

# Green Files

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INTERNATIONAL CENTRE FOR ENVIRONMENT  
AUDIT AND SUSTAINABLE DEVELOPMENT  
JAIPUR



## GREEN FILES

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

#### **EDITORIAL**

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

During the quarter April-June 2018, iCED organized six National Training Programmes on a gamut of issues related to environment and sustainable development. The selection of topics of these National Training Programmes was a result of Training Need Analysis conducted by iCED. These topics of training also reflect our efforts for alignment of training programmes with audit issues taken up by field offices of SAI India. This is a mutually beneficial situation as not only the field auditors have got training in their area of interest / function but also the training programmes have got enriched due to sharing of relevant field understandings.

I am glad to inform you that iCED celebrated its 9<sup>th</sup> Foundation Day on 1 June 2018 by organising a workshop on ‘Orienting Audit for SDGs: Ideas to Work Upon’. The workshop was convened to hold open discussions among environmental experts and senior officers of SAI India on emerging issues concerning Environment and Sustainable Development and its significance for public audit.

Members of Audit Service Commission, Sri Lanka visited iCED on 18 and 19 May 2018 as part of an awareness program in SAI India establishment to gain some foreign exposure with regard to execution of matters related to management of audit service activities.

An engaging article on the State of Arunachal Pradesh, a province right in the lap of Himalaya, is featured in this newsletter. This newsletter also features an article by Mr. Saurabh Suman on regulation of shacks in the State of Goa. This article provides a synopsis of research work conducted on Regularity Impact Analysis by Mr. Saurabh Suman as an intern at iCED.

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 may 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**

During the first quarter (April – June) for the year 2018 – 19, iCED organised National Training Programmes (NTPs) on:

- i. Audit of Ground Water Management and Regulation (02 April – 06 April, 2018)
- ii. Audit of Environmental issues in Mining and Extractive Industries (16 April – 20 April, 2018)
- iii. Audit of Schemes of Drinking Water (23 April – 27 April, 2018)
- iv. Audit of Waste Management (07 May – 11 May, 2018)
- v. Audit of Universalisation of Education (14 May – 18 May, 2018)
- vi. Audit of Forests and Wildlife (21 May – 25 May, 2018)

These NTPs were held based on inputs received from Training Needs Analysis conducted by iCED as well as Annual Audit Plan 2018 -19. Audits on these issues are being conducted by various field offices.

A two day Review Workshop on performance audit of “Preparedness for implementation of SDGs” was also held at iCED from 19 – 20



**Shri R.K. Ghose, Dy. CAG (RC & C)  
chairing Workshop on SDGs**

April, 2018. Workshop was chaired by Shri R.K. Ghose, Dy. CAG (RC & C). A total of 32 participants from various field offices participated in workshop along with experts

from NITI Aayog, National Institute of Public Finance and Policy (NIPFP), Research and Information System for Developing Countries (RIS) and The Energy and Research Institute (TERI). Dr. Divya Datt, Senior Fellow and Associate Director, TERI made presentation on “Preparedness for Implementation of SDGs”, followed by presentations by Shri S. N. Mishra, Advisor, NITI Aayog; Dr. N.R. Bhanumurthy, Professor, NIPFP and Dr. P. K. Anand, Retd. IAS and Fellow, RIS. Presentations from experts were followed by presentations from office of the Director General of Audit (Central Expenditure), New Delhi; office of the Director General (Economic & Service Ministries), New Delhi and office of the Principal Director (Scientific Departments), New Delhi. Concerned audit offices from states of Assam, Chhattisgarh, Haryana, Kerala, Maharashtra, Uttar Pradesh and West Bengal also made presentations on progress of performance audit of “Preparedness for implementation of SDGs” in their respective states.

On the occasion of 9th Foundation Day of iCED on 01 June, 2018, a workshop on “Orienting Audit for SDGs: Ideas to Work Upon” was organised. The workshop was attended by 20 participants including senior officers from the Indian Audit and Accounts Department and experts working in the field of “Environment and Sustainable Development” who are associated with iCED as faculty. The workshop was convened to hold open discussions on emerging issues concerning Environment and Sustainable Development and its significance for public audit. During the workshop experts made presentations on environmental issues and their linkages with the Sustainable Development Goals in the

Global Agenda 2030. Dr. Anshuman, Senior Fellow & Associate Director, TERI, New Delhi gave a presentation on the topic of “Water in SDGs”. Dr. T.V. Ramachandra, coordinator of Energy and Wetlands Research Group, Convener of Environmental Information System at Indian Institute Science gave a presentation on “harnessing technology to evaluate achievement of SDGs”. Dr. Sanjay Mathur, Head, Centre for Energy & Environment Technology, Malviya National Institute of Technology, Jaipur delivered a presentation on “Sustainable Energy: Solar Energy in India”. Ms. Nameeta Prasad Accountant General (E&RSA), West Bengal gave a presentation on “Environment and Climate Action in SDGs”. Shri Sunil Dadhe, Director General, iCED, Jaipur and Ms. Vidhu Sood, Principal Director, Regional Training



Participants of 9<sup>th</sup> Foundation Day workshop with Shri Rakesh Jain, Former Dy. C&AG and Director General, iCED

Institute, Jaipur made joint presentation on the topic of ‘Orienting Audit for SDGs: Ideas for IAAD and iCED’.

Members of the Audit Service Commission, Sri Lanka viz. Mr. V. Kandasamy, former Deputy Auditor General; Justice Sunil Rajapaksa, former Judge of the Court of Appeal of Sri Lanka; Mr. W.A.S. Parera, Sri Lanka Administrative Service Officer; and Mr.



Principal Director, iCED; Director (T&R), iCED and Director (Admin.), iCED with members of SAI, Sri Lanka Delegation

Gamini Abeyrathna, former Deputy Auditor General visited iCED during 08 – 09 May 2018 as part of an awareness program in SAI India establishment to gain exposure with regard to execution of matters related to management of audit service activities.

➤ Vijendra Tanwar

## II. ASOSAI/INTOSAI NEWS

### 1. Joint Start-up Meeting of Cooperative Audit and Research Projects of ASOSAI WGEA

In the capacity of Chair of ASOSAI WGEA, SAI China hosted the Joint Start-up Meeting of Cooperative Audit and Research Projects of ASOSAI WGEA from June 20 to 22 in CNAO Audit Academy, Nanjing, China. 3 member SAIs of ASOSAI WGEA has taken up these projects viz. SAI Thailand is leading the Parallel audit on water environmental protection, SAI Nepal is leading the research project on Audit on Poverty Alleviation and Living Environment Improvement in Rural Areas, and SAI China is leading the research project for Application of Big Data Analytics in Environmental Auditing. SAI India is a member for the research project on Application of Big Data Analytics in Environmental

Auditing. Shri Sunil Dadhe, DG, iCED represented SAI India in this meeting.

## Source:

[http://asosai.org/asosai/news/whats\\_new\\_detail.jsp?idx=11539](http://asosai.org/asosai/news/whats_new_detail.jsp?idx=11539)

## **2. 15th GAB Annual Seminar**

On 6 May 2018 the SAI of Saudi Arabia organized the 15th General Auditing Bureau (GAB) Annual Seminar on "Auditing the Implementation of the Sustainable Development Goals (SDGs): Challenges and Issues of the Preparedness Phase" in Riyadh.

At the core of the seminar was the discussion of current themes and challenges related to the implementation of the SDGs both on the national and the international level (in this regard in particular also in the framework of INTOSAI).

In addition to the President of the SAI of Saudi Arabia as the host of the event, the seminar featured high-ranking speakers from the United Nations, the World Bank, the IDI, the SAIs of Egypt, Jamaica, Tunisia, the United Arab Emirates and the United States, as well as from the INTOSAI General Secretariat.

In the framework of a panel discussion, the General Secretariat of INTOSAI presented the initiatives and activities of INTOSAI to support SAIs in reviewing the SDGs and the related challenges and opportunities.

<http://www.intosai.org/news/080518-gap-annual-seminar-may.html>

## ➤ Pankaj Saini

### **III. State in Focus: Arunachal Pradesh**

Arunachal, the name means “land of rising sun”, is a sprawling mountainous territory, a land of mighty rocks and luxuriant forests, gentle streams andragging torrents, presents a breathtaking spectacle of nature in all her glory, raw and unspoilt and untamed in wild profusion of flora and fauna, customs, language and dress.



## The State of Arunachal Pradesh

### Source:

<http://www.arunachaltourism.com/map.php>

Arunachal has become full-fledged State on February 20, 1987. Till 1972, it was known as the North- East Frontier Agency (NEFA). It gained the Union Territory status on January 20, 1972 and renamed as Arunachal Pradesh. On August 15, 1975 an elected Legislative Assembly was constituted and the first council of Ministers assumed office. The first general election to the Assembly was held in February 1978. Administratively, the State is divided into sixteen districts. Capital of the State is Itanagar, in Papumpare district.

Arunachal Pradesh, situated in the north eastern part of India is nearly 84,000 sq km in area and has a long international border with Bhutan to the west (160 km), China to the north and north-east (1,080 km) and Myanmar to the east (440 km). It stretches from snow-capped mountains in the north to the plains of Brahmaputra valley in the south. Arunachal is the largest state area wise in the north-eastern region, even larger than Assam which is the most populous.

It is a land of lush green forests, deep river valleys and beautiful plateaus. The land is mostly mountainous with Himalayan ranges along the northern borders criss-crossed with mountain ranges running north-south. These divide the state into five river valleys: the Kameng, the Subansiri, the Siang, the Lohit and the Tirap. All these rivers are fed by snows from the Himalayas and countless rivers and rivulets except Tirap which is fed by Patkai Range. The mightiest of

these river is Siang, called Tsangpo in Tibet, which becomes Brahmaputra after it is joined by the Dibang and the Lohit in the plains of Assam.

High mountains and dense forests have prevented inter-communication between tribes living in different river valleys. The geographical isolation thus imposed, has led different tribes to evolve their own dialects and grow with their distinct identities. Nature has endowed the Arunachal people with a deep sense of beauty which finds delightful expression in their songs, dances and crafts. The climates varies from hot and humid in the Shivalik range with heavy rainfall. It becomes progressively cold as one moves northwards to higher altitudes. Trees of great size, plentiful climbers and abundance of cane and bamboo make Arunachal evergreen. Tropical rain forests are to be found in the foothills and hills in the east on the border with Myanmar. Northern most border is covered with Alpine forests. Amidst the highly rugged terrain, there are green forests and plateaus.

The state has humid hot and subtropical climate in the foot hills, windy cool and pleasant climate at the lower altitude and cold climate at the higher snow mountains. The rainfall is heavy during monsoon causing flood and landslides. Arunachal Pradesh is the largest in area among North – Eastern states and is the second largest forest covered state next to Madhya Pradesh in the



### **Jhum cultivation in Arunachal Pradesh**

country. Referred to as Prabhu mountains in the literature of the Kalika Purana and Mahabharata, Arunachal Pradesh is blessed with breathtakingly beautiful hilly forest ranges from Alpine to tropical rainforest silvery fir tree, plentiful climbers and grass.

Arunachal Pradesh attracts tourists from many parts of the world. Tourist attractions include the Namdapha tiger project in Changlang district, Sela Lake near to Bomdila.

Source: <https://www.time8.in/225-crore-boost-to-jhum-management-in-north-east/>

Agriculture is the primary driver of the economy. Jhum, the local word for shifting cultivation, which was widely practised among the tribal groups has come to be less practiced. Arunachal Pradesh has close to 61,000 square kilometers of forests, and forest products are the next most significant sector of the economy. Among the crops grown here are rice, maize, millet, wheat, pulses, sugarcane, ginger and oilseeds. Arunachal is also ideal for horticulture and fruit orchards. Its major industries are rice mills, fruit preservation units and handloom handicrafts. Arunachal Pradesh accounts for a large percent of India's untapped hydroelectric power production potential.

Source:  
<http://www.arunachalpradesh.gov.in/at-a-glance-2/>

### **Environment Scenario**

#### **Forests**

As per Government of India's Forest Survey Report 2015, total recorded forest area in the state is 51,407 sq. km. (Reserved Forest-10,589 sq. km., protected forest – 9,779 sq. km. and unclassed forest- 31,039 sq. km.); thus constituting 61.39 per cent of the geographical area of the state and 6.72 per cent of India's forest area.

Vast climatic variations of Arunachal Pradesh have resulted in the existence of almost all types of timber wealth ranging from the tropical teak like species of the foothills jungles, to the conifers of the high mountains. Arunachal Pradesh is famous for rare species of orchids, which are found in all types of forests, altitudinal ranges, and rainfall conditions.

