-term interventions are (1) Pollution abatement, (2) Maintenance of Flow, (3) River Front Development, (4) Capacity Building, (5) Research and Monitoring, (6) Biodiversity Conservation, and (7) Communication and Public outreach.

Audit Objectives

The Performance Audit was carried out to assess whether:

- there exists adequate planning and institutional and coordination mechanism for abatement of pollution and rejuvenation of River Ganga;
- adequate resources were available on time for the programme and the programme was implemented in an economical, efficient and effective manner;
- the directions of the Hon'ble High Court of Uttarakhand were followed; and
- the monitoring mechanism was adequate for implementation of the programme.

Audit Criteria

The audit criteria adopted for achieving the audit objectives were derived from the following sources:

- The Water (Prevention and Control of Pollution) Act, 1974;
- Environment Protection Act, 1986;
- National Ganga River Basin Authority (NGRBA) Programme Framework and Guidelines;

- River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016;
- General Financial Rules;
- Guidelines and instructions issued by Central Pollution Control Board/State Pollution Control Board; and
- Uttarakhand High Court Judgment dated 02.12.2016.

Audit Coverage and Methodology

The performance audit covered implementation of the programme during the period 2013-14 to 2016-17 in seven districts falling on the Ganga Basin out of 13 districts. Out of 38 Infrastructure Projects being undertaken in 15 towns of Uttarakhand, a sample of 23 projects in ten towns, was selected for audit on the basis of Probability Proportional to Size with Replacement (PPSWR) method. Besides, one Project, 'Forestry Interventions for Ganga' was also selected for detailed scrutiny.

Out of 10,010 beneficiaries in 132 Gram Panchayats (GP) falling in seven Ganga Basin districts, physical verification of 1,362 beneficiaries of Individual House Hold Latrines. (IHHLs) in 16 villages of nine GPs selected on the basis of highest number of IHHLs constructed in GPs was carried out. Besides, physical verification of the selected infrastructure projects implemented in ten selected towns by seven *Nagar Palika Parishads (NPP)/Nagar Panchayats (NP)* was also carried out.

Audit Findings

a. Planning

- i. **Delay in submission of Annual Plan:-** As per NGRBA framework, SPMG was required to submit to National Mission for Clean Ganga (NMCG) the Annual Action Plans (AAPs) by the end of September for the next financial year. It was noticed that timelines were not adhered to as there was a delay ranging from four to five months in submission of the annual plans (APs) for the period from

2012-13 to 2016-17. The Department in its reply stated that APs could not be framed on time as there was delay in submission of project proposals by EAs. This shows failure of the Department in ensuring timely submission of project proposals by the EAs. The Secretary, Peyjal Department during exit conference stated that required action would be taken to ensure timely submission of AAPs in future.

- ii. **Non-Constitution of Budget Review Committee:-** As per the NGRBA framework, the SPMG of each implementing State should have a Budget Review Committee (BRC) consisting of heads of engineering, finance, procurement, monitoring, etc. to review the various aspects of the budget and submit its quarterly observations to the head of SPMG. However no BRC had been formed in Uttarakhand and the APs and the budget were being prepared by the Finance Wing of the SPMG based on the proposals received from the EAs which was in contravention to the provisions provided in the framework. BRC had been formed in September 2017 after being pointed out in audit.

