

# Green Files

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INTERNATIONAL CENTRE FOR ENVIRONMENT  
AUDIT AND SUSTAINABLE DEVELOPMENT  
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GREEN FILES

*Newsletter on Environment Audit and Sustainable Development issues*  
**International Centre for Environment Audit and Sustainable  
Development (iCED)**

**EDITORIAL**

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Green Files, a quarterly newsletter published by iCED highlights contemporary environmental issues, environmental laws, status of environment in Indian provinces, national – international events about environment and sustainable development, comments on national – international environmental audits, etc.

iCED organized five National Training Programmes during the quarter July-September 2017. One of them was on Audit of Preparedness for implementation of SDGs based on effective convergence of various schemes related to SDGs and coordination across various departments. It touched upon linking SDGs into national plans and policies. A Bilateral Training Program on ‘Audit of construction activities’ for Supreme Audit Institution, Afghanistan was also conducted. iCED also conducted introductory training in “Environment Auditing “ for the Officers Trainee of the 2016 batch of Indian Audit and Accounts Service. This issue of Greenfiles focuses issues involved in audit of Bio-medical and solid waste management. It also carries impressions of an officer trainee on learning at iCED. I hope readers find these of interest and use. We at iCED, also 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 can be mailed to [iced@cag.gov.in](mailto:iced@cag.gov.in)

With regards,

**Sunil Dadhe**  
**Director General, iCED**

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## I. iCED News

The 2030 Agenda For Sustainable Development comprising of 17 Sustainable Development Goals (SDGs) and 169 targets jointly adopted by United Nations Members States in September 2015, provides an ambitious and long-term agenda on a broad range of vital issues. The Agenda noted that “Our Governments have the primary responsibility for follow-up and review, at the national, regional and global levels, in relation to the progress made in implementing the goals and targets over the coming fifteen years.” SAIs can, through their audits and consistent with their mandates and priorities, make valuable contributions to national efforts to track progress, monitor implementation and identify improvement opportunities across the full set of the SDGs. INTOSAI has decided to include SDGs quite centrally in its strategic plan 2017-2022 as a cross cutting theme. 28<sup>th</sup> Accountants General Conference held in 2016 also recognized the need for capacity building of officers in IA&AD to audit SDGs. In this backdrop, iCED for the first time organized a National Training Programme on Audit of Sustainable Development Goals (SDGs) from 16<sup>th</sup> to 19<sup>th</sup> August, 2017. Training programme



*Participants with Director General, iCED*

was attended by 26 participants including 6 IAAS officers from different field offices.

Apart from departmental faculty within and outside iCED Ms. Divya Dutt, Associate Director, TERI; Dr. N. R. Bhanumurthy, Professor, NIPFP; Dr. Pratap Ranjan Jena, Associate Professor, NIPFP delivered various sessions during the training programme.

A six day Training programme on Introduction to Environment Audit for IAAS Officer Trainees (2016 Batch) was also organized from 04<sup>th</sup> to 09<sup>th</sup> September, 2017. Training programme aimed at capacity building of probationers on issues relating to environment which includes conservation of biodiversity, water issues, waste management, aspects of sustainable development, climate change etc. There were 23 participants including 02 officers from RAA, Bhutan attended the training programme. Dr. Rajendra Singh the



*IA&AS Officer Trainees (2016 Batch) with Director General, iCED and Shri Rajendra Singh, Tarun Bharat Sangh*

recipient of “Stockholm Water Prize - the Nobel Prize for water (2015)” and “Ramon Magsaysay Award for community leadership (2001)” delivered a session as esteemed guest faculty. Apart from Shri Rajendra Singh, Ms. Shalini Bhutani, Independent Researcher; Shri Anshuman, Associate Director, TERI; Shri Raj Ganesh Viswanathan, PAG (G&SSA), Rajasthan; Shri C B Ramkumar, Founder, Green Dreams, Bengaluru; Dr. Sanjay Mathur, MNIT, Jaipur and Dr. T. V. Ramchandra, CES, IISc, Bengaluru shared their knowledge and

experience in various fields of environment with participants. A 12 day Bilateral Training Programme on Audit of Construction Activities for officers from SAI, Afghanistan was conducted from 18<sup>th</sup> to 29<sup>th</sup> September, 2017. This is the 3<sup>rd</sup> Bilateral Training Programme conducted at iCED for officers from SAI, Afghanistan. There were 16 officers from SAI, Afghanistan who attended this training programme. Training aimed at imparting inputs to participants on various aspects of construction activity and its audit. Study tour to Delhi Metro was also included in the training programme to provide a practical exposure to the participants.

iCED alongwith International Relations wing at the office of C&AG of India conducted a number of General and IT Training Programmes for officers selected to conduct UN audit. Ms. Laticia Wrizar and Mr. Harris



*Officers from SAI, Afghanistan with Director General, iCED*

from UN Headquarters provided training to participants on UMOJA. Following UN Audit Training programmes were conducted at iCED during July – September, 2017:

- i. 5 day UN Audit UMOJA and IT Training programme for Volume I Audit Teams/ UNJSPF/ Anti-Fraud Framework from 31<sup>st</sup> July to 04<sup>th</sup> August, 2017;
- ii. 3 day UN Audit General Training programme for UNPKO Audit Team/

Reserve Pool from 02<sup>nd</sup> to 04<sup>th</sup> August, 2017;

- iii. 5 day UN Audit UMOJA and IT Training programme for UNPKO Audit Team/ Reserve Pool/ Core Group from 07<sup>th</sup> to 11<sup>th</sup> August, 2017;
- iv. 5 day UN Audit IT Training programme for UNOPS/ UNICEF Audit teams from 18<sup>th</sup> September to 22<sup>nd</sup> September, 2017;
- v. 5 day UN Audit IT Training programme for WIPO Audit teams from 25<sup>th</sup> September to 29<sup>th</sup> September, 2017.

iCED also conducted following National Training Programmes (NTPs) during the quarter July – September, 2017:

- i. NTP on Audit of Water issues from 3<sup>rd</sup> July to 7<sup>th</sup> July 2017;
- ii. NTP on Audit of Environmental Regulatory Authorities and Bodies in the States 10<sup>th</sup> July to 14<sup>th</sup> July 2017; and
- iii. NTP on Audit of Industrial Pollution, Energy and Transport Issues from 28<sup>th</sup> August to 01<sup>st</sup> September 2017.

➤ **Vijendra Tanwar**

## II. INTOSAI WEGA 15<sup>th</sup> Steering Committee Meeting

INTOSAI Working Group on Environmental Auditing (INTOSAI WGEA) organized the 15<sup>th</sup> Steering Committee meeting at Washington, D.C on September 11-15,2017 which was hosted by Government Accountability Office (GAO) of USA.

17 out of 78 member countries of INTOSAI WEGA are presently members of the Steering Committee including SAI India. Steering Committee of INTOSAI WGEA is the Management committee of the WGEA, providing operational support and strategic direction. SAI Indonesia is the current chair of

INTOSAI WGEA. Key responsibilities of this committee are as mentioned below:

1. Considers and recommends work plan
2. Approves overall project management system developed by Chair
3. Reviews, advises on and approves project-specific work plans, progress reports and project drafts 3 Roles and Responsibilities of the INTOSAI WGEA Working Bodies
4. Provides strategic advice to Chair on initiatives related to long-term vision, relationship building, support to RWGEAs, etc.

Shri Sunil Dadhe, Director General, iCED represented SAI India in the 15th SC meeting concluded at Washington DC.

➤ **Pankaj Saini**

### III. Environmental News

**a) National Centre for Sustainable Coastal Management dedicated to the Nation:** - The National Centre for Sustainable Coastal Management (NCSCM) was dedicated recently to the nation at Chennai. The new building of the Centre and research infrastructure at Anna University campus in Chennai was also inaugurated. The research undertaken by NCSCM is expected to be used directly for arriving at policy decisions and for capacity building of coastal communities and other stakeholders.

Six research divisions have been established at NCSCM that will combine geospatial sciences with cutting-edge research on conservation, pollution, climate change and community interface – both in mainland and islands of the country.

**b) MERIT app and e-Bidding portal for utilization of domestic coal in IPP Power Stations for reducing the cost of power generation launched :-** The Government of India has launched the ‘MERIT app (Merit Order Despatch of Electricity for Rejuvenation of Income and Transparency - <http://meritindia.in/>)’ and the e-bidding portal for providing e-Bidding solution to states to select Independent Power Producers (IPPs) for procurement of power by transferring their domestic coal under the scheme of flexibility in utilization of domestic coal.

The app and the web portal is expected to result in optimum utilization of Coal which would save the consumer close to Rs. 20,000 crores in five years.

**c) Climate change impact: Sunderbans steadily losing its famed mangroves :-** The School of Oceanographic Studies, Jadavpur University has released a study titled Mangrove Forest Cover Changes in Indian Sundarban (1986-2012) Using Remote Sensing and GIS according to which total forest cover of the Indian Sunderbans as assessed by remote sensing studies for the year 1986 was about 2,246.839 sq. km., which gradually declined by 2,201.41 sq. km. in 1996, then down to 2168.914 sq km in 2001 and to 2122.421 sq km in 2012. The loss in the mangrove forest in the Indian Sunderbans is about 5.5 %.

**d) New underground water treatment plant commissioned at Sadhutilla in Tripura :-** In Tripura, a new underground water treatment plant has been commissioned at Sadhutilla in the southern part of Agartala under the aegis of the state Urban Development department. Officials said the plant has fulfilled long cherished aspiration

of people looking for drinking water free from iron and other contamination.

The plant has started functioning with supply of quality treated water initially to 565 households through pipe line. It has treatment capacity of 4.8 million litre per day and will supply potable water to 2500 connections at households, schools, markets and institutions of 13 hamlets.

According to the state Urban Development department, the built up cost of this water treatment plant was around Rs. 5. It has been funded jointly by the Asian Development Bank with 70% share of assistance and the Union Government with 30 % share of assistance.

**e) National Centre for Seismology launches 'India Quake':** An App for Earthquake Parameter Dissemination: - On the occasion of Foundation Day of Ministry of Earth Sciences an app "India Quake" has been launched.

National Centre for Seismology (NCS) operates national seismological network with 84 stations. These stations are connected to NCS headquarter through VSAT for real time data communication. In the event of an earthquake NCS locates them using data from its network and disseminate earthquake parameters to all the concerned government department and other stakeholders through SMS, email and fax. However this causes some delay in dissemination and also restricts the number of recipients.

To overcome this, a Mobile App has been developed by the NCS for automatic dissemination of earthquake parameter (location, time and magnitude) after the occurrence of earthquakes. The App will make information dissemination faster with no restrictions on the number of recipients.

**f) Plastic converted In to Petrol:** - CSIR-Indian Institute of Chemical Technology (IICT), Hyderabad has developed a catalyst that can be used for conversion of waste plastics to fuel oils. CSIR-Indian Institute of Petroleum (IIP), Dehradun in collaboration with GAIL (India) Ltd. has developed a process by which waste polyethylene and polypropylene type plastics can be converted into petrol and diesel. One kilogram of waste polyethylene and polypropylene can be converted to either about 600-650 ml of petrol or 700-750 ml of diesel along with LPG. The process has been developed at the bench scale.