Arunachal is the land of green gold. Due to the variation in altitudes and climatic conditions, different places of Arunachal Pradesh have different types of forests. The 95 per cent of

forests of Arunachal Pradesh are covered with following types of forests:

Southern Dry Mixed Deciduous Forests (55.56 %)

Dry Deciduous scrub (17.75 %)

Dry Teak Forest (11.12 %)

Southern Thorn Forest (4.33 %)

Southern Moist Mixed Deciduous Forests (4.08 %)

Secondary Dry Deciduous Forest (2.06 %)



Forest in Arunachal Pradesh

Source:

<http://www.arunachaltourism.com/gallery.php>

Main reason for negative change in forest of the state are shifting cultivation and diversion of forest areas for developmental purposes. Positive changes in some districts are due to regeneration of Bamboo and other miscellaneous species.

Source: <http://fsi.nic.in/isfr-2015/isfr-2015-forest-and-tree-resources-in-states-and-union-territories.pdf>;  
[http://arunachalforests.gov.in/flora\\_and\\_fauna\\_.html](http://arunachalforests.gov.in/flora_and_fauna_.html)

## Biodiversity

Arunachal Pradesh is one of the world's "ecological hotspots" presenting vast range of species and ecosystem diversity in the eastern Himalayas. It is also considered as one of the eighteen "biodiversity hotspots" in the world. It is estimated over 5,000 species of flowering plants occur in the territory (of both vascular and

non-vascular origin). Out of which, 238 are endemic to the state. The vegetation / forest are classified under six major categories i.e. tropical, subtropical, temperate, subalpine and alpine vegetation, secondary forest and aquatic vegetation; each comprising subtypes primarily based on altitude and climate change. The state is rich in agro bio diversity and has been a centre of origin for a number of crop plant species. Orchids are often associated as the "Jewels of Arunachal Pradesh". The state houses 500 species out of 1 000 species, which are estimated to occur in India. It's the nature's repository of medicinal plants. Out of 16 primates in the world, 7 are found in Arunachal Pradesh. The state has amazingly rich avifauna with over 650 bird species. The many unspoilt tree-clad slopes contain tigers, leopards, elephants, deers, bears and apes. The Mithun/ Gayal or 'Bos frontalis' exists both in wild and semi-domesticated form.



Clouded-leopard

Source:

<http://www.arunachaltourism.com/gallery.php>

There are eight Wildlife Sanctuaries, one Orchid Sanctuary and two National Parks in state of Arunachal Pradesh covering an area of 9,488.48 sq km. There is no such threat to protected areas by the dispersed population of the state. Most of the areas are away from any villages and the people of the state are in a habit of living in areas without interfering the conservation projects. Almost all the Protected Areas are in terrain and inaccessible, which has added more protection to all these protected areas, protected areas like Pakke Wildlife Sanctuary, Namdapha National Park, Kamlang Wildlife Sanctuary and Itanagar Wildlife Sanctuary have fringe human population where activities have initiated by

involving the local communities in conservation of wildlife and its habitat. To a species-specific conservation program the state has taken up activities under Project Tiger and Project Elephant with the central assistance from Government of India. There are two Tiger project areas namely Namdapha Tiger Reserve and Pakka Tiger Reserve. The state has also submitted proposals to Government of India to include all the Elephant habitat areas in to four elephant reserves that are under active consideration of the GOI. One of the Elephant Reserves has been notified as Kameng. Management of Elephant reserves is the landscape management, which covers more territorial jurisdiction of Elephant habitat and corridors and provides scope to address more areas irrespective of legal status of the land to being under the conservation program. The state is unique in having traditional rights of various tribes over land, water and forest within their jurisdiction. Each tribe as a community exercise control over the natural resources within their surrounding inhabited traditionally by them and sustainable use the resources for shelter, cultivation, food and other day to day multifarious uses. Problems resulting in biodiversity loss are deforestation, Jhum cultivation, Tea plantation, Timber felling, Forest fire, Hunting, Soil erosion, Encroachment problem and Urbanisation.

Source:<http://arpenvis.org.in/Biodiversity1.htm>,  
[http://arunachalforests.gov.in/wildlife\\_special.html](http://arunachalforests.gov.in/wildlife_special.html)

## Wetlands

Major wetland types in the state are rivers, high altitude lakes and water logged areas. Area estimates of various wetland categories for Arunachal Pradesh have been carried out using GIS layers of wetland boundary, water-spread, aquatic vegetation and turbidity. Total 1,534 wetlands have been mapped at 1:50,000 scale in the state. In addition, 1,119 wetlands (smaller than 2.25 ha) have also been identified. Total wetland area estimated is 154,609 ha that is around 1.91 per cent of the geographic area. The major wetland types are river / stream accounting for 86 per cent of the wetlands

(134,244 ha), High Altitude Wetlands (11,422 ha), and waterlogged (8146 ha).

Source:

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

## Water Quality:

The major rivers of Arunachal Pradesh are free from pollution and the ground water is of excellent quality with all the parameters within permissible limits, according to an investigation carried out by the Central Ground Water Board and Central Water Commission. This situation, however, may change in the near future with rapid urbanisation and increase in population.

The iron content in some areas like Doimukh area of Papum Pare district has been found to be beyond the permissible limits of 0.3mg / litre. Local sand filters and iron filtration plants have been used for supply of iron-free water, and calls for greater public cooperation to keep ground water and rivers free from pollution has been made.

Source:

<https://economictimes.indiatimes.com/news/politics-and-nation/arunachal-rivers-free-from-pollution-cgwb/articleshow/50793941.cms>

## Municipal Solid Waste management

Solid Waste Management is one of the essential obligatory functions of the Urban Local Bodies in India. Municipal solid waste and its management is a big concern for India these days.

In Arunachal Pradesh, landfilling is the common practice of waste disposal in local communities. Some other techniques used are incineration, composting and recycling. The state lacks in waste segregation procedures. Installation of dustbins all over the state is not adequate. The landfill sites constructed are also not engineered well.

Urbanization is improving the living standard of people in Itanagar, the capital city of Arunachal Pradesh led to generate huge quantity of solid waste. Management of solid waste materials is becoming a big concern because it is affecting

health as well as environment. Haphazard dumping of garbage along the road side, drain and by the side of garbage bins is becoming common scenario of city life, which creating unhygienic surrounding. This shows the less awareness level and consciousness of the people as they are responsible for creating such situation. On the other hand people are also compelling themselves to breathe and live in such unhygienic and untidy environment. Hence its need some urgent steps to be taken up before the whole city look ugly and full of waste products.

Solid Waste Management is implemented in capital by Itanagar Municipal Council (IMC). Total garbage production is 80 MT per day and only 60 MT per day is being collected. Experiences and problems being faced by IMC includes lack of awareness or ignorance of people, disposal waste haphazardly, stray animals, lack of proper sewage and drainage system in the city, topography and vegetation, lack of involvement of community base organisations, rapid urbanisation and migration, in adequate experts personals in SWM and financial constraints.

Source:

<http://www.imcarunachal.in/image/solid%20waste.jpg>  
[https://www.ripublication.com/ijerd\\_spl/ijerdv4n4spl\\_01.pdf](https://www.ripublication.com/ijerd_spl/ijerdv4n4spl_01.pdf)

➤ *Virendra Jakhar*

#### **IV. Environmental News**

##### **1. Swachh Bharat Mission launched GOBAR-DHAN to promote wealth and energy from waste**

Union Minister for Drinking Water and Sanitation launched the GOBAR (Galvanizing Organic Bio-Agro Resources) - DHAN scheme at the National Dairy Research Institute (NDRI) Auditorium, Karnal on 30 April 2018. The scheme aims to positively impact village cleanliness and generate wealth and energy from cattle and organic waste. The scheme also aims at creating new rural livelihood opportunities and enhancing income for farmers and other rural people.

The Swachh Bharat Mission (Gramin) comprises two main components for creating clean villages – creating Open Defecation Free (ODF) villages and managing solid and liquid waste in villages. With over 3.5 lakh villages, 374 districts and 16 States / UTs of the country being declared ODF, the stage is set for ODF-plus activities, including measures to enhance solid and liquid waste management. The GOBAR-DHAN scheme, with its focus on keeping villages clean, increasing the income of rural households, and generation of energy from cattle waste, is an important element of this ODF-plus strategy. The scheme envisages the implementation of 700 bio-gas units in different states of the country in 2018-19.

Source:

<http://pib.nic.in/newsite/PrintRelease.aspx?relid=179016>

##### **2. MNRE issues National Wind-Solar Hybrid Policy**

Ministry of New and Renewable Energy has issued National Wind-Solar Hybrid Policy on 14 May 2018. The objective of the policy is to provide a framework for promotion of large grid connected wind-solar PV hybrid system for efficient utilization of transmission infrastructure and land. It also aims at reducing the variability in renewable power generation and achieving better grid stability.

On technology front the Policy provides for integration of both the energy sources i.e. wind and solar at AC as well as DC level. The Policy also provides for flexibility in share of wind and solar components in hybrid project, subject to the condition that, rated power capacity of one resource be at least 25 per cent of the rated power capacity of other resource for it to be recognised hybrid project. The Policy seeks to promote new hybrid projects as well as hybridisation of existing wind/solar projects. The existing wind/solar projects can be hybridised with higher transmission capacity than the sanctioned one, subject to availability of margin in the existing transmission capacity.

The Policy provides for procurement of power from a hybrid project on tariff based transparent bidding process for which Government entities may invite bids. Policy also permits use of battery storage in the hybrid project for optimising the output and further reduce the variability. It mandates the regulatory authorities to formulate necessary standards and regulations for wind-solar hybrid systems. With significant capacity additions in renewables in recent years and with Hybrid Policy aiming at better utilisation of resources, it is envisaged that the Hybrid Policy will open-up a new area for availability of renewable power at competitive prices along with reduced variability. A scheme for new hybrid projects under the policy is also expected shortly

Source:

[http://pib.nic.in/newsite/PrintRelease.aspx?reli\\_d=179270](http://pib.nic.in/newsite/PrintRelease.aspx?reli_d=179270)

### **3. GIS technology to strengthen Namami Gange Programme - State Pollution Control Boards to be strengthened to verify Quality of Water**

National Mission for Clean Ganga has brought on board Survey of India, the oldest scientific department in the country set up in 1767, to facilitate the Ganga rejuvenation task by using Geographic Information System (GIS) technology. Through the project which has been approved at an estimated cost of Rs. 86.84 crore, NMCG aims to strengthen planning and implementation at national / state / local levels. The project includes use of Digital Elevation Model (DEM) technology which ensures accurate data collection, an important aspect for river basin management planning. DEM technology enables identification of entire topography of an area making it easy for policy makers to analyse the available data thereby supporting the decision-making process. Critical hotspots are also easily identified through this technology. The use of GIS technology for Namami Gange programme will also ensure decentralisation. The data collected and subsequent actions taken by the

government can easily be shared with the local public through geo portals and mobile apps. The technology will also enable people to send their feedback up to the national level thereby providing an interactive and transparent platform. For effective discharge management, outlet of sewerage and other discharges from all units - industrial, commercial and all types of other institutions will be mapped from the source outlet to the public drainage network. In addition, the high resolution GIS enabled data will help in regulating the proposed protected and regulatory zones along the banks of river.

NMCG has approved a project to strengthen State Pollution Control Boards (SPCBs) of five main stem Ganga basin states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal so that they can frequently verify the quality of water in river Ganga and in case of any discrepancy appropriate action could be taken. The identified laboratories for this purpose are to be equipped in terms of advanced instruments and equipment with well-trained scientific personnel to carry out the pollution assessment and water quality monitoring activities in respect of existing and emerging pollutants. The strengthening of SPCBs will overcome the constraints of resources. This project has been approved at an estimated cost of Rs. 85.97 Cr for five years.

Source:

[http://pib.nic.in/newsite/PrintRelease.aspx?reli\\_d=179111](http://pib.nic.in/newsite/PrintRelease.aspx?reli_d=179111)

### **4. Solar Lamp Assembly and Distribution Centre inaugurated**

The Minister of State (IC) for Power and New & Renewable Energy, Government of India, on the occasion of 127<sup>th</sup> Birth Anniversary of Bharat Ratna Dr. Bhimrao Ambedkar inaugurated Assembly & Distribution Centre for Solar Study Lamps at Mahuli village in Arrah on 14 April 2018. In this centre, local women Self Help Group (SHG) will assemble Solar Study Lamps and distribute them to underprivileged students who do not have access to electricity. Thus the

Centre will not only provide kerosene-free affordable illumination to students, but also empower rural women with the skills to assemble, distribute and repair solar lamps.

This initiative is part of the Government of India's scheme of providing 70 lakh Solar Study Lamps in five States where rural household electrification levels are low. In Bihar, the target is to provide more than 18.84 lakh underprivileged students with Solar Study Lamps. Around 4.57 lakh such lamps have already been distributed to students of the State.

The Minister also laid the foundation (remotely) for a solar photovoltaic (PV) module manufacturing plant in Sherghati block of Gaya district. This plant will be first of its kind in the State, and will be entirely owned and operated by local women Self Help Group Federations.