b. Implementation of Programme

- i. **Rural Sanitation-** State Action Plan aimed at constructing 10,010 Individual House Hold Latrines (IHHLs), 132 Community Sanitation Complexes (CSCs) and 132 Solid and Liquid Waste Management (SLWM) units in the 132 GPs for improving cleanliness in the rural areas. Although there was insignificant progress in the construction of CSCs and SLWM structures, the Department, declared (May 2017) all the 265 villages in the 132 GPs along the River Ganga as ODF despite the fact that 41 out of 1,143 IHHLs physically verified by Audit were actually not constructed and 34 IHHLs claimed to have been completed were still under construction.
- ii. ii) **Results of field verification-** Physical verification revealed that 41 out of a sample of 1,143 beneficiaries (3.6 per cent) had still not initiated construction of IHHLs and construction of 34 IHHLs (three per cent) was yet to be completed. Yet the Department declared (May 2017) all the 265 villages in the 132 GPs along the River Ganga as ODF.
- iii. iii) **Unscientific disposal of Municipal Garbage:** -Selected towns in seven Nagar Palika Parishads, disposal of the municipal solid waste was not being done as per prescribed scientific methods except Gopeshwar and Muni ki Reti. Neither segregation of garbage in degradable and non-degradable categories was being made nor was manure being made out of degradable garbage. Further in three out of ten selected towns un-segregated municipal garbage was being indiscriminately dumped on the slopes of the hills which would ultimately fall into the River Ganga and its tributaries particularly during rainy season.
- iv. **Underutilisation of Sewage Treatment Plants**
- a. The work of Sewage Treatment Plant (STP) at Devprayag, having treatment capacity of 1.4 million litre per day (MLD) awarded (October 2011) for an amount of ` 2.83 crore with a completion period of 12 months could not be started till February 2013 due to land dispute. Further, the work to a halt in June 2013 due to floods and was resumed in

November 2013 and the project was completed in May 2016. It was also noticed that out of three areas, the sewage load of only one area was being treated at the STP as two separate STPs (75 KLD and 150 KLD) for treatment of sewage load of other two areas had been proposed (2014) and sanctioned in 2015. As a result, only 0.05 MLD (3.57 per cent) sewage was being treated against the total capacity of 1.4 MLD.

- b. An STP with a treatment capacity of 3.5 MLD at Tapovan in Rishikesh was completed and operational since May 2016. But all the establishments/houses in the project area were not connected with the STP. As a result, only 0.29 MLD sewage was being treated against the total capacity of 3.5 MLD.

v. **Inordinate delay in completion of project**

The Scheme of Sewerage System and an STP having treatment capacity of one MLD at Gangotri Dham at Uttarkashi was completed in October 2017. After delay of more than 3 years resulting the sewage of 0.75 MLD generated in the town was discharged directly for 3 years.

vi. **Non-realisation of penalty**

The Scheme of Sewerage System and STP for Gangotri Dham at Uttarkashi was awarded (July 2011) to a contractor at Rs 6.92 crore. The contractor had submitted TDR (Term Deposit Receipt) for Rs 69.21 lakh as security deposit against the contract bond due to delay in completion of work despite repeated extension of time
General Manager
(GM), Construction Division (Ganga),

Haridwar rescinded the bond on 17 November 2015 and penalty of Rs 69.21 lakh was imposed by PM, UPJN, Uttarkashi. TDR submitted by the contractor as security deposit was found to be fake at the time of realisation (August 2015). This resulted in loss of Rs 69.21 lakh to the State exchequer.

vii. **Payment of interest free Mobilisation Advance**

Rule 48 of the Uttarakhand Procurement Rules, 2008 strictly prohibits provision of interest free mobilisation advances (MA) to the contractors without sanction of the Government. However, it was found that an interest free MA amounting to Rs 40.14 lakh for the construction of 3.5 MLD STP at Tapovan, Rishikesh was provided to the contractor. On being pointed out, the Department stated that the advance was given as per the agreement with the contractor. Scrutiny of records further revealed that the agreement was silent about the interest component. Absence of any specific clause in the agreement and in line with extant rules was irregular and resulted in an undue favour to the contractor.

viii. **Extra burden on State exchequer due to faulty DPR**

GOI accorded estimate sanction for construction of a 3.5 MLD STP at Tapovan area in Rishikesh in March 2011 with a project cost of Rs 23.02 crore without carrying out any geological survey at the construction site. The geological survey carried out (November 2011) subsequently recommended construction of an RCC protection wall to safeguard the STP from soil erosion. The State Government constructed the RCC wall at a cost of Rs 29.75 lakh. This resulted in an extra burden of Rs 20.82 lakh to the State exchequer. The Secretary,

Peyjal Department, during exit conference, accepted the observation.