There are certain plants operating in foreign countries which claim to convert waste plastics into plastic oil / fuel oil / diesel.

**g) "JIGYASA" - Student-Scientist connect programme launched:** - Council of Scientific and Industrial Research (CSIR), has joined hands with Kendriya Vidyalaya Sangathan (KVS) to implement Jigyasa, a student- scientist connect programme. The focus is on connecting school students and scientists so as to extend student's classroom learning with that of a very well planned research laboratory based learning.

The Programme is expected to connect 1151 Kendriya Vidyalayas with 38 National Laboratories of CSIR targeting 100,000 students and nearly 1000 teachers annually. The program will also enable the students and teachers to practically live the theoretical concepts taught in science by visiting CSIR laboratories and by participating in mini-science projects.

**h) Indo-Canadian Science Programme on clean water technology:** - The Department of Biotechnology and Department of Science and Technology, Ministry of Science and Technology are collaborating with Canada

through the India-Canada Centre for Innovation Multi-disciplinary Partnerships to Accelerate Community Transformation and Sustainability (IC-IMPACTS), on programme focusing on Clean Water technology. Under the programme five projects are being implemented with Indian commitment of Rs. 572.00 lakh and Canadian commitment of Rs. 750.00 lakh.

Results / technologies likely to be achieved from the projects and subsequently adopted for ensuring the supply of clean drinking water and efficient water management are

- # Bio-sensors for detection of toxins
- # Heavy metal detection and removal
- # Bio-recovery from waste water (waste to wealth)
- # Survey to identify and explore alternatives in domestic water management

**i) Ministry of Agriculture & Farmers Welfare releases Rs.16094.13 crore out of Rs. 62125.02 crore of total budget of Agriculture sector for the year 2017-18 in the first quarter of 2017-18 :-** Ministry of Agriculture and Farmers Welfare is striving for holistic development of Indian Agriculture and its backbone - farmers. To achieve the goal of doubling of farmers' income by 2022, the Ministry's budget of Rs. 62125.02 crore during 2017-18 has increased by about 39% as against Rs. 44721.84 crore during 2016-17.

**j) As a follow up to the new policy called Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India (SHAKTI), Coal India Limited (CIL) conducts the auction for Independent Power Producers (IPPs) :-** On May 17, 2017, Cabinet Committee on Economic Affairs (CCEA) approved a new policy for allocation of future coal linkages in a transparent manner for power sector. This

policy was christened as Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India (SHAKTI). The policy was an important initiative in alleviating one key challenge in power sector, viz. lack of coal linkage and is expected to positively contribute in resolution of a number of stressed assets. As a part of this policy, CIL/SCCL is to grant coal linkages on notified price on auction basis for Independent Power Producers (IPPs) having already concluded domestic coal based Power Purchase Agreement (PPAs). This was expected to result in a win-win situation of IPPs having a long term supply security of coal from a source of their choice while consumers will benefit from a lower tariff.

Out of 14 Eligible Bidders, 10 participated in the auction representing a cumulative capacity of approx 9044 MW and booked from 8 available sources a cumulative quantity of ~27.18 million Tonnes Per Annum (TPA) with tariff discounts going up to 4 paise / unit. This is expected to result in an annual generation of over 47 billion units per annum from the linkage coal and a savings in tariff of approx 125cr / annum for period up to 25 years.

**k) Swachh Bharat launches Swachh Survekshan Gramin 2017 :-** As the Swachh Bharat Mission approaches the third anniversary of its launch a third party verification survey report to take stock of the progress already made by the Mission in rural India has been launched. The Quality Council of India (QCI) has conducted a third-party assessment of the present status of rural sanitation in all States and UTs, called Swachh Survekshan Gramin 2017.

Under the Swachh Survekshan Gramin 2017, QCI surveyed 1.4 lakh rural households across 4626 villages, and found the overall toilet coverage to be 62.45%. At the time of

the survey, i.e. May-June 2017, the Swachh Bharat Mission (Gramin) MIS reported the coverage to be 63.73%. The survey also observed that 91.29% of the people having access to a toilet, use it. The MDWS will also begin ranking all districts in India based on the data available on the SBM-G IMIS quarterly. The ranking will be done based on parameters of Performance, Sustainability and Transparency, and the first ranking will be announced on 2nd October, 2017 for the quarter July-September 2017. To instil healthy competition amongst districts, they will also be given awards based on this ranking on a quarterly basis. The formula for calculating these rankings will be:

Total score (100) = Performance (50) + Sustainability (25) + Transparency (25)

➤ Pankaj Saini

#### IV. State in Focus: Haryana

The state of Haryana represents a variety of landscapes varying from hills in the northern region to almost flat alluvial plains in the central parts, and sand dunes in the southern regions. The state has mainly 4 physiographic regions namely, i) Siwalik Hills: ii) Alluvial Plains: iii) Aravalli Hills, and iv) Aeolian plains. The entire state is drained by the tributaries mainly the Markanda, the Saraswati, The Chautoung, and the Tangri apart from other seasonal streams. The Sahibi, the Dohan and the Krishnavati originating from Aravalli ridges are flowing from south to north.

The climate of the state is sub-tropical, semi-arid to sub-humid, continental and monsoonal. The average annual rainfall of the state is about 650 mm which varies from less than 300 in south western parts to over 1000 mm in the hilly tracts of Siwalik. The state has 3 main climatic regions- Hot Arid region, Hot

semi-arid region and Hot sub-humid region. The mean rainfall (mm) in hot arid region ranges from 300 -500, whereas 500- 750 mm in hot semi-arid region and 750- 1050 in hot sub-humid region of Haryana. The mean temperature ranges from 27<sup>0</sup>C, 26<sup>0</sup> C, and 24<sup>0</sup>C respectively. As per Census 2011, Haryana has population of 2.53 crore. The total population growth in this decade was 19.9 percent. Average population density is 573 person per sq km.

Source:<http://www.haryana.gov.in/knowharyana/history.html>;

[http://www.moef.nic.in/downloads/public-information/NWIA\\_Haryana\\_Atlas.pdf](http://www.moef.nic.in/downloads/public-information/NWIA_Haryana_Atlas.pdf)

#### (1) Environment Scenario

##### (a) Forests

Haryana is primarily an agricultural state with almost 80 percent of its land under cultivation. The geographical area of the state is 44212 sq. km which is 1.3% of India's total geographical area. It is not bestowed with bounty of natural forests. As per India State of Forest Report, FSI, 2015, total recorded forest area in the state is 1559 sq. km., of which 249 sq. km. is reserved forest and 1158 sq. km. is protected forest and unclassed forest area is 152 sq. km, thus constituting 3.53% of the geographical area of the state and 2.83% of India's forest area.

Forestry activities in the state are dispersed over rugged Shivalik Hills in north, Aravalli hills in south, sand dunes in west and wastelands, saline-alkaline lands and waterlogged sites in the central part of the state.

Blocks of Reserve Forest areas are mainly confined to the Shivalik ranges in Panchkula and Yamunanagar districts. Small blocks of Reserved Forests are found at a number of places in the districts of Yamunanagar, Kaithal, Ambala, Jind and Hisar. Majority of forests in

the state belong to Sub-tropical dry deciduous category whereas sub-tropical thorny forests are found only in the Aravalli hills in the southern parts of the state. Pine forests are located at higher reaches in the Protected Forests of Morni Hills in Panchkula district, whereas Sal Forests dominate the Reserve Forests in the Shiwaliks of Yamunanagar district.

To promote sustainable development of forest resources in the State, Haryana Government framed its own Forest Policy in 2006. The policy has fixed the goal of achieving 20% Forest and Tree Cover in the state in a phased manner. This goal can be achieved by adopting Agroforestry practices. Till the year 2012-2013, the Forest Department has been distributing about 2.5 crore seedlings to the farmers free of cost. Agroforestry plantations raised by the Forest Department are rated as one of the best in the country. Great emphasis has been given to Agro-forestry and Farm-forestry. As a result, Tree Cover of the State has increased considerably over the years. In fact, Tree Cover outside recorded forest area is almost equivalent to Forest area of the State. While recorded forest area of the state is just 3.90% of its geographical area, total Forest and Tree cover of the State as per State of Forests Report, 2011, published by Forest Survey of India has become 6.80%. Poplar tree plantations dominate the Tree Cover in agricultural fields of Panchkula, Ambala and Yamunanagar districts. Eucalyptus, Shisham, Kikar, Jal and Jand tree plantations in Agricultural fields of central and south Haryana also account for a major portion of Forest and Tree Cover in the State.

Source:

<http://haryanaforest.gov.in/HomeContent1.asp>  
x and ISFR 2015 report

## Biodiversity

State has 2 National Parks, 8 Wildlife Sanctuaries, 2 Wildlife Conservation Areas, 5 Animal and Bird Breeding Centers, 1 Deer Park and 3 Zoos. The species of [fauna](#) found in the state of Haryana include [Back buck](#), [Nilgai](#), [Panther](#), [Fox](#), [Mongoose](#), [Jackal](#) and Wild dog. More than 450 species of birds are found here.

**Fauna in Sultanpur National Park** Apart from the vegetation and birds, the sanctuary is also home to a number of common animals like Striped Hyena, Leopard, Nilgai, Sambar, Blackbuck, Hog Deer, Four Horned Antelope, Caracal, Wild Dog, Rattle/Honey Badger, Mongoose, Hedgehog, Wild Pig, Wild Cat, Indian Porcupine, etc.

The Sultanpur National Park is home to about 250, out of a total 450 species of birds, found in Haryana. Apart from the resident birds it also witnesses more than a 100 migratory bird species, every year. These birds come to the sanctuary in search of feeding grounds and to pass the winter. Some of the birds are residents of this sanctuary, while the others come from distant regions like Siberia, Europe and Afghanistan.

**Resident Birds:** Common Hoopoe, Common Spoonbill, Common Mynah, Bank Mynah, Spot Bill, Grey Francolin, Black Francolin, Painted Stork, Black-necked Stork, Paddy Field Pipit, Rose-Ringed Parakeet, Black-headed ibis, White Ibis, Little Egret, Great Egret, Cattle Egret, Purple Sunbird, Indian Cormorant, White-throated Kingfisher, Red-vented Bulbul, Shikra, Red-wattled Lapwing, Laughing Dove, Red-collared Dove, Eurasian Collared Dove, Little Cormorant, Indian Roller, Crested Lark, Magpie Robin, Greater Coucal, Weaver Bird, Green Bee-eater, Spotted Owlet, Rock Pigeon, etc.

**Migratory Birds:** Migratory birds coming to this national park in winter are Siberian Crane,

Spotted Sandpiper, Wood Sandpiper, Spot-billed Pelican, Rosy Pelican, White Wagtail, Yellow Wagtail, Greater Flamingo, Black-winged Stilt, Ruff, Common Greenshank, Common Teal, Northern Pintail, Northern Shoveler, Gadwall, Eurasian Wigeon, Starling, Blue-throat & Long-tailed Pipit, Spotted Redshank, Black-tailed Godwit, etc. About 11 species of migratory birds also visit this park during summer.