<http://pib.nic.in/newsite/PrintRelease.aspx?relid=178690>

## 5. Cabinet approves National Policy on Biofuels – 2018

The Union Cabinet, chaired by the Prime Minister has approved National Policy on Biofuels – 2018 on 16 May 2018. The Policy categorises biofuels as "Basic Biofuels" viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels" - Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

The Policy expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava,

Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production. Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.

With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels. The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops. Roles and responsibilities of all the concerned Ministries / Departments with respect to biofuels has been captured in the Policy document to synergise efforts.

The expected benefits of the policy include reduced import dependency, cleaner environment, health benefits due to use of clean fuel, environmental friendly disposal of municipal solid waste, investment in rural areas, employment generation and additional income to farmers.

Source:

<http://pib.nic.in/newsite/PrintRelease.aspx?relid=179313>

## 6. Coal-fired power plants killing 80,000 adults every year – A Study

The study by Louisiana State University (LSU) revealed that 9 lakh premature deaths in the country can be avoided if mitigation measures to curb air pollution are taken. According to the study more than 10,000 people (above 25 years) in Maharashtra die prematurely every year due to toxic emissions from thermal power plants, which is the highest in the country. Nationally the figure is nearly 80,000 adults. All this because 300 thermal power plants have failed to meet the air pollution norms that were

granted an extension by the Central Electricity Authority and Central Pollution Control Board.

Additional data provided by the researchers that 10.39 lakh people in India die prematurely every year due to different sources. This includes air pollution from coal-fired power plants, industries, household, different modes of transportation, crop burning, open burning of municipal solid waste and dust.

An earlier study conducted by the Conservation Action Trust, Greenpeace India and Urban Emissions had stated that pollution from coal-based power plants resulted in 85,000-1.15 lakh premature deaths between 2011-12. While this study included people of all age groups, the one by LSU only takes into account the population above 25 years.

Source:

<https://timesofindia.indiatimes.com/city/nagpur/coal-fired-power-plants-killing-80000-adults-every-year/articleshow/64406474.cms>

## 7. CSIR lab to give technology for India's first indigenous Lithium Ion Battery project

Central Electro Chemical Research Institute (CECRI), Karaikudi, Tamil Nadu under Council of Scientific & Industrial Research (CSIR) and RAASI Solar Power Pvt Ltd have signed a Memorandum of Agreement on 9 June 2018 for transfer of technology for India's first Lithium Ion (Li-ion) Battery project. A group at CSIR-CECRI has developed an indigenous technology of Lithium-ion cells in partnership with CSIR-National Physical Laboratory (CSIR-NPL) New Delhi, CSIR-Central Glass and Ceramic Research Institute (CSIR-CGCRI) Kolkata and Indian Institute of Chemical Technology (CSIR-IICT) Hyderabad.

Minister of Science & Technology, Government of India said "It will give tremendous boost to two flagship programmes of central government – increasing the **share of Clean Energy in the energy basket by generating 175 Giga Watts by 2022, of which 100 Giga Watts will be Solar and the second, National Electric Mobility Mission, to switch completely to electric vehicles by 2030.**"

Currently, Indian manufacturers source Lithium Ion Battery from China, Japan and South Korea among some other countries. India is one of the largest importers and in 2017, it imported nearly 150 Million US Dollar worth Li-Ion batteries

Source:

<http://pib.nic.in/newsite/PrintRelease.aspx?relid=179879>

## 8. India slips to bottom four in green performance rankings

India, which was ranked 141 out of total 180 countries on the Global Environmental Performance Index (EPI) rankings in 2016, has slipped further to the 177th position this year. Failure to improve its air quality, protect biodiversity and cut greenhouse gas emissions has been cited as reason for placing the country at the bottom, according to the State of India's Environment (SoE) 2018.

Though the National Capital was always in the news for its poor air quality, an analysis of the winter (November and December 2017) and summer (April-May 27, 2018) air quality levels of 10 State capital cities shows that they too are in the dangerous grip of a multi-pollutant crisis, and are currently facing a severe health challenge.

Notably in summer, Delhi had 65 per cent days when poor and very poor air quality was recorded, in winters this percentage increased to 85. Interestingly, only about 1 per cent of the monitored days in summer months, the air quality was observed to be satisfactory in the city. CSE, in its report, mentioned that India scored 5.75 out of 100 in air quality.

In sanitation, under the Swachhh Bharat scheme, 72.1 million individual household toilets have been constructed. In energy, the SoE's report highlighted that after missing its targets for two consecutive years, the Centre, it appears, is fast losing interest in meeting its ambitious target of installing 175 gigawatt (GW) of renewable energy by 2022. In forest

cover, India's total forest cover has registered a 0.2 per cent increase between 2015 and 2017.

<http://www.dailypioneer.com/city/india-slips-to-bottom-four-in-green-performance-rankings.html>

### **9. World Environment Day Celebrations: Three-Day Campaign for Blue Flag Certification of One Blue Flag Beach in 13 Coastal States/UTs Kick started**

Society of Integrated Coastal Management (SICOM) under the Ministry of Environment, Forest and Climate Change has embarked upon a programme for Blue flag certification of one Blue Flag beach in each of the 13 coastal States /UTs under the World Bank-assisted Integrated Coastal Zone Management Project (ICZMP).

SICOM conceived an integrated coastal management scheme named BEAMS (Beach Management Services). The main objective of BEAMS programme is to reduce pollutants, promote sustainable development and strive for high standards in the areas of (i) environmental management (ii) environmental education (iii) bathing water quality (iv) safety & security services scientifically. A “Clean” beach is the primary indicator of coastal environmental quality, management and economic health of beach tourism. However, coastal regions in India are highly susceptible to litter and other pollution.

A team of SICOM carried out extensive field research work to assess gaps with regard to Blue Flag requirements, in consultation with local authorities and stakeholders in the 13 nominated pilot beaches.

With “IAM SAVING MY BEACH” (Intensive Beach Cleaning & Environment Education) campaign, MoEFCC has kick started the journey towards certifying these beaches for Eco-label at par with Blue Flag beaches in the world. This campaign was undertaken by team of SICOM-MoEFCC at these beaches concurrently for an extensive cleaning & environment education drive, coinciding with

the World Environment Day celebrations on 5 June 2018.

Source:

<http://pib.nic.in/PressReleseDetail.aspx?PRID=1534329>

### **10. International Day for Biodiversity Celebrated across the Country; National-Level Celebrations held in Hyderabad**

The International Day for Biodiversity (IBD) 2018 was celebrated all over India on 22 May 2018. The celebration of the IDB under the theme - “Celebrating 25 years of action on biodiversity” provides an opportunity to raise awareness about the importance of and threats to biodiversity, while highlighting its contribution to sustainable development. The celebrations have been organised to mark the 25 years of coming into force of the Convention on Biological Diversity.

The national-level celebrations were held at Prof. Jayashankar Telangana State Agricultural University (PJTSAU) Auditorium in Hyderabad. Chairperson, National Biodiversity Authority, Dr. B. Meenakumari, highlighted that conserving biodiversity is for securing our own future. “Our actions can be small, yet significant, towards conservation of biodiversity”, Dr. Meenakumari said. The UNDP Country Director, Ms. Marina Walter, in her address highlighted that conservation of biodiversity in India will have a global impact and it will be central to the achievement of multiple Sustainable Development Goals (SDGs) related to food security, health, livelihood security, poverty alleviation among others.

The IBD 2018 celebrations have been organised by the Ministry of Environment, Forest and Climate Change, in coordination with National Biodiversity Authority (NBA) and Telangana State Biodiversity Board.

Source:<http://pib.nic.in/PressReleseDetail.aspx?PRID=1533058>

➤ Pankaj Saini

**V. "Ministerial declaration of the United Nations Environment Assembly at its third session "Towards a pollution-free planet".**

The third session of the United Nations Environment Assembly of the United Nations Environment Programme was held in Nairobi from 4 to 6 December 2017, under the theme, "Towards a Pollution-Free Planet". The session opened on, 4 December 2017 at the headquarters of UN Environment Programme in Nairobi and was preceded by informal consultations between regional groups and the Executive Director on 3 December 2017. Several high-level representatives from UN member states assembled at the Assembly to discuss the global environmental agenda for years to come.

All ministers who attended the conference agreed that every person in the world should be able to live in a clean environment. Any threat to our environment is a threat to our health, society, ecosystems, economy, security, well-being and our very survival. That threat is already upon us: pollution is cutting short the lives of millions of people every year.

The world leaders gathered at the third session of the United Nations Environment Assembly to work towards a pollution-free planet, with political, scientific, private sector, and civil society leaders. In the event it was reaffirmed that the efforts to combat pollution should continue to be guided by the Rio Principles on Environment and Development. In this context, the world leaders concluded that it is imperative to alert people everywhere to some of the key facts which are detailed below:

1. Every day, 9 out of 10 people breathe air that exceeds WHO guidelines for air quality and more than 17,000 people will die prematurely because of it<sup>1</sup>. Hundreds of children below the age of five die from contaminated water and poor hygiene daily<sup>2</sup>. Women and girls continue to be

disproportionately affected, whether it be from cooking with dirty fuel or walking further to find safe water. Every year 4.8 to 12.7 million tonnes of plastic is dumped in the oceans<sup>3</sup>. Over 40 million tonnes of electronic waste is generated annually<sup>4</sup>- which is increasing every year by 4 to 5 percent - causing severe damage to ecosystems, livelihoods and health.

2. Tens of thousands of chemicals are used in everyday objects and applied in the field without proper testing, labelling or tracking. Far too many communities either lack information about the chemicals and hazardous substances they use or are exposed to, or the capacity to manage them safely.

3. It is understood that knowledge and technological solutions to reduce pollution already exist, though many stakeholders have yet to explore and implement the many opportunities available. The efforts put in by numerous success stories of countries, cities and businesses addressing air, soil, freshwater and marine pollution issues are very encouraging. Recent examples include the adoption of the Kigali Amendment to the Montreal Protocol and the entry into force of the Minamata Convention on Mercury.

4. As countries are making efforts against pollution in support of the 2030 Agenda for Sustainable Development, relevant multilateral agreements and instruments, including the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, the links between pollution, climate change, biodiversity loss and ecosystem degradation are acknowledged. Pollution disproportionately affects the poor and the vulnerable. Tackling pollution will contribute to sustainable development by fighting poverty, improving health, creating decent jobs, improving life below water and on land, and reducing greenhouse gas emissions.

5. Armed conflict or terrorism causes a lot of damage and pollution to the environment,

<sup>1</sup> World Health Organization (WHO) – WHO releases country estimates on air pollution exposure and health impact. September 2017.

<sup>2</sup> World Health Organization - Global Health Observatory.

<sup>3</sup> Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrady, A. et al. (2015). Plastic waste inputs from land into the ocean. *Science* 347(6223), 768-771.

<sup>4</sup> Baldé, K., Wang, F., Kuehr, R. and Huisman, J. (2015). *The Global E-waste Monitor – 2014*. Bonn: United Nations University.

often delaying recovery, undermining the achievement of sustainable development and threatening the health of people and ecosystems.

6. Unsustainable land use and management can lead to soil degradation and pollution and creates phenomena such as forest and biodiversity loss, sand and dust storms, increasing wildfires, and other undesirable effects that pose a great challenge to sustainable development.

7. Determination, collaboration, knowledge generation and sharing, innovation, efficient use of resources and clean technology can provide concrete solutions to tackle pollution.

It was emphasised in the event that everyone has to be determined to honour the undertakings to prevent, mitigate and manage the pollution of air, land and soil, freshwater and oceans by taking the following actions:

- Increase research and encourage the development, collation and use of reliable scientific and disaggregated data. This will include providing better multidisciplinary indicators; improving capacity for efficient gathering, verification and monitoring of data; and increasing transparency by making it easier to access such information more widely.
- Promoting science-based decision making in the public and private sectors, effective standard setting processes by all stakeholders and greater participation by individuals from all walks of life.
- Targeting pollution through tailored actions, including environmental agreements.
- Accelerating the implementation and promote cooperation among existing multilateral agreements, conventions, regulations and programmes to prevent, control and reduce pollution.
- Fostering inclusive and sustainable economic productivity, innovation, job creation and environmentally sound technologies.
- Encouraging sustainable lifestyles and move forward to ensure more sustainable

consumption and production patterns, by providing reliable sustainability information to consumers, increasing education and awareness raising, and making it easier to rethink, reuse, recycle, recover and remake any products, materials and/or services and prevent and reduce waste generation.