ix. **Discharge of sewage and drains opening into the Ganga and its tributaries**

One of the major components for pollution in the River Ganga and its tributaries are drains the opening into the river. Audit observed the following:

- a. The UPJN had identified (2015) 112 *Nallas* in the priority towns discharging 56.871 MLD of sewage into the River Ganga and its tributaries. Out of which only 47 *Nallas* having discharge of 30.579 MLD had been tapped till the date of audit (June 2017). Thus, the remaining 65 *Nallas* were still discharging 26.292 MLD of sewage into the River Ganga or its tributaries. There were 22 *Nallas* in Haridwar out of which 17 *Nallas* had been tapped and handed over to Jal Sansthan, Haridwar. Joint physical verification (June 2017) of remaining five *Nallas* revealed that three out of five *Nallas* were partially tapped and the sewage was over flowing without any treatment into the *Gang Nahar*. Two *Nallas* (Ramrakha and Matra

water into *Gang Nahar* and River Ganga.

- b. Two STPs having capacity of 18.0 MLD and 27.0 MLD at Jagjeetpur, Haridwar were handed over to the UJS in April 2011. Against a sewage load of 80 MLD being pumped into these STPs, only 45 MLD of sewage was being treated by these STPs. As a result, 35 MLD of the untreated sewage was being discharged into the river. The DPRs of STPs were prepared in 1989 and 2005 on the basis of population census of 1981 and 2001 respectively. But quantum of waste water generated had gone up due to increase in population and increase in floating population of tourists and visitors. Similarly, in Rishikesh, approximately 16 MLD sewage was reaching the *Lakadghat* Oxidation Pond, whereas the capacity of the Oxidation Pond was only 6 MLD. Consequently, 16 MLD sewage, which was partially treated, was being discharged into open drains which flowed into the *Soung River*, a tributary of River Ganga.



Matra Sadan Nalla discharging into river Ganga in Haridwar



Pandeywala Nalla discharging into Gang Nahar Haridwar



Mixing of industrial waste of SIDCUL with the treated water at Sarai, Haridwar

Sadan) were not tapped at all and were discharging untreated



Untreated sewage mix with treated sewage at Jagjeetpur, Haridwar

c. At Sarai 18.0 MLD sewage was being treated in the STP and the treated sewage was being discharged into the *Sukhi* river which flows for around eight kilometres before falling into the River Ganga. An industrial waste from the State Industrial Development Corporation of Uttarakhand Limited (SIDCUL), Haridwar was also being let into this channel carrying the treated water, thus polluting the treated water. The Biochemical Oxygen Demand (BOD) level of water at this point was tested and found to be 22 mg/litre, which is significantly higher than the accepted norm of 10 mg/litre. The SPMG stated that as per directions of National Green Tribunal (NGT), a notice had been issued to SIDCUL.

x. **Flaring of Methane Gas**

An STP of 18.0 MLD capacity constructed at Jagjeetpur, Haridwar under Ganga Action Plan (GAP-I). In the year 2011 about 350 to 400 cubic metre methane gas released per day was being flared in open air in the premises of the STP from the year 2011. Further consent to operate the STP and NOC from the UEPPCB had been obtained as per Environment Protection Act 1986.

xi. **Reuse of treated water and sludge**

As per the Central Public Health and Environmental Engineering Organisation (CPHEEO) manual,

provision for reuse of the treated water and the sludge from STPs in agriculture, horticulture, etc. should be made by the Implementing Agencies. It was found that the provisions for reusing the treated water from 3.5 MLD STP at Rishikesh and 18 MLD STP at Sarai, Haridwar had not been made and the treated water was being discharged into River Ganga or its tributaries. Further sludge was being dumped alongside the STPs, causing threat to the environment.

