

Current Issue: Environment Law and Policy in Sustainable Development



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From Director's Desk



We live in an era of rapid development in all the spheres of our day to day life that is making complex things simpler for us but at the same time posing threat to the environmental sustainability. The environment is a dynamic system that regulates all the functions and services of earth. Any change in environment or exploitation of resources beyond the carrying capacity, affects all the living organisms on the earth. Currently, rising environmental pollution, climate change and increasing natural hazards are serious threat to human being. That advocates conserving and managing burgeoning environmental problems by implementing effective technological measures, strong environmental policies and strict laws. The environmental issues viz. climate change, desertification and natural resource depletion have local, regional and global consequences that require cooperation across state and national borders. The environment policy and law was considered as a separate area of public law during 1970s with the Stockholm Conference in 1972. At that time a palpable need was considered to understand relationship between economic growth and environmental protection. Our country is having strong environmental policy and law in different areas. The establishment of National Green Tribunal was also an exemplary step among other countries of the world. The policy and law can only be effective when political, developmental and societal goals are in same line for ensuring significant implementation of activities as per the Sustainable Development Goals.

The current issue of newsletter is focusing on the theme 'Environmental Policy and Law in Sustainable Development' is covering several pertinent areas of prime interest in current scenario with recommendations for their effective implementation.

As we are entering the next decade 2020, a strong commitment towards environmental protection is important to save our resources for future generations.

Season's Greetings for 2020.

Dr. Seema Mishra



The Environmental Rule of Law-Why do we need Compliance?

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Sustainable development” is the only way out (Artaxo, 2018). It has emerged as the main framework for development practice across the world today in all the sectors including environment. Sustainability can be considered as the goal or endpoint of a process called ‘sustainable development’ or ‘ecologically sustainable and socially just development’ (Diesendorf, 1999).

The word *sustainability* was used for the first time (Goldsmith *et al.*, 1972) in context to human future and then eventually was adopted in all of the technological and policy documents by UN. While the first major international recognition and the use of the term Sustainable development was done during the UN conference on Environment and development held in 1992 at Rio de Janeiro. It was realized that the only solution to the numerous environmental concerns was through Sustainable Development, the Brundtland report discusses the problems of environmental degradation due to human activity that was causing severe and negative impacts on planet and that the growth and

development would not remain sustainable if this continued unchecked.

“Sustainable Development essentially means development which meets the needs of the present without compromising the ability of future generations to meet their own needs”.

Sustainability is the foundation for today’s leading global framework for international cooperation – the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs). Reaching the goals requires action on all fronts – governments, businesses, civil society and people everywhere, all have a role to play.

Humans are self-centred and the salvation comes through the social contract of civil law, (Hobbs, 1651) although when an impulsive behaviour is observed they are instinctively cooperative, but only when rewarded (Ward, 2012). A general tendency to deviate to solipsism leads to transformation of our psyche from “Sustainable” to “Obtainable”.

The awareness of this behavioural aspect must have been the ideology behind the making of rules, guidelines, laws, etc. for developing the environment protection mechanism through the legal system.

The governance and the judiciary system guide us to make rightful choices, driving our actions towards “WE (inclusivity)” from “ME (exclusivity)”. The concept of sustainability is reflected in the Indian philosophy, the adage mentioned in the ancient Hindu texts (Maha Upanishad) “**Vasudhaiva Kutumbakam**” means “The World is a family”. The statement is also quoted by Justice Swatanter Kumar (Rtd.) in the UNEP report (2019).

Unfortunately, we are using the intellect to find out ways to defy the rules and laws carved for environmental protection that culminates into issues like Pollution and Global warming subjecting the human civilization to the related consequences. *The irony is that our exclusive approach is reciprocated with the inclusive and impartial returns by Nature.*

The lack of principles that allows environmental law to make a fair and just decision makes the law stand as only an ambitious goal and not Law. As quoted by Jessica (2016)- “Legal recognition of a right is useless if it can- not be translated into a victory in field”.

The Rule of Law is important to ensure environmental justice, providing a norm of conduct. It is one of the ideals of our political morality and refers to the ascendancy of law in the legal system of governance (Jeremy, 2016). It is also essential for sustainable development (Benjamin and Fulton, 2011).