- Promoting the adoption of policies and approaches such as those for the environmentally sound management of chemicals and waste, including the use of integrated life cycle, value chains and sustainable chemistry.
- Making the best use of science, education, policy links, trade, investment and innovation opportunities in order to tackle pollution and promote sustainable development.
- Working with local governments to encourage sustainable models of urban development to address pollution.
- Promoting fiscal measures such as incentives to stimulate positive changes, taking into account the importance of minimizing pollution and making every effort to invest in more sustainable environmentally sound solutions.
- Strengthening and enforcing more integrated policies, laws, and regulations. This can be achieved by supporting institutions and building their capacity; bolstering monitoring and accountability systems; and sharing best practices, standards, policy instruments and tools, and enhancing environmental education and training.
- The member states reaffirmed their political commitment to create an enabling environment to tackle pollution in the context of sustainable development and in the spirit of global partnership and solidarity, including through adequate and predictable means of implementation as agreed in the Agenda 2030 for Sustainable Development and the Addis Ababa Action Agenda.
- Developing and expanding partnerships, between governments, the private sector, academia, relevant United Nations

agencies and programmes, indigenous peoples and local communities, civil society and individuals.

- Promoting North-South, South-South, and triangular cooperation while recognizing that South-South cooperation is not a substitute for, but rather a complement to North-South cooperation. We will also promote regional dialogue and coordination across the United Nations to target pollution.

The ministers of environment, recognized their role in delivering these commitments and promoting coordinated action. The members pledged to focus on preventive measures and building resilience, taking account of each country's responsibilities and capacities.

It was emphasised that the responsibility for combatting pollution does not rest with national governments alone. Commitment and leadership from governments and involvement and partnership from the private sector, international organizations, civil society and individuals is essential. The members expressed their support to the actions, commitments and resolutions adopted by the UN Environment Assembly and called for their adequate and coherent implementation.

It was requested to the Executive Director of the United Nations Environment Programme to submit a plan for implementation in consultation, with the Committee of Permanent Representatives, for consideration by the next United Nations Environment Assembly. As addressing pollution is a crucial element for achieving the sustainable development goals, the members advocated for the declaration in all relevant fora, including at the High-Level Political Forum on Sustainable Development.

➤ Manoj Kumar

**VI. Case law for taking urgent steps to improve the practices presently adopted for collection, storage, transportation, disposal, treatment and recycling of Municipal Solid Waste (for short, "MSW").**

Mrs. Almitra H. Patel and another filed a Public Interest Litigation before the Hon'ble Supreme Court of India at New Delhi where the

petitioner sought orders and directions for taking urgent steps to improve the practices presently adopted for handling of Municipal Solid Waste (MSW) generated in various cities across India.

The applicant stated that, no city or town takes end-point responsibility for hygienically managing its Municipal Solid Waste and it is absolutely necessary that uniform national standards and practices be adopted and remedial steps be taken on most urgent basis to avoid adverse health impacts on the citizens. The applicant referred to various cities of India and the gravity of the problems arising from the indiscriminate dumping of MSW. The issue is of national significance and grave importance.

It was further averred in the petition, that various State Governments and the local authorities are responsible for this extremely poor state of affairs.

The Centre has power and the State Governments have delegated power and authority under Section 5 of the Environment (Protection) Act, 1986 and / or under a constitutional duty and obligation to prevent environmental degradation and to ensure that the urban environment and surrounding areas are preserved, protected and improved. The petitioner submitted that Governments have failed and are neglecting to discharge its constitutional and statutory obligation in relation to proper handling and disposal of MSW.

It was further elaborated that, the Central Pollution Control Board (CPCB) which is the apex pollution control authority in the country has to frame guidelines and recommendations for management of the MSW but till date they have failed to do so. Whatever guidelines have been framed so far, have not been followed and implemented. The Central and State Boards have not taken any steps to ensure its proper implementation. Thus, they have failed to perform their statutory duties.

Some of the deficiencies identified by the petitioner are as under:

- Absence of the system for storage of waste at source.

- Lack of adequate facilities where waste to be deposited hygienically.
- Improper transportation of waste
- Land filling operations carried out without environmental impact analysis.
- Several areas particularly inhabited by the urban poor either not served or are under served.

The applicant pointed out that improper disposal of MSW may result in percolation and contamination of groundwater resources of the city and its environs. By referring various studies the applicant averred that if MSW is properly handled and managed it can be a profitable exercise for municipalities.

Right of the citizens to clean and healthy environment guaranteed under Article 21 of the Constitution of India. The Hon'ble Supreme Court of India years back had held that a responsible Municipal Council cannot run away from its principal duty by pleading financial inability. The applicant prayed before the Hon'ble Supreme Court of India, inter-alia, to issue directions to the State Governments:

- To make budgetary provisions for development of proper collection, transportation, storage and disposal of MSW.
- To financially strengthen local bodies for enabling them to handle MSW.
- To issue appropriate directions to local bodies to ensure appropriate management and handling of MSW and implementation of the guidelines issued by the CPCB.
- To frame schemes for support of persons working as rag-pickers.
- To ensure scientific disposal of Bio-Medical Waste.
- To introduce legislation to promote environmental friendly packaging.

The Writ Petition was instituted in 1996. During its pendency, the Hon'ble Supreme Court passed various directions and orders requiring the respondents to consider low cost waste sanitization options. They were also directed to seek expert advice on various aspects related to MSW. The Hon'ble Supreme Court appointed Barman Committee which

submitted its report in 1998. With reference to recommendations in the report CPCB had submitted the draft Management of MSW Rules, 1999 before the Hon'ble Supreme Court.

In a previous case in 1996 the Hon'ble Supreme Court observed that the authorities, responsible for pollution control and environment protection, have not been able to provide clean and healthy environment to the residents of Delhi. The Hon'ble Supreme Court had issued some directions to concerned State Governments to ensure proper sanitation. The emphasis was laid by the Hon'ble Supreme Court on two interrelated aspects, one dealing with the solid waste and other being clearing of slums.

In August, 2000 the Court raised a query as to whether the concerned State Governments are willing to privatize garbage collection with an object to ensure cleanliness. In an order in October, 2004, the Hon'ble Supreme Court noticed that Municipal Solid Waste (Management & Handling) Rules, 2000 (MSW Rules 2000) were not implemented properly. It also made a reference to the steps taken by the authorities and their failure to comply with the directions / Rules.

**In September, 2014 the Hon'ble Supreme Court transferred the Writ Petition to National Green Tribunal.**

The court stated that several orders have been passed by the Court over the past 18 years or so in regard to the prayers made in the Writ Petition. One significant development that has taken place pursuant to those orders is the framing of the MSW Rules, 2000 under the Environment (Protection) Act, 1986.

All the States in India were made respondents in this petition. Most of the States filed status report regarding the Model Action Plan for MSW Management. Almost every State followed the cluster based system and were desirous to implement the Model stated in *Capt. Mall Singh and Ors.* Some of the States had also prepared Draft Action Plan on Municipal Solid Waste. According to most of the States, even the generation of RDF through Waste to Energy plant was in the initial stage of

establishment and some States were working towards establishment of bio-gas plants in place of Waste to Energy Plants.

After referring to various orders of the Hon'ble Supreme Court of India, the Tribunal passed detailed directions in the order dated 20 March, 2015. The Tribunal also accepted the reports filed by the States adopting cluster approach and establishment of Refuse-Derived Fuel (RDF). Tribunal rejected the contention raised on behalf of some of the parties, including MoEF&CC that RDF, Waste to Energy Plant and the site for collection, treatment and disposal of MSW, should be de-centralized and that cluster system is not an appropriate remedy.

The Tribunal noticed that it cannot overlook the limitations of the State in relation to availability of land, finances and geographical concerns. Economical and environmentally sound centralized operation of plants would not only be in the economic interest of the State and the people but would also serve the purpose of environmental protection and compliance with the Rules.

The Central Pollution Control Board and MoEF&CC were also directed to prescribe specific standards for emission for insulators used for power generation. They were directed to prepare a consolidated document. Vide the same order, the Tribunal also directed all the concerned States to file comprehensive affidavits.

Thus, in furtherance of the order of the Tribunal dated 20<sup>th</sup> March, 2015, various States and even the Pollution Control Board of the States filed affidavits. Upon analysis of the above status reports, affidavits and documents placed on record, it was more than evident that all the States are at a planning stage and execution is lacking at all relevant stages. None of the States had implemented and enforced the directions as directed and intended by the Apex Court and the Tribunal. This matter had been pending before the Tribunal since 2014 and till date no State had been able to demonstrate that it has or any part of the State has any place which operates a system or a plant which would

segregate, transport and dispose of the MSW in accordance with the MSW Rules of 2000.

The MSW Rules of 2000 in practice were also found deficient in various aspects as these rules did not provide for effective implementation and fixation of responsibility in regard to management and disposal of waste. MoEF&CC had submitted before the Tribunal from time to time that it was undertaking the exercise for enacting the new set of Rules.

The Ministry in June, 2015, notified the Draft of Solid Waste Management Rules, 2015. The Applicant in the present case, was also directed amongst others to file her objections / suggestions to the draft Rules before the Ministry which the Applicant did. Finally, the Solid Waste Management Rules, 2016 (MSW Rules of 2016) were notified in April, 2016. The apparent lacuna that emerged from the bare reading of these Rules of 2016 was that there were no punitive consequences for violation or non-compliance of these Rules. In absence of such provisions, the very purpose of these Rules was defeated.

These Rules were framed in exercise of powers vested in the Ministry under a delegated legislation. The Rules had been enacted under the Environment (Protection) Act, 1986. The violation of the directions, rules and provisions was made punishable under Section 15 of the Act of 1986. Whoever failed to comply with the provisions of the Act, or the rules made or orders or directions issued there-under, would, be liable for punishment with imprisonment for a term up to five years or / and fine up to one lakh rupees.

After and even prior to the coming into force of the MSW Rules of 2016, various courts and the Tribunal had issued following directions with regard to the management and disposal of MSW:

- The Hon'ble Supreme Court of India have issued directions with regard to strict compliance of MSW Rules of 2000 and clearing of unauthorized encroachments (*M.C. Mehta v. Union of India and Ors.*, 2003).

- The Hon'ble Supreme Court directed review of the performance of Committees constituted for proper implementation of legislations with regard to the transportation of animals, maintenance of slaughter houses, effluent and solid waste disposal. (*Lakshmi Narain Modi v. Union of India* 2013)
- The Tribunal invoked the Polluter Pays Principle and directed the Corporation to pay compensation for restoration of environment on account of violation of the MSW Rules of 2000. (*Irfan Ahmed v. Nawang Regzin Jora and Mohali Industry and Commercial Association v. State of Punjab*).
- The Tribunal issued direction for proper collection and disposal of the waste, in accordance with MSW Rules of 2000. (*Mohali Industry Commercial Association, supra*).
- The Tribunal by a detailed order and upon considering the necessity for operating waste to energy plants passed directions for proper management of MSW in Delhi. (*Kudrat Sandhu v. Govt. of NCT of Delhi and Ors*, 2016)

CPCB by affidavit dated 20th September 2016 concurred with the suggestions particularly related to short life plastic and RDF for cement plants. As far as Buffer Zones are concerned the CPCB informed that it is in the process of preparing the '*National Guidelines for Buffer Zone around waste processing and Disposal Facilities*'. CPCB further submitted that the applicant is correct in submitting that though the term 'Tipping Fee' has been defined in the SWM Rules 2016, but the application and other relevant factors have not been stated in any of the provisions of the said Rules and MoEF&CC needs to take a view in this regard.

The MoEF&CC filed its affidavit on the suggestions of the applicant on 18th October 2016 and submitted its views on incineration of MSW including plastics, phasing out chlorinated plastic bags, critical analysis of non-implementation of MSW Rules, etc.

The Applicant also expressed her concerns regarding various issues related to management

of MSW. The Applicant submitted the following to the Tribunal:

- Creation of buffer areas around SWM facilities by acquiring land by city authorities to reduce the hardship of the local residents.
- The buffer zones to be provided should have a direct nexus with the area available and the green belt should be created so that no land is wasted unnecessarily.
- Applicant had stressed segregation of waste at source, even in case of provision of incineration / waste to energy plant.
- A Waste to Energy plant based on mass incineration, besides having low efficiency of waste to energy conversion, is contrary to the Rules of 2016 which requires segregation at source.
- The Applicant had suggested that the RDF should be supplied to the Cement / thermal power plants at a price based on the calorific value and they should also bear the cost of transportation of RDF.
- The biodegradable waste releases highly polluting leachate during decomposition which irreversibly contaminates ground and surface water around large dumps. Therefore, the mixed waste when unloaded in an orderly fashion in long parallel heaps called windrows, could be turned weekly four to five times to expose all parts to the air.
- Tipping fees is one of the important factors for operating Waste to Energy (WTE) plants. The MSW Rules of 2016 are completely silent as to the manner in which such tipping fee should be paid. The efficiency and better availability of the plant should be the criteria for determination of the tipping fee.
- The Rules of 2016 provide time limits which have already expired. None of the States / UTs had taken action in accordance with such Rules.