xii. **Physical progress under Forestry Interventions for Ganga**

Under Annual Plan of Operation 2016-17, NMCG approved implementation of forestry interventions in 1,521 ha area. The Department failed to achieve the goals set for the year 2016-17 in three out of the four targeted interventions by a margin ranging from 3.50 per cent in the case of advanced soil work to 87 per cent in the case of urban landscape. Urban landscaping was to be taken up in four districts, namely Tehri, Uttarkashi, Dehradun and Haridwar. In Uttarkashi although plantation was found to have been carried out as per provisions in the DPR, there were shortfall in the achievements *vis-à-vis* targets. Target for Uttarkashi Division was five hectares (three hectares for avenue plantation and two hectares for eco-park). Against this, only two hectares were brought under avenue plantation by March 2017 because of delayed release of funds. No activity was taken up for development of eco-park. In Dehradun avenue plantation had not been taken up. Out of three hectares targeted for development of eco-park only 0.75 hectares were developed.

xiii. **Plantation issues under Forestry Interventions for Ganga**

1) Paragraph 5.5.2 of the DPR Volume-I approved by NMCG

provided that pits for plantation works should be dug sufficiently well before planting operation according to the standard practice in the plantation area, and the period between pit digging and scheduled planting time should not be more than four months so that soil run off through wind and water could be minimised. In Uttarakhand, the regular planting activity is conducted in July-August during the monsoons and, therefore, the ideal time for pit digging should be April or later. During audit of the nine test-checked divisions, seven divisions reported digging of pits during January-March 2017. The pits for natural plantation were, therefore, dug 1-3 months prior to the recommended time which was in violation of the programme guidelines.

2) DPR (Paragraph 5.5.2 of Volume-I) provided application of organic manure to boost plant growth in nurseries and plantations. Eco-friendly measures were to be adopted without resorting to use of synthetic chemicals. In the nine test-checked divisions, four³¹ divisions reported that a mixture of organic manures and synthetic chemicals were applied for the plantation. Use of synthetic chemicals by the divisions was in violation of provisions of the DPR.

3) The activities of Bio-remediation and Bio-filtration, Industrial Plantation, Riparian Wildlife Management, Wetland Management and River Front Development, which were part of Urban Landscape and Conservation interventions, were not attempted at all despite the fact that these activities were crucial for mitigating

the risk of pollution from contaminants flowing out from urban and peri-urban agglomerations and industrial clusters.

4) A target of five hectares was set for avenue plantation³² for the Haridwar division for the year 2016-17, for which an amount of ` 12 lakh was allotted in February 2017. However, no plantation was done by the division and the amount allotted was surrendered in May 2017. On being pointed out, the division while accepting the facts stated that the National Highway Authority of India expressed its inability to provide the location. The reply is not acceptable as work of widening of National Highway was going on for the last several years and availability of locality should have been confirmed prior to preparing the APO.

xiv. **Water Quality Monitoring of River Ganga**

Water quality monitoring at the monitoring stations was not being done by UEPPCB at the entry and exit points of a particular town. It was, therefore, difficult to compare the water quality of a town at the entry and exit point. This lacuna also prevented measuring the effectiveness of the STPs and I&D projects in controlling water pollution originating from these towns. As per the UEPPCB's water quality monitoring report, the status of water quality was as under:

- i. Gangotri to Rishikesh stretch: 'A' grade
- ii. Rishikesh to Haridwar: 'B' grade
- iii. Haridwar downstream: 'C' grade

The report corroborates the fact that the water quality in the River worsened

downstream. As a majority of active STPs are in Rishikesh and Haridwar, it also indicated that despite operation of STPs, pollution in the river in Rishikesh-Haridwar stretch continued unabated on account of various implementation issues as discussed. Further, during the scrutiny of records of the UEPPCB, it was observed that out of sampled ten towns, water quality monitoring stations were established at only three stations.

xv. **Achievement of Sustainable Development Goals**

The objective of Sustainable Development Goals (SDGs) is to produce a set of universally applicable goals that balance the three dimensions of sustainable development: environmental, social, and economic. In total, 17 goals have been set as SDGs which are to be achieved by 2030. The sixth goal of SDGs pertains to the concept of 'clean water and sanitation'. It aims at ensuring availability and sustainable management of water and sanitation for all. However, instances of unscientific disposal of garbage in the catchment area of River Ganga, delays in completions of sanitation related infrastructure projects and non-tapping of Nallas leading to discharge of untreated sewage in River Ganga and its tributaries, as detailed in preceding paragraphs, indicate that more efforts are needed to achieve the goal of clean water and sanitation.