Some of them are Asian Koel, Comb Duck, Blue-cheeked Bee-eater, Blue-tailed Bee-eater, Cuckoos, Black-crowned Night Heron, Grey Heron, Eurasian Golden Oriole, etc.

Source:

<http://haryanaforest.gov.in/protect.aspx>

#### (b) Wetlands

Area estimates of various wetland categories for Haryana have been carried out using GIS layers of wetland boundary, water-spread, aquatic vegetation and turbidity. Total 1441 wetlands have been mapped at 1:50,000 scale in the state. In addition, 10529 wetlands (smaller than 2.25 ha) have also been identified. Total wetland area estimated is 42478 ha that is around 0.86 per cent of the geographic area. The major wetland types are River / Stream accounting for 40.08 per cent of the wetlands (17025 ha), Tank / Ponds (7573 ha), waterlogged (3339 ha) and Reservoirs / Barrage (1775 ha). Analysis of wetland status in terms of open water and aquatic vegetation showed that around 14216 ha and 2245 ha respectively. Lotic wetlands include rivers and major streams and contribute an area of 17025 ha. Open water in post-monsoon season is very less (3121 ha). Presence of aquatic vegetation is more during post monsoon season and it is mainly due to dispersion of floating vegetation by wind and water current. Aquatic vegetation occupies an area of 2245 and 1497 during post-

and pre-monsoon respectively. High turbidity (3968 ha) is observed during post-monsoon season. Lakes and ponds showed low turbidity in general whereas tanks / ponds located around thermal plants and industrial area showed high turbidity.

**Source:** [http://www.moef.nic.in/downloads/public-information/NWIA\\_Haryana\\_Atlas.pdf](http://www.moef.nic.in/downloads/public-information/NWIA_Haryana_Atlas.pdf)

#### (d) Waste management

The Government of India, Ministry of Environment, Forests and Climate Change had framed Solid Waste Management Rules, 2000 which have been amended in 2016 making it mandatory for all the municipal authorities in the country and those responsible for managing the municipal solid waste in the country to implement the Rules. However, due to the limited resources, the treatment and disposal of solid wastes in an effective and appropriate manner is grossly inadequate.

Performance Audit on “Waste Management” conducted by C&AG of India in 2006-07 brought out Haryana State Pollution Control Board’s failure in assessing the updated quantity of waste being generated in the State, non-projection of growth of waste based on growth of population, consumption pattern and industrial growth, absence of strategy to prevent or to reduce generation of waste, etc. Only 24 per cent of the hazardous waste generation units, 40 per cent of bio-medical wastes facilities and none of the municipal solid waste operators had obtained authorization for the disposal of wastes from the State Pollution Control Board. Large quantities of hazardous waste was being piled up in pits, bio-medical waste was not being segregated, stored and disposed off by health institutions as per prescribed Rules. Municipal solid waste, sewage and treated effluent were being disposed of on the banks of a Nallah, in drains and in the open causing pollution. The Board

had not taken effective steps against the defaulting individuals /organisations and there was little deterrence against violations.

#### Highlights of the report:

- The Environment Department and the State Pollution Control Board had neither assessed the latest figure of waste being generated nor projected the growth of waste based on growth of population, consumption patterns and industrial growth. Further, no strategy existed to prevent or to reduce the generation of waste.
- Out of 106 operators of municipal solid waste, none had qualified for authorisation under Municipal Solid Waste (Management and Handling) Rules 2000.

Solid waste of many cities was being disposed of in the open at unauthorized places. Again in the Audit Report (2 of 2014) it was observed that 9 Municipal Councils had not complied with the provisions of the MSWMH Rules, 2000 even after 13 years of their promulgation. The problem of waste in the growing city of Gurugram was also highlighted in the Audit Report (4 of 2013). The state government has recently declared that it would set up 15 integrated solid waste management clusters to deal with solid waste in urban areas. Out of these, electricity would be generated from solid waste in three clusters, and manure from the remaining 12 clusters.

Source:

<http://iced.cag.gov.in/wp-content/uploads/2014/02/8.-PA-on-Waste-Management-in-Haryana.pdf>

#### (e) Ground Water:

Central Ground Water Board, North Western Region, Chandigarh has established Ground Water Observation Wells (GWOW) in Haryana State for monitoring the water levels. As on

31.03.2016, there were 1176 ground water observation wells which include 517 dug wells and 659 piezometers for monitoring phreatic aquifers including 45 deep piezometers for monitoring confined / semi- confined aquifers. These observation wells are being monitored four times a year in the months of May, August, November and January.

Nearly all types of waters are available in each district of the State. In ground waters, where salinity is high; mostly Na is the dominant cation and Cl or Cl + SO<sub>4</sub>+NO<sub>3</sub> (Mixed anion) are dominant. Permanent hardness is observed at few locations in Hissar, Jhajjar and Bhiwani district depicted by dominance of Ca-Cl.

Based on BIS recommendations, ground water occurring in the northern and north-eastern areas of the State is suitable for drinking. However, ground water at several places in the southern and western parts of the State is not suitable for drinking either due to one or more constituent exceeding the maximum permissible limits. Ground water occurring in the districts of Ambala, Jind, Kaithal, Karnal, Kurukshetra, Palwal, Panipat, Panchkula, Rohtak, Sonapat and Yamunanagar are mostly suitable for drinking as more than 50% water samples are having all the quality parameters within the permissible limits. In the districts of Faridabad, Gurgaon, Hissar, Mahendergarh, and Rewari, 30-50% water samples are having potable quality as per BIS 2012 standards. Ground water is mostly unsuitable for drinking due to one or more constituents exceeding the maximum permissible limits Bhiwani, Fatehabad, Jhajjar, Mewat and Sirsa as these districts have less than 30% ground waters having chemical parameters within the permissible limits.

The ground waters in the districts of Ambala, Fatehabad, Kaithal, Karnal, Kurukshetra, Panchkula, Panipat, Rohtak and Yamunanagar

are mostly of C1, C2, C3 salinity and S1- S2 sodicity classes. Such waters can be used for irrigation on soils with good permeability for growing salt tolerant or semi salt tolerant crops. Ground waters from southern and western part of Haryana comprising of districts of Bhiwani, Faridabad, Gurgaon, Hissar, Jhajjar, Jind, Mahendergarh, Mewat, Rewari, Sirsa, and Sonapat fall under C4S1, C4S2, C3S3, C3S3, C4S2, C4S3 and C4S4 classes. Use of such waters for irrigation under normal conditions may lead to both high to very high salinity as well as sodium hazards.

Shallow ground water occurring in southern and western parts is not suitable for drinking as well as for customary irrigation. The reason for unsuitability for drinking uses is high concentrations of either salinity or nitrate or fluoride. The reason for rejection for irrigation use is high salinity coupled with high SAR and RSC more than 2.5 meq/l. However, these waters can be used for irrigation in conjunction with surface water.

**Source:**

<http://www.cgwb.gov.in/Regions/GW-year-Books/GWYB-2015-16/GWYB%20NWR%20%20Haryana%202015-16.pdf>

**(h) Air Pollution**

Central Pollution Control Board initiated National Ambient Air Quality Monitoring (NAAQM) programme in the year 1984. Haryana State Pollution Control Board (SPCB) has a regular Ambient Air and Water Quality Monitoring Programme to assess the status of pollution in the natural environment. These monitoring programme are funded by the Central Pollution Control Board.

The Board has installed four Continuous Ambient Air Quality Monitoring Stations at Faridabad, Gurgaon, Rohtak and Panchkula. At present four parameters i.e. Respirable

Suspended Particulate Matters (RSPM), Suspended Particulate Matters (SPM), Sulphur Dioxide (SO<sub>2</sub>) and Nitrogen Dioxide (NO<sub>2</sub>) are measured for 24 hours twice a week. Monthly data is furnished regularly to Central Pollution Control Board.

The major sources of Suspended Particulate Matter (SPM) pollutants in the ambient air in the state are vehicular emission, road dust, garbage and waste burning, construction dust etc which contribute about 70 percent of total air pollution and the rest is contributed by industrial air emissions. Faridabad and Gurgaon have high concentration of PM<sub>2.5</sub> - particulate matters less than 2.5 microns - form of air pollution, which is considered the most serious. Faridabad, Gurgaon, Sonapat, Panipat, Panchkula, Yamunanagar have high concentration of PM<sub>10</sub> —particulate matters of the size of 10 micrograms — form of pollution in cities. The permissible limit of PM<sub>10</sub> exceeds in all these cities except Gurgaon.

Source:

[http://www.hspcb.gov.in/13\\_14E.pdf](http://www.hspcb.gov.in/13_14E.pdf),

<http://www.dailypioneer.com/state-editions/chandigarh/pollution-levels-of-pm10-up-in-major-cities-of-haryana.html>

**(2) Laws and Polices**

The Haryana State Pollution Control Board (the Board), constituted in September 1974, was entrusted with the responsibility of implementation of the provisions of the Act and Rules.

**(3) Environment Sustainability Index (ESI) 2011**

- ESI is constructed as a composite index from 41 key environmental indicators selected using the Driving Force-Pressure-State-Impact-Response (DPSIR) framework. These indicators capture the driving forces that extract from and pollute

the environment (Driving Force); depletion and pollution (Pressure); present condition of the environment (State), impact on the ecosystem and human health (Impact) and policy and societal efforts to reduce impacts and protect the environment (Response)

- ESI is designed to compare Indian States with their peers and does not indicate an absolute level of achievement. Although there are no clear normative benchmarks or thresholds for 'good' performance on many of the indicators, the sources on each indicator can be ordered from 'better' to 'worse'. The overall ESI score provide a quick snapshot of State performance; the sub-indices are far more indicative and far more informative, highlighting areas for State intervention.
- Based on the aggregate ESI, states are categorized into five groups where Haryana falls in the group with 0-20 percentiles. This means State faces maximum challenge in maintaining their environment in the coming years.

➤ *Virendra Jakhar*

#### **V. First Asia-Pacific Ministerial Summit on the Environment towards a Resource-efficient and pollution-free Asia-Pacific**

The First Asia-Pacific Ministerial Summit opened at the UN Conference Centre in Bangkok, Thailand, on Tuesday, 5 September. The Summit brought together the seventh Ministerial Conference on Environment and Development in Asia and the Pacific (MCED7), organized by the Economic and Social Commission for Asia and the Pacific (ESCAP), and the second Forum of Ministers and Environment Authorities of Asia Pacific,

organized by UN Environment. The Senior Officials Meeting of MCED7 took place on Tuesday.

The Ministerial Conference on Environment and Development in Asia and the Pacific (MCED) has been held every five years since 1985. This gathering of ministers of environment and of development has been an agenda-setting forum to assess the state of sustainable development, identify regional perspectives and priorities and decide concerted actions in response to imperatives posed by global and regional environment challenges.