The Tribunal felt that any further delay in proper enforcement of action plans in accordance with the Rules is likely to prove disastrous for environmental protection and public health. So the Tribunal issued

comprehensive directions to ensure effective and expeditious implementation of the MSW Rules of 2016. Some of the significant directions are as follows:

- Every State / UT shall enforce and implement the Solid Waste Management Rules, 2016 in all respects and without any further delay.
- All the State Governments / UTs shall prepare an action plan in terms of the MSW Rules of 2016 within four weeks from the date of pronouncement of the judgment.
- The Tribunal revised the already elapsed deadlines under MSW Rules of 2016. Any State or Union Territory which now fails to comply with the statutory obligations shall be liable to be proceeded against in accordance with the Environment (Protection) Act, 1986. Besides that, it would also be liable to pay environmental compensation and the senior most officer in-charge in the State Government / Urban Local Body shall be liable to be personally proceeded against for violation of the Rules and orders passed by this Tribunal.
- The Central Government, State Government, Local Authorities and citizens shall perform their respective obligations / duties as contemplated under the Rules of 2016, now, without any further delay or demur.
- All the State Governments and local authorities shall operate in complete co-ordination and cooperation with each other and ensure that the solid waste generated in the State is managed, processed and disposed of strictly in accordance with the Rules of 2016.
- Proper segregation of waste is ensured prior to incineration in a Waste to Energy plant.
- It shall be mandatory to provide for a buffer zone around plants and landfill sites.
- The Committees constituted under MSW Rules would meet at least once in three months instead of once in a year. The minutes of the meeting shall be placed in the public domain.
- The State Government and the local authorities shall make mandatory for the power generation and cement plants to buy and use RDF as fuel wherever such plant is located within a 100 km radius of the facility. It will be obligatory on the part of the State, local authorities to create a market for consumption of RDF.
- The tipping fee will not only be relatable to the quantum of waste supplied to the concessionaire / operator but also to the efficient and regular functioning of the plant.
- The landfill sites shall be subjected to bio-stabilisation within six months from the date of pronouncement of the order. The windrows should be turned at regular intervals. At the landfill sites, every effort should be made to prevent leachate and generation of Methane.
- The non-biodegradable and inert waste should be scientifically segregated and to be used in road construction projects.
- The Authorities would ensure opening of centres all over the country for collection of domestic hazardous waste like fluorescent tubes, bulbs, batteries, etc.
- MoEF&CC, and the State Governments would consider and pass appropriate directions in relation to ban on short life PVC and chlorinated within six months.
- There shall be complete prohibition on open burning of waste on lands. For each default violators shall be liable to pay environmental compensation. The PCBs shall monitor such incidents.
- All the local authorities, concessionaire, operator of the SWM facility shall be obliged to make available plant functioning data in public domain.
- The Authorities shall take all steps to create public awareness about management of MSW.

**Significance:** It has been more than two decades during which the judiciary, Union / State Government/s and local bodies have been working on MSW. All these years have been a kind of trial and error which should logically stabilise with the new Rules notified in 2016 followed by this judgement. Thus

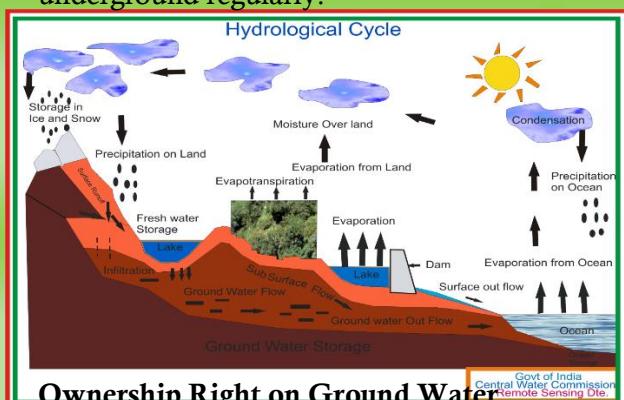
there have been more than enough Rules, Judgements and administrative experiments so that the issue of management of MSW should have been stabilised. The environmental auditors can now go to the next level of the management of this issue and conduct audits so that the stakeholders get the realistic picture of the MSW scenario in various cities of India.

➤ Manoj Kumar

## VII. Legislation on Groundwater use in India- A Critical Analysis

### What is Groundwater?

Groundwater is water that is stored under the earth's surface within soil and rock layers. When rain falls, only a small portion of the water flows across the ground as runoff and enters streams or rivers. Much of this water remains trapped in the soil and percolates (seeps) deep into the ground and becomes groundwater. Once surface water becomes groundwater it can remain underground anywhere between a few days to thousands of years. In many cases, groundwater is a direct part of the surface water system and transitions between flowing above ground and underground regularly.<sup>1</sup>



### Ownership Right on Ground Water

**Water Rights determined by Land Rights**  
Water rights are closely linked to land rights. Traditionally, water rights were determined by land rights. For instance, the development of principles such as riparian doctrine which gives water rights to those who has land sharing borders with a river or streams is a good example to demonstrate this feature. Even now, this is an important feature of water law. This is evident in the case of groundwater where

rights of landless people are almost out of question. Similar feature can be seen in new irrigation laws where only land owners can become a member of user associations.

### Water ownership

India does not have any specific law defining ownership and rights over water sources. The rights are derived from several legislations and customary beliefs. However, the legal position on whether groundwater is a resource meant for public use is ambiguous, and India has no law that explicitly defines groundwater ownership (Orissa did amend its irrigation Act to assert State right over groundwater, but this has been challenged in court).

Some grounds for determining groundwater rights are provided by the Indian Easement Act of 1882. An 'easement' is a right that the owner or occupier of certain land possesses, for beneficial enjoyment of that land. Examples of easements are right of way, right to light and air, and right to standing or flowing water not on one's land. Section 7 (g) of the Indian Easement Act states that every landowner has the right to "collect and dispose" of all water under the land within his own limits, and all water on its surface that does not pass in a defined channel. Hence, by this Act, the owner of a piece of land does not, strictly speaking, "own" the groundwater under the land or surface water on the land; he only has the right to collect and use the water. However, it is customarily accepted across India that a well on a piece of land belongs to the owner of that land, and others have no right to extract water from the well or restrict the landowner's rights to use the water. This belief and practice is indirectly supported by various laws such as land Acts and irrigation Acts that list all things on which the government has a right. These Acts do not mention groundwater. Interpretations of the Transfer of Property Act of 1882 and the Land Acquisition Act of 1894 also support the position that a landowner has proprietary rights to groundwater; it is connected to the 'dominant heritage' (land) and cannot be transferred apart from the land.<sup>2</sup>

## India's Groundwater Challenges

India faces grave water related challenges that impede continued economic growth as well as social and economic development. They put recent investments in the water sector in great jeopardy and risk setting back already made achievements in drinking water access and prevent the attainment of health and sanitation goals. Interconnected demands for water, energy, food and goods make up drivers that also put stress on natural ecosystems and affect the hydrological cycle. In its Twelfth Five-Year Plan, the federal Government's Planning Commission expresses that on a business as usual basis, the total demand for water by 2031 is likely to be 50 per cent higher than today. At most 20 per cent of this gap is estimated to be bridged by augmenting available supply through additional storage and groundwater retention. The rest of the deficit has to be bridged through greater Water Use Efficiency.<sup>3</sup>

## Groundwater Regulation in India

The existing legal regime relating to groundwater in India has been subject to severe criticism. One major criticism is the continuation of the rule introduced during the British colonial period that gives near absolute right to land-owners to exploit groundwater. This has severe consequences for equity because it excludes landless people from accessing groundwater. Other criticisms include little or no emphasis on protection and conservation, lack of recognition of the link between groundwater and the water cycle, and lack of an aquifer-based regulatory approach. To address these issues, since 1970 the federal government has been pushing the states to adopt a new groundwater law by publishing 'model' groundwater laws, with the latest version published in 2016. However, the federal government can only encourage the state governments because the Constitution of India vests state governments with the power to adopt laws regarding the management of water.

From a legal perspective, groundwater is regarded as a part of land. Therefore, landowners have been given an unrestricted right to extract groundwater. This rule, originating in Britain in the 19 century, has

been recognised by the Indian legal system through statutes and judicial decisions. It is dated and inadequate for addressing contemporary concerns, and it is likely to be discarded in light of new legal developments. The system of land-based groundwater rights was developed at a time when groundwater was not a major source of freshwater and the technology was not developed enough to facilitate the unsustainable extraction of groundwater. As such, groundwater was not a serious concern.

One of the major shortcomings of the current groundwater legal regime in India is the absence of a regulatory framework that identifies aquifers as the management unit. An aquifer-based regulatory system would have the advantage of introducing a governance framework based on hydrological units (e.g., equivalent to a basin-wide regulatory system for a river basin). It would prioritise the protection of aquifers by acknowledging the link between aquifers and their recharge as well as discharge areas. It would also provide an opportunity to consider groundwater as a part of the water cycle.

Unfortunately, the existing legal regime continues to be determined by administrative boundaries and focuses on regulation of groundwater use through a permit/license system for installing groundwater extraction units, such as wells and tube-wells. Thus, the existing legal regime appears to be treating groundwater as a bucket with inflow and outflow of water independent of recharge area, ecology, and other users.<sup>4</sup>

The Groundwater (Sustainable Management) Bill, 2016 (5) consequently proposes a different regulatory framework from the century-old, outdated, inequitable and environmentally unfriendly legal regime in place. It is based on the recognition of the unitary nature of water, the need for decentralised control over groundwater and the necessity to protect it at aquifer level. The Bill is also based on legal developments that have taken place in the past few decades. This includes the recognition that water is a public trust (in line with the oft-quoted statement that groundwater is a

common pool resource), the recognition of the fundamental right to water and the introduction of protection principles, including the precautionary principle, that are currently absent from water legislation. The Bill also builds on the decentralisation mandate that is already enshrined in general legislation but has not been implemented effectively as far as groundwater is concerned and seeks to give regulatory control over groundwater to local users.

A new regulatory regime for the source of water that provides domestic water to around four-fifths of the population and the overwhelming majority of irrigation is urgently needed. Overall, the increasing crisis of groundwater and the failure of the existing legal regime makes it imperative to entrust people directly dependent on the source of water the mandate to use it wisely and to protect it for their own benefit, as well as for future generations.<sup>6</sup>

Source:-

1 Source:- <https://albertawater.com/what-is-groundwater>

<sup>2</sup><http://www.indiawaterportal.org/sites/indiawaterportal.org/files/Legal%20Aspect%20of%20Ground%20Water.pdf>

<sup>3</sup><http://www.watergovernance.org/resources/groundwater-governance-in-india-stumbling-blocks-for-law-and-compliance-water-governance-facility-report-no-3/>

<sup>4</sup><http://www.globalwaterforum.org/2016/12/12/groundwater-legal-regime-in-india-towards-a-paradigm-shift/>

<sup>5</sup><https://www.thehindu.com/opinion/op-ed/a-gathering-crisis-the-need-for-groundwater-regulation/article19446507.ece>

<sup>6</sup>[http://mowr.gov.in/sites/default/files/Model\\_Bill\\_Groundwater\\_May\\_2016\\_0.pdf](http://mowr.gov.in/sites/default/files/Model_Bill_Groundwater_May_2016_0.pdf)

### VIII. Compliance Audit on Implementation of Coastal Regulation Zone in West Bengal

#### Introduction

The length of the coastline in West Bengal is 280 km with a coastal zone which is subdivided into two different coastal environments (i) Hooghly Estuarine Plain and

(ii) Digha-Sankarpur-Junput Coastal Plain.

This zone supports an approximate population of seven million. Almost 39 per cent of this coastal zone is used for agriculture, 21 per cent is occupied by human habitations and 3 per cent is used for aquaculture. Infrastructure like railways, roads, ports etc., and industrial activity including mining, brick kilns etc., exist in these areas, all of which place tremendous stress on the coastal ecology.



Figure 1: Coastal Areas of West Bengal

Ministry of Environment, Forest and Climate Change (MoEF&CC) had issued (1991) Coastal Regulation Zone (CRZ) Notification which was subsequently replaced (January 2011) with CRZ 2011. The notification was issued with a view to ensure the livelihood security of fishermen and other local communities living in the coastal areas, to conserving and protecting coastal stretches, its unique marine environment and also to promoting development in a sustainable manner. The Notification restricted setting up or expansion of any industry, operations,

➤ Sandeep Pawar

processes or manufacture / handling / storage / disposal of hazardous substances in coastal areas.

### Audit Scope and Objectives

An Audit for period between 2010-11 and 2015-16 was carried out to assess whether the coastal areas were being conserved in accordance of CRZ notification of 2011 by

- Necessary institutional mechanism ;
- Effective enforcement; and
- Project implementation, including Integrated Coastal Zone Management (ICZM) projects in line with CRZ Notification of 2011.

The criteria for audit was derived from the CRZ Notifications, Environment Protection Act, 1986, Environment Impact Assessment (EIA), 2006 and relevant orders, guidelines and manuals issued by Department of Environment (DoE), MoEF&CC, WB State Coastal Zone Management Authority (WBSCZMA) and West Bengal Pollution Control Board (WBPCB).