Conclusion

Annual Plan was not being submitted as per the prescribed timeline. The total plan size approved in the APO for Forestry Interventions for Ganga was a meagre 4.66 per cent of the area planned for the year 2016-17 in the DPR. State share was being released on lump-sum basis which was in contravention to

the NGRBA framework. The claim of the department in making all the 265 villages in 132 GPs in seven districts ODF was found to be incorrect. Lack of coordination between EAs led to poor utilisation of STPs resulting in discharge of untreated sewage into River Ganga. Out of 112 Nallas identified, 65 Nallas remained untapped resulting in discharge of 26.292 MLD untreated sewage into the River Ganga and its tributaries. Delay in commissioning STPs and inadequate capacity of existing STPs to treat sewage load led to discharge of untreated sewage into the Ganga and its tributaries. The municipal garbage and sludge from operational STPs was being dumped on the hill slopes and at the STP sites respectively. Water quality monitoring stations were yet to be set up in majority of the priority towns which made it difficult to ascertain the quality of water along the entire length of the River Ganga. There was persistent shortfall in human resources and monitoring and evaluation mechanism had been far from effective.

Recommendations

The Government may ensure:

- Timely submission of proposals from the Executing Agencies so that the Annual Plan is submitted to NMCG in time;
- Execution of project level Memorandum of Agreements between the State Programme Management Group, Executing Agency and the concerned Urban Local Body for formalising coordination arrangements in the State;
- Better planning, execution and monitoring of Annual Plan in line with the targets set in the DPR for forestry intervention;
- Construction of targeted Community Sanitation Complexes and Solid Liquid Waste Management structures.
- Scientific disposal of municipal garbage after proper segregation;

- Capacity upgradation of Sewage Treatment Plants and
- Tapping and preventing the discharge of sewage from all the identified Nallas

➤ *Sandeep Pawar*

XI. Summary of Report on Air Quality by National Audit Office, UK

This report²² gives an overview of government's approach for improving air quality in UK. It was prepared in support of a joint inquiry by the Environmental Audit Committee; the Environment, Food and Rural Affairs Committee; the Health Committee and the Transport Committee of the House of Commons.

I. Audit approach:

i. Issue:

Air pollution is the presence or introduction of any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere, such as nitrogen dioxide and particulate matter.

ii. Aim and Scope

Scope of report was covered under three parts:

- **Part One: Why air quality matters**
This part covers the causes and consequences of poor air quality, the progress UK has made in complying with European Union (EU) regulations on air quality; and the impact of leaving the EU.
- **Part Two: The UK's plan to improve air quality**
This part covers, the 2017 Air Quality Plan (the 2017 Plan) for reducing roadside nitrogen dioxide (NO₂) concentrations; and the air quality models that underpin the Plan.
- **Part Three: Risks and success factors for delivering government's air quality plans**

This part covers recurring themes that have proved important in implementing cross-governmental policies effectively; and analysis of associated key risks and success factors for government as it continues to implement its plans to improve air quality.

II. Issues that Committees desired to put to government under following headings:

a. Why air quality matters

- How will EU exit affect government's approach to air quality: are ceilings, limits and priorities likely to change, how will limits be enforced?
- What will need to be in place before EU exit to secure a smooth transition for air quality legislation and standards?
- When will they have updated estimates of the adverse impacts of UK air quality?

b. The UK's plan for improving air quality

- How does the plan draw on lessons learnt from government's performance on tackling air pollution to date?
- What provisions have government made to reflect the significant uncertainty associated with air quality modelling?
- What are the main issues that government plan to address in the 2018 air quality strategy?

c. Risks and success factors

- How government will deal with the risk that local authorities do not have sufficient resources and expertise to be able to meet air quality requirements effectively? What factors will determine the size and eligibility criteria for the new Clean Air Fund?
- How will government make sure that local authorities receive the right

²² <https://www.nao.org.uk/report/air-quality/>

support and engagement from other parts of government?