Discussions during the Summit underlined that Asia-Pacific region's rapid economic growth has come at the cost of resource depletion and environmental degradation. There were calls to address the threats facing our region from climate change, and the pollution of our air, fresh water and oceans.

Wijarn Simachaya, Permanent Secretary, Ministry of Natural Resources and Environment, Thailand,, highlighted the importance of the conference as a platform to provide regional commitment and concrete recommendations for implementing the 2030 Agenda on Sustainable Development.

Shamshad Akhtar, Executive Secretary, UN Economic and Social Commission for Asia and the Pacific (ESCAP), noted resource efficiency challenges for the region, observing that 32% of the world's GDP is produced in the Asia-Pacific region, whereas 60% of the world's resources is consumed here. She encouraged countries to take their own policy measures, such as integrating resource efficiency targets into national development agendas, and introducing resource efficiency standards.

Endah Murniningtyas, Co-Chair, eminent scientists group on the quadrennial Global Sustainable Development Report (GSDR)

2019, delivered the keynote address, in which she urged countries to give the same attention to their natural resources ‘carrying capacity’ as they would to their national borders.

A panel discussion was held on ‘The environmental dimension of sustainable development’ with representatives of the Solomon Islands, Fiji, Republic of Korea, Bhutan, and Kazakhstan, followed by interventions from the floor followed by another panel discussion on ‘Policy perspectives towards a resource-efficient Asia-Pacific region’, in which participants from government, business and civil society offered thoughts on ways to advance the sustainable development agenda in the region.

The Summit also provided for a fascinating opportunity to hear about best practices and policy initiatives underway to mainstream environment into policy planning, budgeting processes and implementation, and to learn about green technologies and eco-innovation applied in sectors such as agriculture, transport, water, energy and waste management. The participants reiterated that the summit

**i.** has encouraged the region to build on its good cooperation to date,

**ii.** demonstrated Member States’ commitment to achieving a pollution-free planet

**iii.** outcome will feed into UNEA-3 deliberations in December 2017.

Delegates highlighted national actions toward the UNEA-3 theme of ‘Towards a Pollution-Free Planet’, and provided reactions to the UNEA-3 draft resolutions and ministerial declaration.

The delegates adopted the meeting reports of the two senior officials meetings, one relating to the Seventh Ministerial Conference on Environment and Development in Asia and the Pacific (MCED-7) and the other relating to the Second Forum of Ministers and

Environment Authorities of Asia Pacific. The delegates highlighted-

**i.** the progress made by the respective National Committees for Sustainable Development,

**ii.** regional trends, including the rise in the region’s middle-income population, which has led to high levels of resource use while many still lack safe drinking water,

**iii.** that pollution is the biggest killer of humanity and changing the world will require citizen action, political leadership and business dynamism.

A dialogue on the topic ‘Towards a resource-efficient and pollution-free Asia-Pacific region’ took place. It was asserted that the Asia-Pacific Regional Coordination Mechanism, through the Thematic Working Group on Resource-Efficient Growth, provides an opportunity to improve the capacity of governments and other stakeholders to use resource efficiency approaches and tools in the development, planning and implementation process, to ensure that economic growth is achieved alongside social protection and environmental conservation.

Many participants drew attention to their national actions, and some stressed the critical nature of this work, given that ‘there is no planet B’. They also considered the report of the senior officials of the seventh Ministerial Conference on Environment and Development in Asia and the Pacific and the draft ministerial declaration on environment and development, agreeing to forward this for adoption.

A ministerial dialogue took place on ‘Policy perspectives on a pollution-free planet’. Delegates provided suggestions on practical ways to tackle pollution and build partnerships. It was asserted that the region of Asia-Pacific has tremendous strengths and opportunities to draw from and it is required to embrace a more resource efficient and pollution free growth

path that supports and promotes healthy environments in Asia and the Pacific.

It was commended to adopt the Ministerial Declaration on environment and development for Asia and the Pacific. The Declaration is an important cornerstone of regional collaboration on sustainable management of natural resources in Asia and the Pacific. It underpins the agreement reached earlier in the year 2017 on the regional roadmap for sustainable development and brings together the vision of member States on future collaborations, particularly for the management of natural resources. It was also agreed that the Secretariat would review the text of this report to include a mention of the Rio Principles, including the principle of common but differentiated responsibilities (CBDR).

**The following side events under various themes also took place during the Summit:**

1. **Role of Paris Agreement in promotion of the goal of a resource-efficient and pollution-free Asia-Pacific**
2. Discussions on intra-regional cooperation towards a resource-efficient and environmentally friendly Asia-Pacific region.
3. **Readiness of the Asia-Pacific for Climate Geoengineering which includes Carbon Dioxide Removal (CDR) and Solar Radiation Management**
4. **Discussion about Solutions towards an Air Pollution-free Planet**
5. **Strengthening Regional Ocean Governance and Partnership towards Clean Seas**
6. **Gender, the Environment and Sustainable Development in Asia and the Pacific**
7. **Discussion about Resource Efficient Asia-Pacific through Seoul Initiative Network on Green Growth**

The Asia Environmental Enforcement Awards recognizing and celebrating excellence in efforts by public institutions and individuals in fighting environmental crime were also conferred. The current edition of awards focused on efforts in the area of pollution.

The Summit sought to be a climate-neutral and low-impact event. Besides encouraging delegates to estimate and offset their carbon emissions, the conference took a low-waste approach to paper and printing, drinking-water containers, and catering. Participants were provided with their own biodegradable, reusable cups, and dined on meals made from organic and rescued ingredients. Around the venue, participants viewed exhibits about UN Environment and ESCAP campaigns, including information about regional implementation of the SDGs, and actions to reduce acid rain.

Outside the conference room, delegates were able to assess their personal carbon footprints at the UNFCCC Regional Collaboration Center's Climate Neutral Now stand. Based on details of country, transport use, home heating and eating habits, UNFCCC's software would calculate the number of tonnes of greenhouse gases emitted as a result of an individual's lifestyle. Delegates could offset their emissions by choosing from a range of Clean Development Mechanism (CDM) emissions reduction projects. At another exhibit, delegates were able to experience the impact of plastic waste on ocean life through a virtual reality experience that allowing participants to 'swim' through polluted waters while wearing virtual reality goggles.

➤ [Manoj Kumar](#)

**VI. Judgement of National Green Tribunal Bench, New Delhi on oil spill case of Delta Shipping Marine Services.**

The National Green Tribunal in the judgement (23 August 2016) on an application (24 of 2011) filed by Shri Samir Mehta considered the questions of public importance and significance of environmental jurisprudence, in relation to pollution caused by sinking of ship and oil spill in the Territorial water, Contiguous Zone and Exclusive Economic Zone of India and consequences and liabilities arising therefrom.

On its voyage to destination, the ship 'M.V. RAK' sank approximately 20 Nautical Miles from the coast of South Mumbai. The vessel was owned by Delta Shipping Marine Services SA while Delta Navigation WLL and Delta Group International were responsible for its voyage. There was an oil spill in August, 2011 which occurred in the Arabian Sea, off the coast of Mumbai due to the sinking of the ship. The spilled oil from the ship spread beyond Mumbai to Raigad District. Traces were noticed particularly between Uttan in Bhayandar and Gorai beach. Continuous trail of oil leak from the ship was observed upto 12 Nautical Miles. A very thick oil slick up to one nautical mile and a thick layer of oil upto two Nautical Miles was also observed. During the first few days, oil was leaking at the rate of 1–2 tonnes per hour and on August 12, 2011 according to the Applicant, the rate of oil spill was 7 to 8 tonnes per day.

The ship was carrying more than 60000 MT of coal for Adani Enterprises Limited for its thermal power plant at Dahej in Gujarat. As a result of the oil spill, there was damage to mangroves and marine ecology of the Bombay coast. The impact of the oil spill was clearly noticed and was visible on the mangroves of Mumbai. The lower portion of mangroves at Bandra had turned dark because of a layer of oil

and got destroyed. The Government had also taken the view that the oil seen at Juhu Beach was due to localized events and not due to oil spill, but this was a misconception.

An Applicant named Samir Mehta, a Mumbai-based environmentalist, filed an application under Sections 14 and 15 of the National Green Tribunal Act, 2010 (NGTA 2010) raising substantial questions relating to the environment, restitution of the environment and compensation commensurate to the damage done to the ecology on the facts of the present case.

The petitioner filed the application making 13 agencies as respondents including Union of India, State of Maharashtra, Pollution Control Board and Maritime Board of Maharashtra among others along with the private agencies associated with the ship which sank.

The petitioner amongst others had sought actions towards assessment of impact of oil spill, cost incurred on containment of oil spill, fixing accountability according to 'Polluter Pays' principle.

As per Section 14 of NGTA 2010 the Tribunal shall have the jurisdiction over all civil cases where a substantial question relating to environment (including enforcement of any legal right relating to environment), is involved and such question arises out of the implementation of the specified enactments.

Further as per Section 15, the Tribunal may, by an order, in addition to the relief paid or payable under the Public Liability Insurance Act, 1991 provide,—

- (a) relief and compensation to the victims of pollution and other environmental damage arising under the specified enactments (including accident occurring while handling any hazardous substance)
- (b) for restitution of property damaged
- (c) for restitution of the environment for such area or areas

It was submitted that oil spill impact commonly known as marine oil spill is a form of pollution. It includes release of crude oil from tankers, offshore platforms, drilling rigs and wells, as well as spills of refined petroleum products – gasoline and diesel and heavier fuels used by large ships in the seas. The general impact due to oil spill is that it spreads in the water depending on its relative density and composition. The oil slick formed as a result may remain cohesive, or may break up in the case of rough seas. Waves, water currents and wind force the oil slick to drift over large areas, impacting the open ocean, coastal areas, and marine and terrestrial habitats in the path of the drift. Oil that contains volatile organic compounds partially evaporates, losing between 20 and 40 percent of its mass and becomes denser and more viscous (i.e. more resistant to flow). Over time, oil waste weathers (deteriorates) and disintegrates by means of photolysis (decomposition by sunlight) and biodegradation (decomposition due to microorganisms). The oil spill waste reaches the shoreline or coasts. It interacts with sediments such as beach sand and gravel, rocks and boulders, vegetation and terrestrial habitats of both wildlife and humans, causing erosion as well as contamination. It has definite impact on fish, marine mammals, birds, coastal marshes, mangroves, wetlands, wildlife habitats and their breeding ground. India relies heavily on its marine environment for trade and commercial operations. The Indian coast is becoming increasingly vulnerable as there is significant increase in all types of oil tankers / bulk carriers / container ships passing through the Indian Ocean.

The shipping companies are liable to pay compensation for restitution and restoration of the ecology, ecosystem on the basis of 'Polluter Pays Principle' which is a principle in environmental law where the polluting party pays for the damage done to the natural

environment. They are also liable to pay costs to MoEF&CC and Maharashtra Maritime Board for containment of the oil spill and for taking preventive measures.