It takes a Strong political will and consensus to implement stringent environment controls alongside the economic development. This would in turn result in respect for Court, Laws and Environment Institutions, which would eventually lead to emergence and

Box 1: Principles for Environmental Rule of Law

1. Fair, clear, and implementable environmental laws
2. Access to information, public participation, and access to justice
3. Accountability and integrity of institutions and decision-makers.
4. Clear and coordinated mandates and roles, across and within institutions.
5. Accessible, fair, impartial, timely, and responsive dispute resolution mechanisms.
6. Recognising the mutually enforcing relationship between rights and the environmental rule of law.
7. Specific criteria for courts to interpret environmental law.

maintenance of Environmental Rule of Law (UNEP report, 2019).

The UNEP report -Environmental Rule of Law-First Global Report (2019) is an attempt at global level to provide guidance in the matter through its 7 guiding principles (**Box 1**), and the presentation of case studies with both good and bad governance system, highlighting the key points and gaps.

The UNEP report (2019) makes a strong point that though most of the countries across globe has some or the other form of environmental law or environment protection mechanism (**Fig.1**) but there is

failure of enforcement of these laws leading to environmental threats- the problems of pollution, decreasing The report identifies and categorizes the gaps in implementation into 4 areas: Institution, Civil Engagement, Religion and Justice. Besides, it concludes that a non-compliance or erosion of the ERL at local governance capacity or gaps in coordination between regional and national level hinders the sustainable development. Working on these areas can help in providing strength and empowering Environmental Rule of Law.

The UNEP report (2019) show that there is still a silver lining to the existing situation if we follow the principles of sustainable development. It mentions the example of

biodiversity, increase in GHG emissions and other related issues.

Costa Rica, which by complying to the Environmental Rule of Law (ERL) has not only achieved the economic gains but has also developed on the other three pillars of sustainable development i.e. Social, Environmental and Peace. The country has increased life expectancy to 79 yrs., achieved 96% of Adult Literacy, built per capita income of US\$9000 with setting and meeting ambitious environment goals. It is on its way to become carbon neutral by 2021. Similarly, the report gives an insight to the experiences and challenges faced by various countries in compliance and implementation of the Environmental Rule of Law.

176 countries	150 countries	164 countries	50 countries	More than 60 countries
<ul style="list-style-type: none"> •Environmental framework law 	<ul style="list-style-type: none"> •Enshrined Environmental Protection in their constitution 	<ul style="list-style-type: none"> •Created cabinet level bodies responsible for Environmental protection 	<ul style="list-style-type: none"> •Over 350 environmental courts and tribunals established 	<ul style="list-style-type: none"> •Some legal provision on citizens right to environmental information

Fig. 1 A snapshot of environmental laws and environmental protection mechanisms in various countries (until 2017) UNEP report (2019)

A similar example of sustainable development through waste management following Environmental Rule of Law is seen at Indore, a city in Madhya Pradesh, India. The key drivers to change were the political will, consensus and governance. Indore showed a phenomenal transformation within a span of few years. The city that used to have political strife, an attitude of noncompliance to the rules at social and political levels and was considered an unclean city, has now been recognized as the cleanest city of the country during the survey conducted for

Swachh Bharat Mission Campaign. The recognition motivated the citizens to strive towards better performance and the city has been able to consistently maintain the scores since last three years.

The UNEP report (2019) also present existing datasets and links to these, which are included in the making of framework of Environmental Rule of Law. The findings of the report would be very useful in devising the implementation strategies for various policies including those of climate change and mitigation.

In order to be able to fulfill the fundamental right of human to live in a healthy environment we need to strengthen the Environmental Rule of Law.