- iii. How can government strengthen arrangements for leadership, oversight and communication across government on air quality: what additional skills and capacity will the Joint Air Quality Unit need; should local authorities be better represented at a national strategic level; and how will you track overall progress on national as well as local air quality measures?

II. Evidence Base

Independent findings on government's approach to air quality were reached following analysis of evidence collected between July and November 2017. The report is primarily based on publicly available information, supplemented by interviews and evidence requests from government officials.

• Literature review

Literature review of publicly available information on air quality in the UK was to develop understanding of the wider context and to collate information available in the public domain. Sources included the UK-AIR website (<https://uk-air.defra.gov.uk/>); the 2015 and 2017 air quality plans and their supporting documents; minutes and reports produced by the Committee on the Medical Effects of Air Pollutants (COMEAP); submissions and evidence sessions of previous select committee inquiries on air quality; and European Environment Agency reports on air quality.

• Interview with Government officials

Semi structured Interviews were conducted with government officials at Defra and DfT.

• Review of government documents

Internal documents held by the Departments, including the models used to inform the 2017 Plan minutes of meetings of the Joint Air Quality Unit

delivery board; and risk registers relating to air quality.

• Interviews with stakeholders and experts

Semi-structured interviews with a range of air quality stakeholders and experts external to central government, including representatives of the Local Government Association, the Institute of Air Quality Management and academics from Leicester University and King's College London.

III. Key Audit findings

Why air quality matters

1. As per estimate of expert Committee to the Department of Health of UK "fine particulate matter (PM2.5) increased mortality by the equivalent of 29,000 deaths in the UK in 2008". It considers that on the balance of evidence nitrogen dioxide presents an additional health risk, though it cautions that it is not yet possible to make a reliable quantitative estimate of the size of this effect. Public Health England also reported that long term exposure to poor air quality is a contributory factor to around as many deaths in England as alcohol. The Royal College of Physicians estimated that the health impacts of air pollution cost the UK £20 billion in 2016.

2. UK emissions of nitrogen oxides (NOx) and fine particulate matter fell by 69% and 76% respectively from 1970 to 2015, with similar reductions in other pollutants. These reductions have been achieved through legislative restrictions on industry, European vehicle emission standards and a shift in the UK fuel mix away from coal, among other measures.

3. UK has not yet met EU concentration limits for one pollutant (NO₂) that had a compliance deadline of

2010. For reporting purposes the UK is divided into 43 air quality zones.

A zone is deemed to be non-compliant if the UK's official monitoring and modelling shows that concentrations of pollutants in the air at one or more locations within the zone exceed certain limits. In 2016, 37 of the UK's 43 air quality zones did not comply with annual limits for NO₂ concentrations. It is considered that a key cause of non-compliance is the failure of European vehicle regulations (Euro standards) to deliver expected emissions reductions in real world driving conditions

4. Road transport is the main contributor to non-compliance with nitrogen dioxide concentration limits and is responsible for 80% of the NO_x concentrations at locations where the UK exceeds legal limits, on average. Wood and coal burning by households represents 42% of fine particulate matter emissions, while agriculture contributes 81% of ammonia emissions

5. Government of UK plans to consult on a new, independent body to hold the government to account for upholding environmental standards in England after the UK leaves the European Union.

The UK's plan for improving air quality

6. Government has published its latest air quality plan in July 2017 following a series of legal challenges to previous plans.

7. A key component of the 2017 Plan is an expectation that 28 local authorities will implement new air quality measures to achieve compliance 'in the shortest possible time'. As part of the 2017 Plan, it is required to accelerate local authority action on air quality. Directions have been issued to 23 English local authorities to develop new local air quality plans, and offering associated support, guidance and funding. Central government will be testing whether these plans secure

compliance in the shortest possible time, including by comparing the plans against its estimate that the introduction of 'charging clean air zones' could secure compliance by 2021.