As per Section 17 the person responsible for death of, or injury to, any person (other than a workman) or damage to any property or environment has resulted from an accident or the adverse impact of an activity or operation or process, under any specified enactment, the person responsible shall be liable to pay such relief or compensation for such death, injury damages may be determined by the Tribunal.

The NGT while delivering judgement considered international treaties and practices and concluded that the NGTA 2010 squarely applied to the situation at hand. The tribunal relied its judgement on careful studies of various reports right from the Accident Investigation Report prepared by the Mercantile Marine Department on the orders of DG Shipping, the NEERI report and Annamalai University report and many international studies. In light of the detailed discussions, and depositions by the respondents NGT concluded the issue disposing that there was definite pollution of marine environment by oil spill. The sunken ship along with its cargo caused pollution and is a continuous source of marine pollution. It needed to be removed from the seabed of the Contiguous Zone of the Indian water at the earliest.

The Tribunal also mentioned that it may not be possible to state environmental compensation with exactitude, however, keeping in view that the Principle of Strict Liability have to be applied and the fact that the responsible shipping companies have failed to discharge their onus satisfactorily, the Tribunal had to adopt an approach to determine the compensation on the basis of what is just and fair, in addition to the specific costs incurred by the different agencies. The damage stands

established not only to the aquatic life but also to sea water and the shore. There has been degradation and damage to the Mangroves, adverse impact on human and aquatic life on shore, tourism and activities of the fishermen. The oil spill caused substantial damage, it spread over the water surface and also formed tar balls affecting the aquatic community. Even the dispersants used for controlling the oil spill had been shown to be harmful for the organisms living in the area. Having caused such tremendous damage and loss to the aquatic life and marine environment the responsible shipping companies are liable to pay Environmental Compensation. The reports on record clearly show that the documents in favour of the ship were issued in a biased manner and the ship was not seaworthy, right from the inception of its voyage. The accident investigation report, the report by NEERI and the report by Annamalai University show that there was serious marine pollution caused by the oil spill. That the reports, inter-alia, also sufficiently indicate that continuous pollution will result from the ship and its cargo. The NEERI report had even stated that Sepias (Cuttlefish) got killed due to the oil spill. It is a matter of common knowledge that other elements of the marine environment also got polluted as a result of the oil spill.

The Tribunal observed that the present case has another feature that is, it is not a case of a particular claimant bringing his action before the Tribunal for compensation of the loss or injury that he has suffered. It is a case where the Applicant had approached the Tribunal in larger public interest and complaining of large scale pollution caused by oil spill and further pollution caused by sinking of the ship and its cargo.

The damage caused by pollution, cannot be computed in terms of money with exactitude and precision. This has to be on the basis of some hypothesizing or guess work as

is necessary to be applied in such cases. For instance, the damage caused to the aquatic life, mangroves, sea shore and tourism are incapable of being computed exactly in terms of money. The mangroves were destroyed as a consequence of the oil spill. The quantum of leakage of oil during the first few days, was at the rate of 1–2 tonnes per hour and on August 12, 2011 according to the Applicant, the rate of oil spill was 7 to 8 tonnes per day as per the information of the Coast Guard. It shows the massive oil spill from the ship. Thereafter the ship has been lying at the present location (20 Nautical Miles from the baseline of the Mumbai shore). The ship itself has deadweight 63695 with a cargo of 60054 MT and with all other metallic and non-metallic substance such as asbestos, machines, oil, grease and other elements including the coal as cargo of the sunken ship. All this is bound to cause, in fact, has caused pollution of marine environment.

To substantiate the claims, the Tribunal referred the Supreme Court of India in the case of *M/s. Sterlite Industries (India) Ltd. v. Union of India*, 2013(4) SCC 575, had evoked the Principle of Strict Liability and imposed a penalty of Rs. 100 crores for operating without obtaining consent of the Board under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, on an approximate basis and the court further said that in relation to pollution caused it was not possible to determine the same with exactitude and another case of *M.C. Mehta vs. Kamal Nath and Ors.* AIR 2002 SC 1515 where in the Supreme Court by invoking the Polluter Pays Principle after issuance of show cause notice, imposed the pollution fine in addition to payment for restoration of environment and ecology, a sum of Rs. 10 lakh was directed to be paid on account of environmental fine and the Supreme Court did not compute the same on some calculations as it was a general charge payable for polluting the environment.

Evoking the 'Precautionary Principle' in light of the facts of the present case, the Tribunal opined that the shipping companies involved had completely ignored this principle and did not take due precautions at the appropriate time. Even after the accident, none of them have taken any steps to remedy the wrong since they are content with the dumping of the ship along with its cargo in Indian waters as they have not suffered any liability in that regard. This is a patent and flagrant violation of the Precautionary Principle. Serious pollution has been caused by the oil spill and by the sinking of the ship and the cargo.

Thus, in NGT's considered view, besides the direct costs of Rs. 6.92 Crore towards containing the oil spill they should be held liable to pay Rs. 93.08 Crore as environmental compensation for default, negligence in the upkeep of the ship and cargo and the persistent pollution caused by them to the marine environment, particularly on the shore, to tourism and public health at large.

The importer (Adani Enterprises Limited) was also held liable for environmental compensation for chartering a ship of this kind, dumping of 60054 MT of coal in the Contiguous zone of Indian waters and would therefore, be liable to pay environmental compensation of Rs. 5 crores.

### **Significance of Judgement:**

The NGT considered the view that the provisions of United Nations Convention on the Law of the Sea vest in a State, the right to exercise its sovereign rights to protect and preserve the marine environment in its Exclusive Economic Zone, whereby the State has to take all possible steps in consonance with the law for protecting and preserving the marine environment in its Contiguous and / or even the Exclusive Economic Zone. This very Convention requires the States to take appropriate steps and adopt laws and

regulations for implementation of prescribed rights and control the pollution of marine environment caused by dumping.

From the analysis of the above findings, it is a clear case where negligence is attributable to the shipping company. It is not a case of sinking of a ship by accident simpliciter, but it is a case where element of mens rea (the intention or knowledge of wrongdoing that constitutes part of a crime) can be traced from the unfolding of the events that finally led to the sinking of the ship on 4 August, 2011. Non-rendering of requisite help / assistance by the shipping company and other persons interested and responsible, to the Master of the Ship, despite the fact that they had complete knowledge about the status of the ship prior to the occurrence of the incident on 4th August, 2011. Furthermore, these respondents did not adhere to the Principle of Due Diligence pre-voyage, for which they had sufficient means and time

Various principles like Principle of Sustainable Development, Precautionary Principle and Polluter Pays Principle, Principle of Strict Liability in the context of environment were largely relied upon and analysed by the Tribunal. Further, there is a problem in respect of assessment of value of environment and damages, whenever they occur is a serious concern.

➤ **Manoj Kumar**

### **VII. Bio-Medical Waste Management Rules 2016 – Critical discussion**

The Biomedical Waste (BMW) means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological. Medical care is vital for our life and health, but the waste generated from medical activities represents a real problem of

living nature and human world. Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment. Every day, relatively large amount of potentially infectious and hazardous waste are generated in the health care hospitals and facilities around the world. Indiscriminate disposal of BMW or hospital waste and exposure to such waste possess serious threat to environment and to human health that requires specific treatment and management prior to its final disposal.

The Government of India in exercise of the powers conferred under section 6, 8 and 25 of Environment (Protection) Act, 1986, notified Biomedical Waste (Management & Handling) Rules, 1998 for management and handling of biomedical wastes generated from Hospitals, clinics, other institutions for scientific management of Biomedical Waste. In accordance with these rules, it was the duty of every “occupier” i.e. a person who has the control over the institution or its premises, to take all steps to ensure that waste generated is handled without any adverse effect to human health and environment. The hospital waste like body parts, organs, tissues, blood and body fluids along with soiled linen, cotton, bandage and plaster casts from infected and contaminated areas are very essential to be properly collected, segregated, stored, transported, treated and disposed of in safe manner to prevent nosocomial or hospital acquired infection. The rules provided for following processes:

1. Waste collection
2. Segregation
3. Transportation and storage
4. Treatment and Disposal
5. Transport to final disposal site
6. Final disposal

As per Ministry of Environment, Forests and Climate Change mentioned during notification new Rules in 2016 that the total biomedical waste generated in the country was 484 Tonnes Per Day (TPD) from 1,68,869 Health Care Facilities (HCFs) of which only 447 TPD is treated before disposal. The problems with unscientific disposal of BMW like mixing of hazardous waste into non-hazardous makes the entire waste hazardous. As per the Audit Report (14 of 2008) of CAG of India about Management of Waste in India concluded that the waste management hierarchy needed to be emphasised in the policies for effective management of waste of all types. In response to the audit report the government had formed a Committee under the chairmanship of Additional Secretary on 3rd September 2008 to evolve a roadmap for the Management of waste in India. This Committee had recommended that the existing BMW Rules should be reviewed to incorporate more stringent penalty for violation and a strategy must be evolved for safer management of BMW in the country. There were total 23 recommendations one of which was also about simplification of segregation by defining only five categories instead of 10 as was provided in the existing rules.

The Government of India has taken up revision of the BMW Rules, 1998 and notified Draft Rules in 2011 with changes in previous rules. It considered necessary to enable the prescribed authorities to implement the rules more effectively, thereby, reducing the biomedical waste generation and also for its proper treatment and disposal and to ensure environmentally sound management of these wastes.

The new rules are distinct from the old one and the first distinction is that Bio-medical Rule, 2016 includes all the persons who generate, collect, receive, store and transport

biomedical waste including vaccination camps, blood donation camps, surgical camps and all other Health Care facilities are included. However in Bio-Medical Rule, 1998 exception was awarded to clinics, dispensaries, pathological laboratories, blood banks providing treatment / service to less than 1000 (one thousand) patients per month. Further, the new rules lay new criteria for authorisation of a HCF. In 1998, the rules said that hospitals with more than 1,000 beds must obtain authorisation from State Pollution Control Boards (SPCBs) while the 2016 expanded the ambit of institutions that require authorisation to include all HCFs. The new rules make the procedure of getting an authorisation very simple. Bedded hospitals will get automatic authorisation and non-bedded hospitals will get a one-time authorisation.

In BMWM Rules, 2016, Bar code and Global Positioning System is introduced, in which Occupier and Common Bio-Medical Waste Treatment Facility (CBMWF) have to apply bar code and Global Positioning System within one year of the issue of these rules. To make the installation and operation of CBMWF a viable one occupiers of HCFs are restricted from establishing new CBMWF within a distance of 75 Km of an existing CBMWF.

In previous Rules there were ten different categories of biomedical waste, however, in BMWM Rules, 2016 there are only four categories for segregation of waste viz Yellow, Red, White and Blue. The new rules also explicitly lay down the duties of an HCF in adhering to the segregation, packaging and transport rules for the four different categories. The HCF is now responsible for pre-treatment of laboratory and microbiological waste, blood samples and blood bags through disinfection / sterilisation on-site in the manner prescribed by the World Health Organization (WHO) or National Aids Control Organisation (NACO), regardless of whether final treatment and

disposal happens on-site or at a common biomedical waste treatment facility. Use of chlorinated plastic bags, gloves and blood bags is to be phased out by the HCF within two years to eliminate emission of dioxins and furans from burning of such wastes.