### Audit Findings

#### A. Institutional arrangement and its functioning

WBSCZMA is the primary body responsible for protecting and improving the quality of coastal environment as well as controlling the pollution in these areas.

- It was observed that WBSPCB, Commerce and Industries, Tourism Departments were not included in the member formation of the WBSCZMA in 2012 and 2015 which was a deviation from the recommendation of MoEF&CC. There were 6 tourism projects (involving Rs. 97.07 crore) without the involvement of Tourism Department. Guidelines were violated further by not involving any representation

from local bodies and fishing communities. It was observed further that bank account of WBSCZMA was not opened to utilise funds that were allocated by MoEF&CC in April 2002.

- WBSCZMA held 17 meetings between January 2011 and December 2015 and in none of those meetings the topics like violation of CRZ notifications, preparing Coastal Zone Management Plan (CZMP), generating awareness, enforcement etc were discussed. In 15 of 17 meetings, only project proposals were discussed and all 20 projects proposed were approved even though 10 of those were not permissible under CRZ 2011.
- According to CRZ notification, District Level Committees (DLCs) were to be constituted to assist WBSCZMA. In January 2012, all three coastal zones had DLCs set up. In 50 months from their formation, each DLC should have convened 25 meeting each. However, two DLCs did not convene a single meeting and DLC Purba Medinipur had convened only two such meetings. Local, fishermen, and expert representation was absent in DLCs too.
- The DLCs did not effectively perform the functions assigned to them in CRZ Notification. Being situated at the local level, it could have functioned as an effective mechanism for spotting and reporting CRZ violations, which it did not do and WBSCZMA was left with lack of an effective violation-reporting mechanism.

#### B. Zoning and classification of coastal areas

- CRZ Notification 2011 had classified the entire coastal area into four categories, CRZ I, II, III and IV for the purpose of

conserving and protecting the coastal areas, with CRZ I being the most ecologically sensitive. It was found that zoning and mapping of such areas was yet to be done as of June 2016.

- The Government of West Bengal was required to prepare the CZMP and submit to MoEF&CC for approval. The CRZ notification of 2011 provides that until the new CZMP is in place, the old plan will be valid. The old plan approved in 1996 was subject to some general and special conditions by MoEF&CC to classify some areas in different zones. It was observed that GoWB submitted the modified CZMP keeping only general conditions. However, MoEF&CC dismissed this proposal but the modified, unapproved CZMP continued to be used to approve projects which was a violation of CRZ notification 2011.
- In order to safeguard the livelihood of fishermen and other local communities, one of the objectives of CRZ notifications, the State Government was to prepare Local level maps for local body use to facilitate the implementation of CZMP. However, these maps were not created until June 2016. As a result, local bodies approved projects which were not in accordance with the identified zones.



**Figure 2 Beach at Tajpur littered with waste**

- The critically vulnerable zones such as Sunderbans which are only marshy mangrove tiger habitat in the world were found to be increasingly encroached and fragmented. The GoWB requested GoI to exclude Sunderbans from critical zone as clearance would be required by CRZ for any human activity in the zone, adversely affecting development aspirations of local population. The MoEF&CC did not respond to this request. The GoWB did not prepare Integrated Management Plans to protect local interest and ecological aspect of the zone. This continued to cause gradual disappearing of mangroves in the region. The focused approach towards conserving Sundarbans was missing which was one of the objectives of CRZ 2011.

#### **C. Project appraisals and approvals**

- It was seen that between January 2011 and December 2015, WBSCZMA had given CRZ clearances to all 20 projects submitted to it. In 10 of these projects, the activities to be taken up were prohibited by CRZ 2011. For 7 projects, the CRZ maps were not available for the designated areas. Despite these gaps and discrepancies, NOCs were given to the projects.
- Department of Sundarbans Affairs applied to WBSCZMA for an Eco-Tourism project in the Gangasagar Island under Integrated Coastal Zone Management (ICZM) project. It was observed that the clearance had been given despite MoEF&CC classifying the island as Zone I where any construction was to be regulated.

#### **D. Enforcement and compliance of CRZ regulations**

- As per CRZ 2011, development or construction activities in different categories of CRZ were to be regulated by the concerned CZMA. From Feb 2009 to

2016, around 523 buildings were constructed in coastal areas of Digha of which around 425 cases were of hotels / resorts. Audit observed that all buildings were constructed even though none were approved by WBSCZMA.

- Scrutiny of records show that 18 hotels and one Government Guest House were constructed in CRZ areas of three islands of Sundarbans. Even after thorough check of the illegal construction, WBSCZMA did not take action against these violations like stopping electricity and water supply to these establishments. Adverse effect of these violations were – discharge of effluent into nearby rivers, unplanned groundwater drawing resulting in water level depletion and intrusion of saline water.
- Fisheries department issued a report that around 2,098 brackish water farms were operating in Sundarbans of which only 1,068 farms were registered. The WBSCZMA did not take any action against unregulated fish farming despite availability of information.
- As a response to NGT order against violation of CRZ norms, the DM of South 24 Pargana district submitted that 88 unauthorised brick kilns are operating in the Sundarbans. WBSCZMA did not take any action against this illegal activity affecting the coastal ecosystem.
- Scrutiny of Tourism records show that on an average, 68 boats entered the Sundarbans daily carrying excess of carrying capacity. The old engines caused noise pollution while the water used to cool the engines of boats containing oil and grease was discharged into the river, polluting and affecting the coastal ecology.

## Conclusions

West Bengal State Coastal Zone Management Authority (WBSCZMA) is responsible for protecting and improving the quality of coastal environment as well as preventing, abating and controlling environmental pollution in coastal areas of West Bengal. Institutional arrangements were weak as there were deficiencies in the composition of WBSCZMA due to non-inclusion of essential members like experts, representatives of various departments and Non-Government Organisations. District Level Committees also did not function as an effective body for reporting violations and enforcing the regulations. Actions taken to conserve the coastal zones were ineffective due to delays in preparation of Coastal Zone Management Plan and local level maps, lack of identification of ecologically sensitive, economically important and highly vulnerable coastal areas. Enforcement of CRZ regulations was weak leading to proliferation of illegal hotels with uncontrolled tourism in Digha, Mandarmoni and Sundarban areas as well as uncontrolled discharge of untreated effluents / solid wastes spoiling the environment of coastal areas. As such, WBSCZMA had failed to achieve the objectives for which it was set up, which was to conserve and protect coastal stretches, its unique environment and its marine areas and to promote development in a sustainable manner.

**Significance of Audit:** Audit of Coastal Zone Regulations is one of the environmental areas which has been under-audited. India has a long coast and lot of sustainability issues are associated with the coastal areas. There is a framework for regulation and management plans. Both these aspects provide a great opportunity for the environmental auditors. Some of the coastal areas are very critical for biodiversity which should be an additional reason for taking up such audits. This audit

report can be a very good reference point for other audit offices which intends to do similar audits.

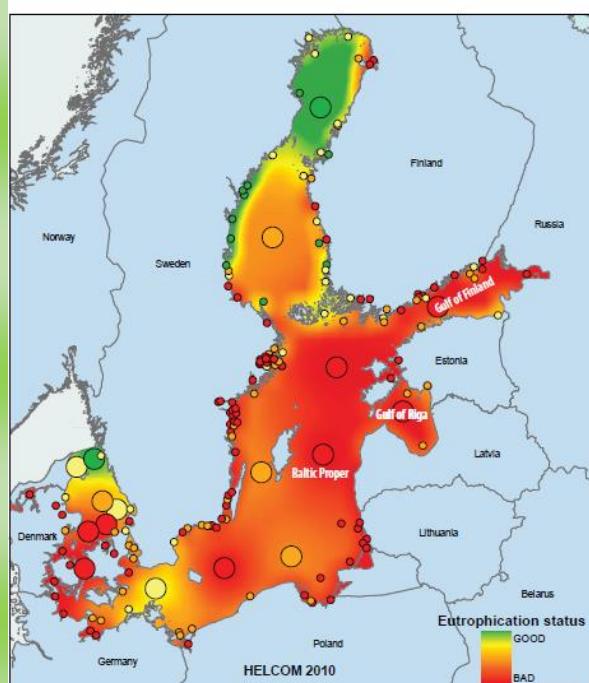
Sandeep Pawar

#### **IX. Combating eutrophication in the Baltic Sea: further and more effective action needed (European Court of Auditors)**

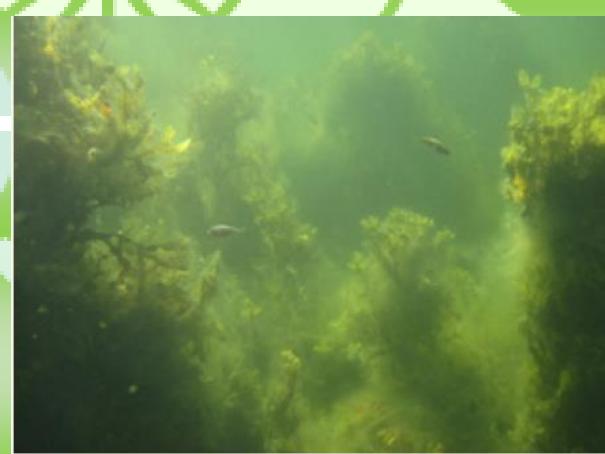
**Introduction:** The Baltic Sea is one of the world's most polluted seas and eutrophication is seen as its greatest challenge. The Baltic Sea is bordered by nine countries: eight EU Member States (Denmark, Germany, Estonia, Latvia, Lithuania, Poland, Finland and Sweden) and Russia. Belarus is another large country within the Baltic Sea catchment area.

Eutrophication is a process that occurs when excess nutrients generated mostly by human activity, mainly nitrogen and phosphorus, enter a body of water. High nutrient concentrations lead to intense, potentially toxic, algal blooms. Eutrophication can significantly reduce the utility of the sea by reducing biodiversity, spoiling the appearance of the coast and depleting fish stocks. The most affected sea sub-basins are the Gulf of Finland, the Gulf of Riga and the central deepest zone of the Baltic Sea, called Baltic Proper.

**Eutrophication in the Baltic Sea**



The main sources of nutrients released to the sea are waterborne loads coming from inland via rivers and direct discharges from the coast. Waterborne loads account for 78 % of the overall nitrogen and 95 % of the overall phosphorus which enter the Baltic Sea. The two most significant sources of waterborne nutrient loads are: diffuse sources, mainly agriculture (45 % of overall nitrogen and 45 % of overall phosphorus), and point sources, mainly urban waste water (12 % of overall nitrogen and 20 % of overall phosphorus). Climate change adds two further challenges. Firstly it is predicted that shorter and wetter winters will lead to less snow and ice cover and thus to greater run-off from rivers' catchment areas. This will result in increasingly high nutrient loads entering the sea, which will aggravate eutrophication. Secondly, increased sea temperatures will provide better conditions for the growth of algal blooms, as well as leading to a prolonged growing period.



Picture 1 — Eutrophic marine water  
Source: Helcom, photo by Samuli Korpinen.

The quality of EU marine waters is governed by the 2008 marine strategy framework directive, the objective of which is to ensure that the EU's marine waters reach a good environmental status by 2020. The directive is still in an early stage of its implementation: by October 2012, Member States had to report to the Commission on their determination of a good environmental status for marine waters, based on the descriptors proposed by the directive (one of them being eutrophication), an initial assessment of their marine water status and their environmental targets and associated

indicators. The implementation of the directive is a responsibility of the Member States. By the end of 2015, they had to prepare a programme of measures to achieve the good environmental status. These programmes must be sent to the Commission by March 2016. As a general principle, Member States should, as far as possible, build on the objectives and activities of the existing regional sea conventions.

For the Baltic Sea, a regional convention was signed back in 1974: the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area. The current signatories are Denmark, Estonia, the European Union, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden. In 2007, the Helsinki Commission (Helcom) governing that convention proposed the Baltic Sea action plan (BSAP) to restore the Baltic Sea to a good environmental status by 2021. This plan was adopted by the signatories.

Key to achieving the good environmental status of marine waters is the good quality of the water from rivers flowing into the seas. The 2000 water framework directive provides a framework for inland, transitional and coastal water protection. Its aim is to ensure the good status of surface water and groundwater by 2015 or, in certain exceptional cases, by 2021 or 2027. Member States were first required to devise river basin management plans by December 2009, identifying bodies of water at risk of not reaching that objective by 2015, and specifying the most significant pressures affecting them. Similarly to the marine strategy framework directive, these river basin management plans include a programme of measures to contribute to achieving the water framework directive's objectives.

These programmes must at least include the necessary measures for a full implementation of the already existing directives aimed at the preservation of water quality and other measures made compulsory by the water framework directive (and in particular measures to control diffuse sources of pollution). The already existing directives include notably:

- the 1991 urban waste water treatment directive regarding the collection and treatment of waste water from agglomerations;
- the 1991 nitrates directive concerning the adoption of measures to ensure that farmers in agricultural areas which cause or are at risk of causing nitrate pollution in water (referred to as 'nitrate vulnerable zones') respect minimum requirements concerning the use of nitrogen fertilisers.