A charging clean air zone involves charging certain types of vehicles to enter certain areas in order to discourage use of the most polluting vehicles. Government expects that measures in the 2017 plan will secure full compliance in 2026, with 37 of the UK's 43 air quality zones compliant by 2021

8. Government selected local authorities based on the central scenario of a complex modelling process that is subject to substantial uncertainty that draws on several subsidiary models and numerous datasets.

9. Government has committed to publish a wider air quality strategy in 2018, covering a broader range of pollutants and sources. The 2017 Plan focuses on transport because vehicles are responsible for most of the NO₂ concentrations at the roadside, where the UK exceeds legal limits. There are, however, other significant contributors to air pollution such as domestic wood burning, agriculture, industry and fossil fuel power plants. Government will set out its approach to these wider sources of air pollution in 2018

Risks and success factors

10. Availability of sufficient capacity and resource to manage the actions needed is prerequisite for implementation of the plan. To support local authorities, government has announced a £255 million implementation fund for the 28 local authorities that it expects to accelerate action on air quality, and is offering associated support and guidance. It has also committed to establish an additional Clean Air Fund to which local authorities will be able to apply, the details of which have not yet been announced

11. Local authorities need support from a wide range of other organisations to resolve local air quality problems. Local air quality is a function of national as well as local factors, such as the tax incentives on drivers to purchase types of vehicles, the impact of decisions made by Highways England relating to the Strategic Road Network, and progress in establishing the infrastructure for electric vehicles. Local authority work on air quality is also complicated by the separation between tiers of local government: while district or city councils have responsibility for managing local air quality, transport is managed by county councils

XII. The 6th International Training Programme on Introduction to Environment Auditing

The 6th International Training Programme (ITP) on “Introduction to Environment Auditing” was held from 26th November 2018 to 8th December 2018 at the international center for environmental auditing (ICED) in Jaipur, India. The training was hands on, with emphasis on conceptual clarity as well as practical exercises and sharing of relevant experiences. It was designed to provide knowledge for working with environmental issues, including recognizing environmental problems, selecting relevant audit topics, developing suitable audit criteria and audit methodology, and making meaningful recommendations.

The training was officially inaugurated on 8th December by the Director General (DG) of **iCED, Mr. Sunil Dadhe**. In his welcoming remarks, DG stated that each participant had to be accountable to the environment and think of how the daily actions and choices impact to the environment. He also stated that it was important for people to leave the environment which they inherited from their forefathers to the future generations.

Course Overview

The course covered different aspects of environment problems, principles, policies and regulatory instrument for environmental good governance and ways to audit them. It covered audit of water issues, biodiversity, climate change, waste (i.e waste water and technological waste), Market Based Instruments (MBI), and Environmental Impact Assessments (EIAs), SDGs. Practical case studies were used to demonstrate how an audit scenario could be handled and also field visits were conducted to show how India handled cases of drought and floods. Course review and evaluation of the strategies for environmental auditing was also done on conclusion of training programme.

Lessons learned

Environmental audits can be conducted as performance audit for evaluating economy, efficiency or effectiveness of environmental project, laws and government interventions. It can also be conducted as a compliance audit where checklist of whether measures for preventing pollution or guidelines are being adhered to and complied. As a financial audit, evaluation of the assets (environmental assets could be classified as water, air, flora and fauna) and liabilities (liabilities could be classified as cost of cleaning water pollution) of programme or projects involving environment costs and benefits can be done.



The garden of rare tree species at ICED

The aspect of greening SAI could be seen on how the training center itself had implemented some energy efficient measures such as, the design of the buildings which allowed more lighting from the natural light as opposed to using more conversional lighting; recycling of waste water

within the institution which is reused for watering the surroundings; use of glass cups for drinking water as opposed to plastic bottled water; and usage of solar energy mainly for heating water and lighting.

It takes one step to start a 100 miles journey therefore if each one of us at SAI level and individually could implement simple energy saving practices like turning off lights and water when not in use, using less paper to save our tree and switching to more efficient use of our natural resources. By adopting such simple practices, we would be saving our environment.