The new rules also specify the duties of the operator of the CBMWFs in addition to the duties of the occupier of an HCF, the operator of a CBMWF also has to ensure timely collection of biomedical waste from HCFs and assist them in training.

Another improvement in the new rules is in the monitoring sector. While the Bio-Medical Rule, 1998 rules have no provision for a monitoring authority, the 2016 rules state that the MOEFCC will review HCFs once a year through state health secretaries, the SPCB and the CPCB. The SPCB, in its turn, will oversee implementation through district level monitoring committees that will report to the State advisory Committee or the SPCB. Moreover, according to the new rules, the advisory committee on biomedical waste management is now mandated to meet every six months.

As per the new Rules the department dealing with the allocation of land is made responsible for providing suitable site for setting up common biomedical waste treatment and disposal facility in the State Government.

## CONCLUSION

Medical wastes should be classified according to their source, typology and risk factors associated with their handling, storage and ultimate disposal. The segregation of waste at source is the key step. If we want to protect our environment and health of community we must sensitize ourselves to this important issue not only in the interest of health managers but also in the interest of community. The new Rules are expected to improve the situation of

BMW in the country in a positive way. It has been an experience in India that there could be good legislations but there are lot of shortcomings in their implementation which could also be due to lack of awareness, resources etc. It would be interesting to look into the status of management of BMW in various geographical units through the audit process especially those improvements which are supposed to bring a positive change.

➤ **Sandeep Pawar**

**VIII. Performance Audit on “Solid waste and Sewage management” in Maharashtra  
(CAG Report No. 04 of 2017)**

Over the years, there has been a continuous increase in the proportion of population residing in urban areas and this uncontrolled growth in urban areas has left Indian cities deficient in infrastructural service such as water supply, sewerage and solid waste management. The collection and disposal of municipal solid waste is one of the pressing problems of city life.

**A) Solid Waste Management in Municipal Corporation**

The MSW (Management and Handling) Rules 2000 came into force from 25.9.2000. It is obligatory on the part of all the municipal authorities to arrange for collection, segregation, transportation and suitable disposal of municipal wastes of the municipal towns/cities. Under these rules all municipal authorities responsible for collection, segregation, storage, transportation, processing & disposal of municipal solid wastes are covered.

The Union Ministry of Environment, Forests and Climate Change (MoEFCC) in April 2016 notified the new Solid Waste Management Rules (SWM), 2016. These Rules replaced the Municipal Solid Wastes

(management and handling) Rules, 2000, which have been in place for the past 16 years.

From time to time CAG had conducted Audit of different Local Bodies in India including the issues related to the solid waste management. A Performance Audit was conducted on Management of Municipal Solid Waste by municipal corporations in Maharashtra from April 2016 to September 2016 for the period from 2011-12 to 2015-16 (Chapter 4 of Audit Report 5 – Local Bodies). The audit objective of this report were to examine:

- **whether** planning and compliance with the extant rules and provisions for management of MSW were adequate and effective,
- **whether** the entire process of collection, segregation, transportation processing and disposal of solid waste was executed effectively, economically and transparently,
- **whether** an effective and adequate monitoring and evaluation mechanism existed for compliance with prescribed rules and norms.

Audit Criteria for the Performance Audit were derived from:

- The Mumbai Municipal Corporation (MbMC) Act, 1888 and The Maharashtra Municipal Corporation Act, 1949 (Amended 2011);
  - Manual of Municipal Solid Waste Management, 2000 issued by Government of India (GoI) and The Municipal Solid Wastes (Management and Handling) Rules, 2000
  - Instructions, guidelines, policies issued by Central Pollution Control Board (CPCB) and Maharashtra Pollution Control Board on solid waste management from time to time.
- Scope and Methodology of Audit

The Audit findings are based on audit of records of Urban Development Department and seven of 26 Municipal Corporations which were selected using random sampling. Joint physical inspection of MSW management sites (collection, dumping / landfill and processing) in the selected MCs was conducted by audit along with the officials of respective MCs.

Following major **objection** pointed out in the above mentioned Audit Report of Maharashtra:-

**i) Collection and Segregation of waste: -**

Door to Door collection system was in place, however it does not cover all the households. Segregation of waste at household level was not done in any of the Municipal Corporations except MCGM and Pune MC. Non Segregation of waste at the collection points led to mixing of MSW with construction waste, Horticulture waste, bio-medical waste etc.

The objective of segregation of MSW could not be achieved by all the MCs due to absence of appropriate facilities for treatment / processing of segregated waste. This led to burden on the landfill site to the extent of 7.59 million tonnes on account of bio-degradable waste.

**ii) Absence of facilities for Processing of MSW: -**

The implementation schedule (Schedule IV) of the MSW Rules stipulated that the Municipal authorities should adopt suitable technology for processing of biodegradable MSW such as composting, vermi-composting, aerobic digestion or any other appropriate biological processing so as to minimize the burden on landfill. It was noticed that processing facilities were not available in all the MCs and where available were not adequate.

It is also noticed that even after spending crores of money two of the major processing plants in Mulund and Deonar were not installed and one processing plant at Kanjur was installed after a delay of more than five years.

**iii) Transportation of MSW :-** As per MSW Rules, 2000, vehicles used for transportation of waste should be covered to prevent the MSW from littering the streets and waste should not be visible to public nor exposed to open environment. However, it was found that the MSW were transported in many MCs in open vehicle. Almost in all the MCs shortage of collection and transportation vehicle were noticed.

Similar objection were also pointed out in Report No 5 of 2014 – Local Bodies Government of Gujarat (Chapter 4) and Report No 3 of 2016- Pollution Control Board Assam, Government of Assam (Chapter 5).

However, report on Local Bodies Government of Maharashtra bring up few more non-conventional areas like :-

**i) Protection of staff handling MSW-** In all the audited Municipal Corporations, staff engaged in collection of MSW were not using personal protective equipment such as masks, gumboots and hand gloves in violation of the requirements.

**ii) Fire safety equipment at dumping sites:**

- In the report it is mentioned that the major fire broke down in Deonar dumping site, Mumbai on 28th Jan 2016 and it could be extinguished only on 5th Feb 2016 after nine days. There were no overhead tank water or ring hydrant system at the site and even after

six months of accident they had not installed any prescribed fire safety measures at the site.

**Other important observation pointed out in the report are:-**

**i) Absence of City Plan for Management of MSW :-** As per Manual on Municipal Solid Waste Management, 2000, there should be Short-Term Plan (two to five years), Medium-Term Plan (five to 15 years) and Long-Term Plan (15 to 25 years) for solid waste management. However, none of the seven MCs had prepared comprehensive City Plan for management of MSW. Various parameters namely identification of problems, gap analysis of services and involvement of stakeholders in planning process though essential for effective planning were not observed. Except MCGM and Nagpur, other MCs did not have facility for weighing of MSW at dumping / landfill sites.

**ii) Non-utilisation of Budget Provision: -** Seven MCs did not utilize the full budget provision on MSW during the period 2011-16. The extent of utilization of Budget showed fluctuating trend and the unutilized budget ranged from two per cent to 37 per cent of budgeted MSW amount of MCs.

**iii) Failure of Kalyan-Dombivli MC to control environmental Pollution:-** As per MSW Rules (Schedule III), MC should develop sanitary landfill sites for scientific disposal of MSW. Since its inception (1983), Kalyan-Dombivli MC was dumping MSW at un-authorized site at Adharwadi. Till date (January 2017) the work of closure of dumping site has not been commenced by the MC and large quantity of leachate generated at the dumping site was causing environmental pollution near Thane creek.

iv) Absence of Water Quality Monitoring of Landfill Sites :- As per the MSW Rule (Paragraph 23 of Schedule III), the MCs should collect baseline data of ground water quality in the area before establishing any landfill site and keep on record for future reference. However, MCGM had the baseline data of ground water quality in respect of Kanjur site only. The remaining six selected MCs had not collected the baseline data of ground water quality near dumping / landfill site and maintained the related records.

**Recommendation by the CAG**

1. MCs may prepare City Plan to recognize the problems in management of MSW and devise mechanism to ensure proper utilisation of budget allocations and funds received.
2. MCs may ensure use of protective equipment by people handling MSW. They may also devise mechanism for maximum segregation. MCs may use synchronized and covered vehicles for collection of MSW to avoid its multiple handling and open littering.
3. MCs may devise mechanism for optimum utilisation of installed processing facilities besides developing of SLF for scientific disposal of MSW.
4. MCs may also ensure regular testing of ground water and ambient air quality so as to adhere to the environmental norms in the management of the MSW.

**B) Management of Sewage in Mumbai**

The management of sewage comprises collection of sewage through sewer lines at generation points, its conveyance to Waste Water Treatment Facility (WWTF) and treatment of sewage at par with regulatory norms before its disposal into water bodies or other available sites.

Performance Audit of Sewage Management by Municipal Corporation of Greater Mumbai was conducted by CAG from April 2015 to August 2015 for the period 2010-15. The audit objectives were to examine whether;

- any comprehensive plan for Management of Sewage was implemented in an effective, efficient and economical manner;
- the collection and treatment of Sewage was done efficiently and effectively as per norms; and
- an effective internal control and monitoring system exists.

**Scope and Methodology of Audit:** - The Performance Audit covered the management of sewage by MCGM for the period 2010-15 but the facts and figures were subsequently updated till July 2016. The methodology adopted for attaining audit objectives with reference to audit criteria and scope of audit were discussed with the Secretary, Urban Development Department and Commissioner, MCGM in the Entry conference held in April 2015.

**Audit Criteria :-** The audit criteria for the Performance Audit were derived from Mumbai Municipal Corporation Act, 1888, Water (Prevention and Control of Pollution) Act, 1974 of Government of India (GoI), The Environment (Protection) Act and Rules 1986, Circulars and orders issued by the Government of India and GoM, Resolutions of MCGM and orders issued by MCGM, Relevant reports prepared by MCGM, MPCB, National Institute of Oceanography, National Environmental Engineering Research Institute (NEERI) and Council of Scientific and Industrial Research Institute and Master Plan 2002, Mumbai City.

**Major objection pointed out, in the above mentioned report, and had serious impact on environment are as under:-**

**1. Execution of Sewage Pumping Station and Priority Tunnels Works -** Due to reduction in capacity of pumps and insufficient carrying capacity of sewer lines, sewage generated was not reaching Waste Water Treatment Facilities (WWTFs) and the same was discharged untreated in Malad creek and this was continuously degrading the water quality of Malad creek.

**2. Huge Un-treated Sewage Discharge into the Sea:** - The city generated 2,146 MLD Sewage per day during 2015-16. Of this, 1,098 MLD sewage was being collected through 1,860 kms of existing sewer network. The remaining 1,048 MLD sewage was discharged into the sea without any treatment. Thus, approximately 49 per cent sewage was discharged into sea and creek without any kind of treatment.