Finally, the EU strategy for the Baltic Sea region (EUSBSR) was adopted by the European Council in 2009. This strategy addresses various objectives under three themes: 'Save the Sea', 'Connect the Region' and 'Increase Prosperity'. One of the sub-objectives of the 'Save the Sea' theme, named 'Clear water in the Baltic Sea', adopted the targets set out in the BSAP as regards the reduction of nutrient inputs. The EU's action is designed to promote cooperation among neighbouring countries, both EU Member States and non-EU countries.

The European Regional Development Fund and the Cohesion Fund under the cohesion policy can be used to co-finance infrastructure projects in the field of waste water as part of the Member States' operational programmes. The total EU contribution to waste water collection and treatment projects in the Member States bordering the Baltic Sea was 4.6 billion euro in the 2007-2013 period: Poland, 3.4 billion euro; Latvia, 0.6 billion euro; Lithuania, 0.4 billion euro; Estonia, 0.2 billion euro and Germany, 0.04 billion euro.

The European Agricultural Fund for Rural Development can be used to finance a number of rural development programme measures which may have either a direct or an indirect impact on water quality (mainly measures related to 'improving the environment and countryside'). For that type of measure, an amount of 9.9 billion euro was allocated to all eight Baltic Sea coastal Member States in the 2007-2013 period. The amount that was specifically dedicated to address water protection is not available.

As regards non-EU countries, the European neighbourhood policy offers Russia and Belarus a number of opportunities to cooperate in the field of the environment. These include the non-nuclear window of the Northern Dimension Environmental Partnership, to which the EU has so far contributed 44 million euro, bilateral / regional assistance and cross-border cooperation, to which the EU contributed 14.5 million and 3.5 million euro respectively during the 2003-2013 period.

**Audit scope and approach:** ECA examined the extent to which nutrient loads into the Baltic Sea have been reduced, and assessed the effectiveness of EU actions implemented by Member States to achieve nutrient reductions. ECA addressed the following audit questions:

- (a) Have Member States been successful overall in reducing nutrient inputs into the Baltic Sea?
- (b) Have EU actions regarding urban waste water been effective in reducing nutrient pollution into the Baltic Sea?
- (c) Have EU actions regarding agriculture been effective in reducing nutrient pollution into the Baltic Sea?
- (d) Has the EUSBSR provided added value as regards existing actions for the reduction of nutrient inputs into the Baltic Sea?

Questions were answered on the basis of evidence collected by the means listed below:

- The EU actions to reduce pollution from agriculture were examined in Finland, Latvia and Poland, while EU actions to reduce pollution from urban waste water were only examined in Latvia and Poland (in particular, three treatment plants in Latvia and seven in Poland), as Finland did not receive EU funds for this purpose. EU support to waste water-related projects in Russia and Belarus were examined on the basis of documents held by the Commission.
- Reviews of performance data concerning 18 additional urban waste water treatment

plants in the main cities of the Baltic Sea catchment area.

- Questionnaires sent to the five Baltic Sea Member States that were not visited (Denmark, Germany, Estonia, Lithuania and Sweden), dealing with their plans for enforcing Helcom nutrient reduction targets.
- Analysis of documents and interviews with Commission staff, the Helcom Secretariat and experts from the Baltic Nest Institute.
- Interviews with representatives from the Estonian Audit Office, which carried out a similar audit in Estonia.

The criteria used for answering the questions were developed from legislation, Commission guidelines and the Helcom agreements, as well as from previous audits in the field of water protection.

### Observations:

#### Member States' implementation of nutrient input reduction into the Baltic Sea

According to the marine strategy framework directive, Member States have to devise a programme of measures by December 2015. The Commission's assessment of the reporting by the Baltic Sea coastal Member States concludes that only one of them (Finland) has established quantified targets as regards nutrient loads, which are the main cause of eutrophication.

#### Limited progress in the reduction of nutrient inputs into the Baltic Sea

Recent data on total annual inputs into the Baltic Sea during the 1995-2012 period shows a downward trend in nitrogen (9 %) and phosphorus (14 %) inputs. Three countries show a downward trend for both nutrients (Denmark, Poland and Sweden), while two have increased their inputs for both nutrients (Latvia and Russia). For the other countries, a downward trend was observed for only one of the nutrients. However, the 2012 Helcom data shows that none of the signatory countries have so far made the required reductions in all the

sea sub-basins particularly affected by eutrophication (Baltic Proper, Gulf of Finland and Gulf of Riga), while part of their nutrient input reductions concern the sub-basins for which reductions were not required (Danish Straits and Bothnian Sea).

### **Member States' nutrient reduction plans lack ambition and appropriate indicators**

In all three Member States visited, the nutrient reduction plan was a high-level policy paper which did not set quantified nutrient reduction targets broken down by type of pollution source, by activity and by geographical area. The other five Member States have adopted similar nutrient reduction plans. Poland expressed reservations about its country-level nutrient reduction targets and has not yet officially adopted a specific plan.

For Member States like Poland, Germany and Lithuania simply achieving the good status required by the water framework directive is not sufficient to achieve the Helcom targets for phosphorus. To achieve the Helcom targets requires the concentration of phosphorus in the waters of the Oder and Vistula rivers to be reduced to 0.07 - 0.08 mg/l, which is roughly the natural level, meaning that no phosphorus at all can be discharged into the rivers. Therefore, additional efforts to reduce Phosphorus loads into the Sea will be necessary for meeting Helcom targets.

Regarding nutrient loads, the 2009 river basin management plans and corresponding programmes of measures examined by the Court include mainly basic measures for the implementation of EU-specific directives where they had not yet been fully implemented. At the date of adoption of their river basin management plans, Estonia, Latvia and Poland had still not fully implemented the urban waste water treatment directive. These river basin management plans also include measures for the control of diffuse pollution which however were already in place before the adoption of the plans. Finally, they include supplementary measures, mostly to be co-financed by the EU budget, that go beyond the requirements of these directives, but which concern almost

exclusively agriculture. These river basin management plans had several shortcomings:

- Incomplete identification of pollution sources and classification of the water status; in particular, insufficient quantification of nutrient inputs at the level of bodies of water or river sub-basins. This implies that the plans are weak bases for setting objectives and targeting measures.
- A failure to systematically define remedial measures at body-of-water or sub-basin level, a lack of specific output targets for various measures (number of hectares in which the measure shall be applied) and no breakdowns of overall estimated costs at the level of individual measures. This data is necessary to ensure the cost-effectiveness of the measures in reducing nutrient inputs into the Baltic Sea and in managing financial resources, in particular funding from the EU.
- Lack of targets and indicators as regards the nutrient reductions expected from the various measures, broken down by type of pollution source, sector of activity and geographical area, i.e. basins, sub-basins and bodies of water.

### **Member States visited only partially take into account Helcom recommendations in their plans or legal framework**

Regarding urban waste water treatment, Helcom has made recommendations to its signatory countries which go beyond the requirements of the EU directives. None of the three Member States visited had incorporated these Helcom recommendations into their legal framework. In particular, none of them had introduced compulsory limits for the content of phosphorus in laundry detergents before the date applicable to all Member States (30 June 2013). None of them has yet applied limits for dishwasher detergents.

Helcom has recommended that a limit be applied to agricultural land of 25 kg/ha/year of phosphorus from manure (Helcom recommendation 28E/4 of 2007). However, in all the Member States visited, neither the

legislation nor the minimum requirements for fertilisers and pesticides in certain rural development measures nor the measures for the control of diffuse pollution in the river basin management plans impose such a limit on the use of phosphorus in fertilisers. Among the other Member States around the Baltic Sea, only Estonia, Sweden and Germany have introduced laws limiting the use of phosphorus in fertilisers, but these are not as strict as recommended by Helcom.

Court found that data on the use of phosphorus shows that the quantities applied may in some places exceed the amount recommended by Helcom, that some soils are rich in phosphorus and that phosphorus run-off is high. Helcom recommendation also refers to environmental permits for farms with more than 40,000 units of poultry, 2,000 pigs, 750 sows or 400 cattle. All Member States around the Baltic Sea require an environmental permit to operate pig and poultry farms, as this is also a requirement of the EU integrated pollution prevention and control directive, although Poland does not require it for cattle farms with over 400 livestock units.

#### **The reliability of monitoring data on nutrient inputs into the Baltic Sea is not assured**

Nutrient loads discharged into the Baltic Sea from rivers, streams and direct discharges are monitored and communicated annually to Helcom by the national authorities of each signatory country. The audit showed that, for the purpose of the Helcom targets, estimates of diffuse pollution are made on the basis of a common methodology at country level, but not at lower levels, such as that of a river basin, sub-basin or body of water. Audit also found that the Helcom figures are not consistent with estimates made by each Member State when establishing their river basin management plans under the water framework directive using different methodologies.

#### **Effectiveness of actions to reduce nutrient pollution from urban waste water**

Urban waste water accounts for around 90 % of all point pollution sources. Part of this pollution

originates from Russia and Belarus, which are not subject to EU law. Actions to reduce nutrient loads from urban agglomerations have led to a reduction of nutrients. Several agglomerations treat the urban waste water to higher standards than those laid down in the urban waste water treatment directive. However, despite significant EU funding, the implementation of the directive is delayed in the Member States which joined the EU in 2004. In addition, not all of the Baltic Sea Member States which were required to comply with the directive by 2012 do so. The Commission's follow-up of Member State implementation of the directive has not been timely. In Russia and Belarus, EU actions regarding urban waste water are potentially cost efficient, but are very limited in scope compared to what is needed and projects implementation takes a long time.

#### **Effectiveness of actions to reduce agricultural nutrient pollution of water**

Agriculture is the main source of diffuse nutrient pollution of water and also, currently, of overall nutrient pollution, especially in countries where municipal waste water pollution has already been significantly reduced. For instance, agriculture accounts for about two thirds of the waterborne nitrogen load in Finland, but for one third in Poland. The EU adopted the nitrates directive in 1991 with the aim of protecting water against pollution caused by nitrates from agriculture in areas draining into waters already polluted or at risk of pollution, the so-called 'nitrate vulnerable zones' in which nitrate action programmes must be implemented. A Member State could also apply the directive's requirements throughout its entire territory if it so decided. Nitrate vulnerable zones should include all areas of land which drain into polluted waters (i.e. eutrophic waters, waters with nitrates concentration of above 50 mg/l) or which are at risk of pollution, and which contribute to pollution by nitrates. Member States then have to implement an action programme in these zones. Germany, Denmark, Finland and Lithuania have not designated specific zones,

as they chose to apply the action programmes across their entire territories. The other four Member States, particularly Poland, despite almost entirely draining into the Baltic Sea, have designated only a small part of their territories as nitrate vulnerable zones (Estonia, 7 %; Latvia, 13 %; Poland, 4.5 % and Sweden, 22 %). The Commission has questioned the adequacy of the designation of vulnerable areas in these countries, even taking Poland to the European Court of Justice.

The implementation of the nitrates directive by Baltic Sea Member States is not fully effective. Relevant areas are not properly defined and the requirements set by Member States in their action programmes are not strict enough. Regarding nutrient fertilisation requirements, the deterrent effect of the cross-compliance mechanism is insufficient, as the level of non-compliance remains high. Even though all river basin management plans include supplementary measures intended to tackle nutrient loads from agriculture, they have been insufficiently targeted at areas identified as needing them. In addition, no Member State has used the option under EU regulations of making some of those measures compulsory for farms located in these areas.

### **The added value of the EUSBSR as regards the reduction of nutrient inputs into the Baltic Sea**

The EU strategy for the Baltic Sea Region was launched in 2009 as a pioneer exercise for putting in place the macro-regional approach to regional development and creating, among others, links between environmental and agricultural authorities. The EUSBSR sub-objective, named 'Clear water in the Baltic Sea', adopted the Helcom BSAP nutrient input reduction targets. Therefore, its added value in this field should be to support and speed up the implementation of the Helcom BSAP by means of new governance, bringing together various sector policies and resources, involving a wide range of stakeholders (public, private, civil society) and strengthening international cooperation.

Audit observed that the EUSBSR's governance structure is complex and adds new layers to the existing regional governance institutions. The EUSBSR's impact on Member States' actions to reduce nutrient inputs into the Baltic Sea is difficult to assess. Flagship projects carried out in cooperation between several EU and non-EU countries are aimed at developing best practices to be implemented broadly. Sometimes, however, their results do not go beyond what was already available and their impact in practical terms has been rather low. In addition, the expected result of aligning the priorities of EU co-financed programmes with the 'Clear water in the Baltic Sea' sub-objective was very modest.