Climate change is an issue that is affecting everyone on planet earth with incidents of floods and droughts. Field visits to **Tarun Bharat Sangh** a project that rejuvenated dry rivers showed how water was trapped using simple techniques of putting small ridges in the river bed.



Rejuvenated water body

With the help of local communities and using minimal resources they were able to rejuvenate rivers and aquifers and the livelihood of local communities who were predominantly farmers. Further, it could be seen that the environment around the area was green and a lot of farming activities were taking place. Similar approach were adopted by many communities across India.



Drip irrigation and water trapping at TBS

The visit helped the participants identify water issues and how to sustainably manage water in times of scarcity and sustainable use through drip irrigation.

Deer Sight at park



Keoladeo National Park in Bharatpur, a bird sanctuary was another visit that had a lot of lessons on biodiversity. The park faced threats due to dry spells. Many species of birds, animals and habitants were

Wetland at Keoladeo National Park

becoming extinct. With a view to restore ecology of the park, government took advantage of the floods and diverted the water to the bird sanctuary. As could be seen there was so much life in the sanctuary as



there were a number of bird species and other animals. Effects of high nutrients in the water bodies could be noticed in view of growth of weeds which in turn affected ecology of the park. It was interesting to learn about use of flood waters for restoration of wetlands.



Lessons conducting cooperative audits on shared natural resources such as rivers including ways of mitigating challenges were also covered in training. Participants also learnt about aspects of Market Based Instruments (MBI) employed by governments and audits to determine their effectiveness. Overview of Sustainable Development Goals (SDGs), background and targets were also discussed. Currently the SAI are auditing the preparedness for the implementation of SDGs.



Participant interacting

Other key audit tools that could be used in environmental audit were; the Audit Design Matrix (ADM) which is a systematic process that helps consolidate information and acts as a basis for developing audit programme; stakeholder mapping in terms of their interest and influences and (RACI) tool for analyses of the stakeholders in terms of role assignment such as Responsible, Accountable, Consulted and Informed for the activity.

Interactions with other participants from different SAIs was enriching especially through class exercise where different experiences were shared. The course was finally concluded with teams preparing a paper on different audit problems primarily based on lessons learned namely:

1. Co-operative audit: Government Efforts to control pollution in Zambia's Kafue River and Vietnam West Lake (Malaysia, Vietnam and Zambia)
2. Joint strategy paper on performance audit of solid waste management by ACCRA Metropolitan Assembly and Thimphu

National Park, Bharatpur: once dry bird sanctuary now full of life

Municipality (Bhutan and Ghana)

3. Audit of government's actions to control the threats to the freshwater habitat in Okavango delta, Botswana (Botswana, El Salvador and Fiji)
4. Review on prevention/ mitigation measures taken by Saudi Arabia to combat desertification (India, Saudi Arabia and Sudan). The papers were reviewed and the paper presented by team comprising Mr. Namen Pradhan (Bhutan), Mr. Stephen Narkotey and Mr. Abdul Samad Issahaque (Ghana) emerged winners was judged to be the best paper.

The adage which goes, "All work and no play makes john a dull boy", could not be true for this group of participants as they were treated to shopping trips at the local markets for traditional Indian produce and at the malls for conventional products. A road trip to Agra was also organized. The participants had wonderful opportunities to view the countryside of Jaipur and Agra. The Taj Mahal which is one of the worlds 7th wonder was one rare opportunity provided to participants. The rare experience will always be treasured in our memory. A closing diner was hosted for the participants accompanied by a cultural programme.

Generally the course was very enriching as most participants could relate with the practical examples used, able to identify environmental problems and use audit tools which would definitely be of help in future environmental audits. The closing ceremony was graced by the Chairman of INTOSAI WGEA Mr. Moermahadi Soerja Djanegara and the Additional Deputy Comptroller General of SAI India (Training) Mr A W K Langstieh.



➤ **Thandiwe Sibalwa Kapotwe, SAI Zambia**

Participants Mrs. Thandiwe Kapotwe and Mr. Stephen Narkotey giving a vote of thanks.