**3. Failure to Recycle and Reuse of Treated Sewage:-** MCGM constructed (June 2014) a Sewage treatment plant of three MLD at cost of Rs 2.59 crore, as a pilot project, for water conservation and to construct STPs in decentralized manner at various Sewage pumping stations. Treated Sewage was proposed to be stored at the highest point and the same was to be distributed by separate supply lines. The plant was commissioned in September 2014. However, work of storage tank and distribution network could not be started till date (July 2016) and treated sewage was being discharged into sea despite an expenditure of Rs 2.59 crore.

**Other major observations in the report are as under:-**

**1. Overpayment in Execution of Jacking and Rescue Pits in Micro-tunnelling Works** - Incorrect methodology for preparation of estimate and release of payments as per estimate rather than the actual number of J/R pits excavated, resulted in excess payment of Rs 29.95 crore to contractors in six ongoing works as of July 2016.

**2. Overpayment due to Overstating the Cost of Auxiliary Machines-** The cost of auxiliary machines was Rs 54,250 per running metre. However, the rates for auxiliary machines, as per purchase invoices, submitted along with bid documents were Rs. 7,237.53 per running metre. The excess amount involved was Rs.16.63 crore for entire length of work (4,360 metres) to be executed, considering the discount offered by the contractor. The contractor was already paid an excess amount of Rs.9.92 crore for execution of 2,109.50 metres of sewer line work through Micro-tunneling Boring Machine as of July 2016.

**3. Failure to coordinate with the MMRDA-** MCGM had requested the MMRDA to either lay the sewer line before concretisation of link road or leave a stretch of 5.25 metre width in flexible pavement so that sewer line could be laid by open cut method. However, MCGM failed to pursue the matter with MMRDA and the stretch of Link Road where sewer line was planned to be laid was concretised by MMRDA in October 2005. The SP awarded the work at cost of Rs 37.80 crore through micro-tunnelling method which was originally planned to be executed through open cut method. The cost of work with open cut method was estimated at

Rs 28.69 crore in 2014. A total of 1,765 metres of sewage pipes had been laid till July 2016 at a cost of Rs 32.97 crore.

**4. Blocking of Funds of Rs 124.30 Crore on Un-commissioned Works:** - Sewer lines laid at a cost of Rs 124.30 crore could not be put to use since 2012. The reasons for non-commissioning of executed works were incomplete downstream work, non-execution of connecting mains passing through railway lines, want of connectivity with main sewers, non-execution of rest of alignment work due to existence of utility services etc. The hindrance arose because the alignment of works was not fixed taking required numbers of trial pits and analysis of geotechnical data before awarding of works. This had resulted in suspension of works leading to blocking of funds amounting to Rs 124.30 crore.

**5. Excess Payments of Rs 22.05 crore to Contractors:** - As per tender conditions, contractors were to provide details of quoted rates and if required the Department could call for any clarification of rates items. The payments were made to contractors based on item rates finalised and executed length of works. The scrutiny revealed that various shortcomings in departmental assessment of quoted rates. This resulted in overpayment to contractors of Rs 22.05 crore as of July 2016.

#### **Recommendation by the CAG**

1. MCGM may take proper initiative to make all the installed aerators operational to safeguard the environmental interest at large and watch the results thereof under expert supervision.
2. MCGM may ascertain level of implementation of Master Plan works and prepare a road map for completion of balance

feasible works besides ensuring elimination of non-point untreated discharge and treatment quality of sewage at par with standards fixed by the Regularity Authorities.

**Significance:** - Maharashtra is second most populous state in India and with rapid urbanisation, the state is facing massive challenges in urban development like management of Solid Waste and Sewage Treatment. The audit of work done by MCs in the area of Solid Waste and Sewage Management by MCGM reveals shortcomings of very basic nature like sanitation. Even the financially rich Municipal Corporations like Mumbai have problems of untreated sewage. The cities in India have to be innovative and consistent in managing environmental issues in maintaining overall developmental status. Further, the waste water as well as organic solid waste which are very basic resources which could be harnessed through better environmental practices.

➤ Sandeep Pawar

## IX. Audit of Common Fisheries Policy (CFP) of European Union by European Court of Auditors

### BACKGROUND

This has been a challenge as historically some fish stocks in European Union waters have declined due to overfishing. To tackle this problem, Common Fisheries Policy (CFP) was adopted by European Union. The primary goal of the Common Fisheries Policy (CFP) of European Union, most recently revised in 2013 is to ensure that the fishing and aquaculture sectors are environmentally, economically and socially sustainable in the long term. The CFP therefore aims to reduce

pressure on fish stocks by taking a precautionary approach and setting catch limits based on the best scientific information available on resources; it also aims to balance the fleet capacity with available fishing resources. For this reason the EU has established a ceiling to the European fleet capacity that should be balanced with the available fishing opportunities over time as well as fisheries management measures, to ensure that the fishing sector is sustainable. The CFP includes measures to restrict fishing fleet capacity and manage fisheries by imposing limits on catches (such as quotas) and fishing activity (such as fishing effort restrictions or technical rules for certain fisheries).

Pursuant to Article 287(4), to review the present state of its implementation and monitoring after the CFP's control system last reformed in 2009, European Court of Auditors took up Audit of implementation of the Common Fisheries Policy (CFP), between April and October 2016 and brought out a Special Report on EU fisheries controls in the year 2017.

### OBJECTIVE OF AUDIT:

The objective of the audit was to verify and give assurances that:

The EU had an effective fisheries control system in place.

Do Member States have reliable information on their fleet characteristics?

Are fisheries management measures well implemented?

Is the data needed for fisheries management complete and reliable?

Are inspections and sanctions appropriately planned, performed and applied?

To verify the role of the Commission and of the European Fisheries Control Agency.

## AUDIT SCOPE AND AUDIT APPROACH

The Audit was focused on the adequacy of the main requirements of the fisheries control regulation and their implementation by the Member States. Do Member States have reliable information on their fleet characteristics? How Member States checked the components of fleet capacity (in terms of kW and GT), and whether they kept the fleet register up to date.

### (a) Are fisheries management measures well implemented?

How Member States used vessel monitoring systems and how they managed fishing quotas, fishing effort regimes and technical measures? The review examined overall issues rather than focusing on specific fisheries.

### (b) Whether the data needed for fisheries management complete and reliable?

In order to answer this sub-question, it was examined how the Member States ensured that catch data and landing declarations were comprehensive, consistent and validated. How the Member States shared management information, particularly when vessels from one flag Member State fished in the waters of another? How the Commission consolidated Member States' data.

### (c) Whether inspections and sanctions appropriately planned, performed and applied?

How Member States planned, performed and reported on their fishing inspections, whether or not Member States followed up inspections with effective sanctions? In particular whether or not sanctions were dissuasive, and how the penalty points system was implemented in practice.

The audit was conducted between April and October 2016. It included visits to the European Commission and to four Member States [Spain, France, Italy and the UK (focusing on Scotland)]. These Member States were selected as they represented more than half of EU fleet capacity and almost half of EU fish catches, and as their fleets were active in the Atlantic and the Mediterranean, which had significant differences as regards fisheries and fleet management measures.

## FINDINGS:

### 1. Lack of sufficiently effective system for fisheries controls

European Union did not yet have a sufficiently effective system for fisheries controls in place to support the success of the CFP.

### 2. Information on fleet characteristics available in the register was not always accurate and verified

The Member States did not sufficiently verify the accuracy of their fleets' capacity and of the information on the vessels in the fleet register.

### 3. The national fleet registers information was not always accurate in respect of engine power or length of vessel.

### 4. Checks on fishing capacity were incomplete

As no detailed rules for the fleets' gross tonnage were adopted in contradiction to the provisions of Control Regulation, it was found many Member States did not carry out full measurements of their vessels.

In application of the rules of the Control Regulation 89 % of the EU fleet were not

monitored by Vessel Monitoring System (VMS), this hindered effective fisheries management in some fisheries and for some species.

The lack of transparency in allocation of fishing quotas made it difficult for Member States to know the actual beneficiaries of fishing opportunities and therefore to assess any potential adverse impact on the environment and local economies, and take the necessary corrective measures where appropriate. Lack of transparency also increased the risk that specific interests of certain economic operators are favoured at the expense of others. Significant discrepancies between declared landings and subsequent records of first sale were noticed by Auditors. Member States' data validation processes were insufficient.

Member States planned and carried out fisheries inspections well. However, the absence of real-time access to information about vessels to the inspectors reduced the effectiveness of inspections. Standardized inspection procedures were established but available report templates had not been scrupulously used by inspectors. The inspection results were not always correctly reported in the national databases.

#### 5. The Common Fisheries Policy (CFP) control system

Fishing effort management is a combination of restriction on the fleet capacity and the amount of time the fleet can spend at sea. The EU defines fishing effort as fleet capacity [tonnage (GT) and engine power (kW)] x days at sea. Approaches are tailored to each fishery, taking into account the type of fishing gear used and the main species caught. Restrictions on the fishing effort are normally applied together with total allowable catches (TACs).

Under the Control Regulation the Member States are responsible for input and output control measures and must allocate appropriate resources and establish the necessary structures to carry out controls throughout the production chain. There are specific requirements for fishing fleet control, compliance with management measures, reporting requirements, inspections and sanctions. Key tools for fleet management include the fleet register (which contains all fishing vessels' characteristics, fishing licences, fishing authorisations, etc.) and satellite-based systems to monitor vessel position.

6. Vessel monitoring systems (VMS) provide powerful monitoring information, but exclude a large part of the fishing fleet

The Control Regulation requires VMS equipment to be fitted on all fishing vessels of at least 12 metres in length. Member States may exempt vessels less than 15 metres long if they only fish in the waters of their flag Member State, or never spend more than 24 hours at sea from the time of departure to the return to port.

On analysing the information in the EU fleet register, the ECA found that contrary to the requirements of the Control Regulation, 2 % of vessels that were over 15 metres long and were licensed to fish had no VMS. Most of the vessels between 12 and 15 metres long (79 %) were exempted from the VMS obligation by Member States.

7. Fisheries data collected under the Control Regulation was incomplete and unreliable

ECA in their audit opined that Paper-based declarations increased the risk of errors being recorded in the Member States' catch

databases. Sample checks of paper catch and landing declarations against the Member States' catch database entries revealed that information was incomplete, there were data transcription errors and in some cases catches were being recorded for vessels shown as inactive in the fleet registers. Member States' catch data for smaller vessels without electronic declarations was incomplete and sometimes incorrect.

**8.** Sales data was not sufficiently comprehensive or consistent with landing declarations-

That there was substantial room for improvement as 'landing declarations' and 'sales notes' for a sample of vessels were not always available, and that there were significant unexplained differences between landing declarations and the quantities recorded as sold.

**9.** The information-sharing system between Member States was ineffective

The ECA observed that the Member State's information exchange systems were not reliable and resulted in transmission errors. The Member States internal organisation of data storage and transmission systems were often too complex, and IT systems were often incompatible among and within Member States.