**Recommendations:** ECA made following recommendations to combat eutrophication in the Baltic Sea in a more effective manner:

#### **The Commission should:**

- (a) require that Member States define programmes of measures which enable them to reach measurable targets for reducing nutrient loads in order to achieve the objectives of the marine strategy framework and the water framework directives;
- (b) require that Member States reliably and consistently assess and monitor nutrient loads in their river basins and nutrient inputs into the Baltic Sea;
- (c) encourage Member States to lay down and enforce legal obligations for households to connect to existing sewage networks;
- (d) require that Member States implement a sustainable waste water tariff policy in order to enable the correct maintenance and renewal of assets. This policy should take into account the polluter pays principle and the affordability of water services;
- (e) decrease the time needed to assess compliance with the urban waste water treatment directive;
- (f) continue to promote projects aimed at reducing the nutrient loads into the Baltic Sea

from Russia and Belarus by focusing more closely on key polluters identified by Helcom (such as the Kaliningrad area);

(g) require that the Member States designate appropriate nitrate vulnerable zones. In doing so, Member States should take into account information on agricultural nutrients pollution pressures gathered in river basin management plans of the water framework directive.

#### **The Member States should:**

(a) collect information on the cost-effectiveness of nutrient load reduction measures in order to have a robust analysis for establishing future programmes of measures.

(b) plan and construct their waste water infrastructure as efficiently as possible and, if necessary, consider granting financial support to households which could not otherwise afford to connect to the sewage network;

(c) set stricter nutrient standards for effluents than those laid down in the urban waste water treatment directive for areas that drain into waters failing to reach nutrient conditions consistent with water framework directive and marine strategy framework directive good status;

(d) set appropriate limits for the use of phosphorus in agriculture where it puts at risk the good water status;

(e) establish their nitrates action programme rules based on the most recent scientific evidence;

(f) establish compulsory actions which go beyond the existing requirements for polluting farms in catchment areas draining into eutrophic waters;

(g) apply the most relevant agri-environmental schemes in relation to reducing nutrient pollution of water and target these schemes and afforestation measures at the areas where their impact on nutrient load reduction is highest.

**Significance:** The eutrophication is one of the growing causes of deterioration of water bodies which is very conspicuous in case of inland water bodies. The same is, however, true even for the oceanic waters.



Large blooms of *Noctiluca scintillans*, a dinoflagellate not normally seen in the northwestern Arabian Sea, have become a regular occurrence in the winter caused by growing low-oxygen zones. This image shows the green swirls of *Noctiluca scintillans* captured on 3 February 2016 with the coast of Oman on the left, Iran and Pakistan on the top, and India on the right. Photo credit: MODIS-Aqua / NASA Ocean Color Image Gallery.

In March 2017, an area in the western Arabian Sea off the coast of Oman – equivalent to the size of Mexico – was blanketed with green swirls extending down to India. It was a striking scene, visible from space. The slimy green mass in this outbreak was *Noctiluca scintillans*, a single-celled dinoflagellate, which “short-circuited” the marine food chain.

Normally, this species is not seen here but over the past two decades this winter bloom has become a regular phenomenon triggered by low-oxygen waters – dubbed as “dead zones.” A new review study notes that these zones are growing in area globally, as the oceans and seas – including the Arabian Sea and the Bay of Bengal – are losing more oxygen and endangering marine life. In the open ocean, 2% of oxygen has been lost over the past 50 years and coastal dead zones have shot up more than tenfold since 1950, thanks to climate change and increasing nutrient pollution.

If the water bodies are to be protected the even the limits for the content of phosphorus in laundry detergents and dishwasher detergents are to be regulated properly. The lakes like Bellandur have already been seen to be affected by eutrophication it is high time that the water bodies including oceans are to be protected. The environmental auditors can consider various threats to water bodies and analyse the

reasons, use work of other environmentalists and attempt to audit these kind of issues so as to contribute significantly in environmental governance in the country.

➤ **Anupam Srivastava & Vijendra Singh Tanwar**

## X. REGULATION OF SHACKS – THE GOAN STORY.

The Shacks in Goa emerged with the steady onset and increase in the number of the foreign tourists. The inflow of these tourists is corroborated to the hippie movement around the 1960s, which pushed the hippies to move towards finding places of peace and serenity.

In their quest, they re-discovered Goa, but this time, not in search of treasure, wealth or spices, but, the pristine and untouched nature residing in Goa. In the form of its beaches, and the natural forest and vegetation around, it soon became a therapy spot for those seeking relief from the ever-expanding urban cities of the western countries.

Soon in the following years, Goa became a popular tourist destination among the foreigners, and their numbers started increasing. The foreigners also started mingling with the local coastal community, and would help them with their basic needs like in repairing roofs, houses, or anything that they could contribute in.

While the tourist-community bond was strengthening, the locals thought of offering some basic services to these tourists. These services would include accommodation, snacks or beverages. This also helped the locals in having a little extra income, which was much needed to them as their traditional occupation did not fetch them surplus.

As years passed, and as this hospitality culture was taking shape, the first shack was put up on the Goan beach of Baga-Calangute stretch. The establishment of the shack did not come

without resistance, both from the locals and the tourists, who did not see the necessity of putting it up.

Now, slowly, the shacks started becoming the centre of the services previously being offered in homes by the locals.

The trend continued, numbers kept increasing, with addition of the Indian tourists now, as Goa entered the 1980s and its popularity was spreading worldwide.

This did not go unnoticed by the State, and it came with its own form of intervention, and the first setback to the coastal communities – the Coastal Zone Regulation Notification, 1991.

In its need of the conscience towards protecting the environment, the State, in its classic command and control approach implemented the Coastal Zone Regulation.

The notification in the blink of an eye rendered thousands of the coastal community homeless, made them illegal tenants, made their livelihood practices illegal, and made them immobile. Needless to mention, that the provisions of the notification and the subsistence of the people were heads on with each other. This sparked a huge protest, and the resentment in the heart of the people towards their state and the centre nestled in.

The state did not foresee the unintended consequences that would come with its regulation. What was at stake were the traditional rights of the community and their right to livelihood and the resources around them which they had been nourishing, protecting, and been a part of even before the formal conception of the concept of the state.

The community was living parallel to the developments of the state, but unaware of it. They did not have any information about the notification and were alerted mostly by eviction notices. Besides these, a lot more followed as impacts of the regulation and brought some hard-rooting changes to the culture of Goa and its demography.

## IMPACTS OF COASTAL ZONE REGULATION

The implementation of the notification barred the locals from making constructions, drawal of water and also imposed a lot of other restrictions on them. Numerous people from the coastal community were displaced. The people who were affected with the implementation of these regulations were the fishermen, the toddy tappers, the farmers and those who survived on similar sources of livelihood.

The locals recall this with pain, as they never had the knowledge about what this notification was. They felt that everything they had was slipping from their hands. The implementation of the notification created a lot of dissent among the people, and the anguish from never being consulted in the matter stayed on.

Slowly, with so many restrictions imposed on them the locals felt that the area was not suitable for them to sustain in any more. They started selling off their land. Now, the locals were poor, and did not have sufficient money to purchase land amongst themselves. Here came the outsiders, who would pay a good price for the land. Many a local adopted this as a path of getaway from the place, and thus, selling of land started bringing in more outsiders in the area, and also increased the prices of the land several folds. The outsiders who purchased the land also started making constructions. This was a time when many shacks also came up on the beach, with the growing number of tourists coming in.

The local people who were selling off their land, started getting into business like taxi operators, or guest houses, and again got dependent on the tourists for their livelihood. Many of the Goans left to settle in other areas, or states, and many even migrated to Portugal as the nation offered citizenships to them. This also kick started a series of migration in the state.

There was migration in occupation as well. The fishermen who no longer could sustain from

their traditional livelihood and could not function well within the restrictions of the Coastal Regulations, also migrated to other occupations like shacks. Many of these shack owners are the fishermen who converted their source of livelihood.

Nonetheless, the Coastal Regulation Zone (CRZ) gained a lot of criticism. The major complain till date remains that the people are not consulted while framing of regulations for them. Eventually, the increasing number of shacks invited another form of regulation, the Shack Policy.

## THE SHACK POLICY AND ITS IMPACTS

The shack owners are the ones who are subject to regulation under the Shack Policy. The policy comes as a tool to look after the implementation of the CRZ notification to ensure compliance among the Shacks.



**A shack at Baga-Calangute beach, Goa**

The policy lays down several guidelines and directives regarding the various activities the shack can perform. The Goa Coastal Zone Management Authority (GCZMA) has sourced out the responsibility to the Department of Tourism, and it is the department which looks after the policy and the stakeholders. The policy takes a lot of issues under consideration but relies on the policy of command and control to ensure compliance to the notification.

It is essential to understand that Shacks were a mode of self-employment. When the policy came into effect, it restricted the people from having any other occupation or source of

income other than the shacks. Earlier, it was imposed on all the members of the family, but later, with a lot of struggle by the shack owners, this was changed, and restricted to only the member of the family running the shack business.

Such a regulation becomes binding in nature, as the shacks by nature are temporary and function only for half of the year. The shack owners also have family to run and restricting them from having any other business makes them devoid of livelihood for the rest of the year, irrespective of one's income from the shack.

Also, putting up a shack every season, and dismantling it involves a lot of cost. It is a great burden on the shack owner to run the business for the allowed period, incurring the cost of licences, construction of shacks, raw material for business, other expenditures of family, dismantling, and then to survive for the rest of the year without a source of income.

Adding to this, the department started a lottery system for the allotment of the shacks. This jeopardised the shack owners even more, as first they could not have any other source of livelihood, and now, they do not have the certainty of whether they could have shacks or not. Also, with the consequent years, and newer standards being imposed by the authority, like the sewage of garbage disposal, their capital requirement was increasing amidst of all this insecurity.

Accounts from interaction with these shack owners also reveal that the decision to start a lottery system made the business appear lucrative, and thus a lot of applications for licenses started flowing in. Even though a priority was given to the experienced shack owners, they did not even know if they will have a shack for the coming year or not.

This insecurity led them to adopt to other means for securing themselves, which somewhere led to the violations. The subletting of the shacks which was quite prominent can be understood in this context. The flood of

applications for putting up a shack that came in, also led to allotment of shacks to people who did not intend to run it. Thus, they would lease out the shacks to either outsiders, or foreigners in many a case in exchange of a hefty sum of money. Now, whosoever paid a big amount to get the shack would try his best to earn his investment and also in making profit. This incentivised indulging in activities in violation to the norms of the policy.

In another instance, the policy has a provision for allotment of deck beds on the beach to the unemployed youth. The deck beds are also allotted to the shacks and many a resorts on the beach also offer deck beds to the tourists. The intention of the policy is noble but allowing deck beds to the shacks and the resorts becomes a natural disadvantage to the unemployed youth in this case. The tourists would prefer going to the comforts and services offered in the shacks if they occupy the deck bed there. Similar is the case with those going to the resorts. Due to this, the unemployed youth either have to offer highly competitive prices, which again makes their survival difficult, or have to offer services which otherwise would not be allowed. Such ambiguity also invites other parties on the beach, like masseuse or hawkers. As these masseuse or hawkers cannot go in the shacks or resorts for conducting their business, they look for tourists who are occupying the deck beds of the unemployed youth. The youth cannot restrict them as there are tourists who take the service, and also cannot allow them, as many a tourist go the shacks or the resorts to avoid inconveniences due to these factors. It is a dilemma for everyone in such a case. The simple solution to such a situation is not to ban or declare such activities as illegal as it creates a taboo around the profession, but, discussions with all party in one spot needs to be held, so that a way which accommodates and secures everyone's interest can be arrived at.

The excessive penalising nature of the policy, like fines and forfeiture of security deposit also has created a dissent against the governing authorities in the heart of the people. There was

already discontent towards the coastal regulation notification, as it has caused a lot of discomfort to the people. The Shack Policy is like a layer to the CRZ notification which by way of its stringent rules further restricts the stakeholders.

Even though the shack policy has the intent of promoting livelihood and giving opportunity to the unemployed, the self-contradictory nature of restrictions in the policy give way to violations as unintended consequences. The policy seeks to implement the guidelines of notification by commanding the shack owners and holding them responsible for the beach, rather than assisting, inviting cooperation, and providing training and information to preserve the ecosystem.

## CONCLUSION

In a bid to achieve efficacy in regulation, the state needs to follow the decentred approach towards regulations. In a move which concerns such a large number of stakeholders, the best result could be achieved by involving them in designing the regulations and also in making them responsible in governing themselves. This practice leads to the integration of the state machinery with the people and thus make the resolutions better.

Dedication has to be given towards determining what has to be regulated. For instance, in this case, the sole focus of regulation are the shack owners, who themselves are actors to the force of tourists. A regulation which does not frame conditions for the tourists will lead to regulatory failures in achieving the desired results as the pivot of the whole situation are the tourists. The main actor is the tourist, and not the shack owner, who becomes only a respondent to their actions.

Promotion of community participation, and dissemination of information to all the levels possible will keep the stakeholders and the non-stakeholders informed. In the process of governance, the State has to resort to the people, as, the power of information about them

resides with them, and thus, this knowledge would help in framing of better regulations when they are involved.

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