**10.** Administrative and criminal procedures were used by inspection authorities.

The value of the catch could be added to the total amount of the sanction and methods and procedures adopted for imposing fines for infringement varied amongst the member countries. Points system only partially used or used for serious infringement. The points system for serious infringements required by the Control

Regulation was in place in Italy and functioning well. The points system was not consistently applied. As it was partially applied in Spain, inconsistently applied in Scotland and not implemented in France.

## RECOMMENDATIONS of ECA

**Recommendation 1** – Improving the reliability of information on fishing fleets

In order to improve the accuracy of information of fishing capacity, the Member States should, by 2018,

(a) Establish procedures to verify the accuracy of the information recorded in their national fleet registers;

(b) Detailed rules for the regular documentary and on-the-spot verifications of both gross tonnage (GT) and engine power (kW) indicators used to calculate fishing capacity.

(c). Member States are required to implement fisheries management measures set out in national, European and international legislation.

**Recommendation 2** – Improving the monitoring of fisheries management measures

In order to improve the monitoring of activities of small fishing vessels, the Commission may include in its legislative proposal

(a) The removal of the VMS exemptions for vessels between 12 and 15 metres long;

(b) The requirement for the installation of smaller and cheaper localisation systems for vessels under 12 metres long.

In order to ensure the transparency of the distribution of fishing quotas, the Member States should, by 2019,

(c) Inform the Commission of their quota allocation system in line with Article 16 of the CFP regulation, including how the transparent and objective criteria have been incorporated in the distribution of fishing quotas among stakeholders.

**Recommendation 3** – Improving the reliability of fisheries data

1. In order to improve the completeness and reliability of fisheries data, The Member States should, by 2019,

(a) Review and improve the process for recording and verification of paper based data of fishing activities;

(b) Ensure that they have reliable data on the activity of vessels under 10 metres long, and that they apply the rules established by the fisheries Control Regulation to collect them;

(c) Complete the validation and cross checking of fisheries activities data.

The Commission should, by 2020

(d) Establish an information exchange platform (e) Promote the development of a cheaper, simpler and user friendly system to facilitate the electronic communication of fishing activities for vessels less than 12 metres long;

2. In the context of any future amendment to the Control Regulation, and in order to improve the completeness and reliability of fisheries data, it was recommend the Commission to include in its legislative proposal

(g) The removal of the Electronic Reporting System and electronic declaration exemptions (h) Review the catch data reporting obligations of the Member States In order for inspections to be effective, they must be backed up by dissuasive, proportionate and effective sanctions, including a points system for serious cases to

ensure that fishing operators are treated equally

**Recommendation 4** – Improving inspections and sanctions

1. In order to improve the inspections the Member States should, by 2019,

(a) When the new Regulation on technical measures will enter into force, develop, in consultation with the European Fisheries Control Agency (EFCA), and use standard inspection protocols and reports

In the context of any future amendment to the Control Regulation, it was recommend the Commission to include in its legislative proposal

(b) The mandatory use of the Electronic Inspection report System by the Member States 2. In order to ensure the effectiveness of the system of sanctions, the Member States should, by 2019,

(c) Take due account of recurrent infringements or persistent offenders when setting sanctions;

(d) Fully implement the point systems and ensure its consistent application in their respective territories.

**RESPONSE OF THE AUDITED ENTITY (European Commission)**

The European Commission agreed, acknowledged or recognised with most of the observations and shared similar views as that of the ECA. The commission also provided commitments in majority cases in terms of acceptance of observations, further follow up, taking note of recommendations to be implemented by the Member States, and also accepted partially the remaining recommendations.

## Conclusion and Significance

The Common Fisheries Policy requires an effective control system in place in order to be successful in ensuring that fish stocks and the fishing sector are sustainable in the long term.

The audit by ECA was comprehensive with good sample selection where in it was assessed whether or not the EU had an effective system for fisheries controls in place, by examining the main requirements of the EU's fisheries control regulation and their implementation by Member States. It was also analysed how Member States checked the components of the fleet capacity (gross tonnage and engine power) and whether or not they kept their fleet register up to date; whether fisheries management measures were well implemented; whether the data needed for fisheries management was complete and reliable; and whether or not inspections and sanctions were appropriately planned, performed and applied.

The audit produced good output resulting good outcome in the form of acceptance of its recommendations by the European commission.

India ranks third in world fish production with a harvest of 6.3 million tonnes. The vision of the National Policy on Marine Fisheries, 2017 launched recently in April 2017 is having a healthy and vibrant marine fisheries sector that meets the needs of the present and future generations. The NPMF, 2017 is expected to meet the multi-dimensional and growing needs of the marine fisheries sector for the next one decade. The Policy is considered to be holistic and adequately addressing the needs of all the segments of this diverse economic activity. The NPMF, 2017 will have an 'Implementation Plan' that will specify the action points under each recommendation

contained in the Policy. These action points will be further elaborated with timelines for implementation, agencies responsible for the work and the likely sources of funds required for implementation. The Implementation Plan will also have a 'Monitoring and Evaluation' section that will address the timeliness and efficacy of implementation. It is expected that through the implementation of this Policy, the marine fisheries sector in India will become a sustainable and well-managed entity, ensuring enhanced utilization of the harvest for human consumption; employment, gender equity and livelihoods; equity and equality; provision of food security and nutrition; and creation of wealth and prosperity in the sector. These developments in this sector in India would necessitate similar kind of Audit in India. The auditors in IAAD can start looking into the implementation of this policy in India and work towards an impactful audit of the issue in coming years.

➤ **S. Prabhakar Rao**

## X. Experience with iCED, Jaipur

During the first week of September the Officer Trainees of the 2016 batch proceeded to iCED, Jaipur for our introductory training on Environment Audit. Having heard a lot about the iCED campus, we were all pretty excited to visit the place. The charm of Rajasthan to many of us, who had not been to the desert state beforehand, added to the excitement.

We proceeded to iCED after our IIM-Ahmedabad attachment, and were already pretty charged up after the excellent training that we received there. We boarded our flight from Ahmedabad on 2nd September and were

taken to the iCED campus, which is around 40 kilometers from Jaipur City.

### **Visiting the Waterman of India**

Even though the immediate next day of our arrival was a Sunday, we were in for a pretty hectic schedule. We were scheduled to visit the office of Tarun Bharat Sangh, an NGO that works primarily in Alwar District of Rajasthan in the area of water/river conservation. We were to start from the institute at 6 in the morning and many of us were not very happy that we were put to such a hectic schedule after an already stretched out day. However, most of our apprehensions would soon melt away once we reached the office of Tarun Bharat Sangh.

Situated in the Gopalpura Village in Rajasthan, Tarun Bharath Sangh is headed by Dr. Rajendra Singh, who has worked for a long time in the area of River and Water conservation in India. To his credit lies the rejuvenation of five rivers that flow through the arid desert state and this was achieved by making use of the traditional watershed management technology- Johad. We were not expecting to meet Dr. Singh on this particular day, but once we got to know that Dr. Singh himself would be receiving us, most of us turned into starry eyed, curious kids.

Dr. Singh explained to us the engineering that lay behind the watershed technology, how Johad has helped transforming the fate and fortune of hundreds of farmers across Alwar region and neighbouring districts and also what can be done to scale the model to the entire country. He came across as a very humble and approachable person with a saintly aura. We were taken to the Johads that were constructed by TBS and thereafter had a first-

hand exposure on the construction and operation of these traditional check dams.

### **iCED**

iCED campus, I felt, is one of the best campuses that belongs to IA&AD. Designed in an environment and eco-friendly manner, without compromising on any of the modern design principles, it is indeed an apt place to house the department's Environment Audit Training centre. From small things like the use of glasses for water instead of plastic bottles to the use of solar energy to supplement power needs of the institute, everything about iCED oozed eco-friendliness.

The inauguration was done by Dr. Rajendra Singh, who started off from where he had stopped the day before, and following this we had sessions on Legal Frameworks, Environment Impact Assessment, Waste Management etc. all of which enhanced our understanding about various facets of environment management and conservation. The importance of environment audit in the governance of our country was impressed upon us by this whole exercise.

### **Fun at iCED**

The most fun we had at iCED was with the evening cooling off at the swimming pool. Having been unfortunate at iCISA, what with their swimming pool being under maintenance, we were pretty excited to put our swimming skills to test. Most of us would simply cool off for hours on end after the classes. The other facilities at the institute were also impressive.

In addition to this, iCED had arranged for outings for us on almost all the days. We were taken to Chokidhani, Jaipur to enjoy a sumptuous Rajasthani Thali, Amber fort to

enjoy the light and sound show and also hosted at the AG Colony by our seniors.

All of us felt immense pride at how cordially our seniors welcomed and treated us at the dinner hosted for us at the AG colony. We were treated as members of a single family and the camaraderie and professionalism that was on display impressed upon us the tight knit nature of IA&AS.

### **Desert National Park and Sam Dunes**

The iCED attachment, even though sweet, lasted only 4 days. We proceeded for a study tour to Desert National Park, Jaisalmer followed by a night stay at Sam Dunes, Jaisalmer. Even though many of us braved the desert heat and walked till the end, we were not lucky enough to spot the much famed Great Indian Bustard. The lack of a jeep safari to the internal parts of the park did us in. However, it was a great experience to walk through the plain, harsh terrain.

Following this we went back to our camp at Sam Dunes. We were taken on a camel safari through the dunes. My roommate and I hopped on to a camel named Sonia, who I suppose is a beauty by camel standards. She patiently bore my weight (which for reference is a number above 100kg) and did not seem to mind us shouting atop her. Our usher, named Isak, also offered to race her through the dunes for us. We also saw some desert nomads who sang and danced for us.

There were cultural activities arranged at night. We were treated with fantastic dance / song performances. The quiet of the desert made the desert tunes much more impressive and soul rendering. Rajasthan would leave us permanently impressed by her culture after this night.

### **Visit to the Border**

The next day, we were taken to the BSF office at Jaisalmer, where we were briefed about the Border Security Force and its role in securing our nation's borders during peace time. We came to appreciate the immense sacrifice that these jawans make to make sure that their countrymen sleep in peace.

After the debriefing we were taken to the Longewala post, which was the theatre of war during the famous Battle of Longewala, where a handful of Indian Soldiers held off a sea of Pakistani army and protected the borders of our country during the 1971 war. We also visited the BSF border check post at Bawliyanwala and were briefed on how the BSF mans the border post and makes sure that there is no infiltration at the borders. The sight of Pakistan which lay a few metres from me across barbed wires is something that I will never forget in my life. The bravery and commitment of the BSF Jawans who man these posts even in the most inhospitable of conditions is something that needs to be known to every citizen of our country.

The one week attachment at iCED and Rajasthan was one of the most memorable in our entire training schedule. It was informative, highly enjoyable and cleared many misconceptions that all of us held about many things. Rajasthan, which calls to one's mind the image of an arid, dry state would never be the same in my mind after this trip. Its immense variety and diversity in terrain and in culture once more underlined to me how diverse our country is.

When we were about to return to Shimla, there was only one thing that our entire batch wanted. Another chance to return to this wonderful institute and place.

➤ **Vishnu H Prasad,  
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