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Major Activities

Academics

- Ph. D. (Environmental Science) under University of Mumbai M. Sc. and PG Diploma Programmes

Research

- Technology development and dissemination
- Funded projects
- Industrial projects
- Collaborative Projects
- Research Training (for Industries, summer training/ dissertation)
- R&D Proposal and Report Writing
- Expert lectures
- Conference/ Seminars and Workshops

Outreach

- Community mobilization
- Capacity building

Consultancy

- Process development and assessment for waste management and pollution control.
- Industrial projects
- Collaborative projects
- Lab Testing of different environmental samples
- Impact assessment
- Training modules on environmental regulatory and technological approaches
- Documentation and report preparation
- Capacity building



India's Achievement for Hosting 14th Session of Conference of Parties of United Nations Convention to Combat Desertification (UNCCD COP 14)

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UNCCD

UNCCD is the United Nations Convention to Combat Desertification and it is one of the three Rio Convention's adopted in Paris, France on 17th June, 1994 and entered into force on 26th December 1996. The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach, with a view to contributing to the achievement of sustainable development in affected areas.

The objective, inter-alia, involve long-term integrated strategies that focus simultaneously, in affected areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level. UNCCD is the sole legally binding international agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.

Main body under UNCCD

The Conference of Parties (COP) was established by the Convention to review reports submitted by the Parties detailing their commitments, make recommendations on the basis of these reports, make

amendments to the Convention or to adopt new annexes and guide the Convention as global circumstances and national need change. COP meeting held biennially since 2001. COP-13 held in Ordos, China in 6-16 September 2017. India hosted COP-14 during September 2-13, 2019. India is the COP President for the next two years (2019-2021). The Committee to Review the Implementation of the Convention (CRIC) was established to assist COP in regularly reviewing the implementation of the Convention.

The Committee on Science and Technology (CST) was established to provide COP with information and advice on scientific and technological matters relating to combating desertification and mitigating the effects of drought.

UNCCD – India party

The UNCCD is one of the three Rio Conventions along with the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD). The UNCCD was adopted on 17th June 1994, entered into force on 26th December 1996, and currently has 197 parties. India became a signatory to the convention on 14th October 1994 and ratified it on 17th December 1996.

Hosting of COP-14

The 14th session of the Conference of the Parties to the UN Convention to Combat Desertification (UNCCD COP 14) hosted by Ministry of Environment, Forest and Climate Change, Govt. of India. COP-14 was

convened at IEML Greater Noida during September 2-13, 2019. Only four countries in the World i.e. Germany, Argentina, Kenya and India hosted all three Rio Conventions till 2019. India is one of the country, hosted all three Rio Conventions [UNFCCC in 2002 (New Delhi); CBD in 2012 (Hyderabad); UNCCD in 2019 (New Delhi)]. Over 9000 delegates participated in the COP-14, including more than 100 Ministers, Heads of United Nations and Intergovernmental bodies, Country Parties, Youth, Local governments, Business leaders and representatives of CSOs/NGOs etc.

Hon'ble Minister for Environment, Forest and Climate Change has nominated as COP-14 President and opened the COP-14 meeting on 02.09.2019. India is now COP-14 President for the next two years (2019-2021). Hon'ble Minister of State for Environment, Forest and Climate Change, has made a statement on behalf of the host country in which he presented India's achievements and aspirations relating to desertification and land degradation.

Hon'ble Prime Minister of India addressed High Level Segment (HLS) on 9th September, 2019 in plenary session. High-level interactive dialogues took place over the two days, addressing, among others, land issues related to: climate and renewable energy, rural and urban communities, ecosystem restoration, health, and values-based approaches. India announced the Government's support for, among other actions, an initiative for enhanced South-South Cooperation that aims to share India's experiences with cost-effective and sustainable land management strategies; and a "Global Water Action Agenda" to maximize synergies through holistic land and water management. His announcement, inter-alia, include, (i) to set up a centre for excellence in India at the Indian Council for Forest Research and Education (ICFRE) Dehradun; (ii) India aims to raise its ambition of the total area that would be restored from

its land degradation status, from 21 million hectares (stated as Bonn Challenge target) to 26 million hectares between now and 2030; and (iii) India have offered our resources in space and remote sensing technology to member countries who wish to manage their land degradation programmes through cutting-edge technology. New Delhi Declaration: Investing in Land and Unlocking Opportunities was adopted.

Indian Delegations

Indian delegation, headed by Secretary, Ministry of Environment, Forest and Climate Change and Deputy Head Special Secretary, Ministry of Environment, Forest and Climate Change, participated in the UNCCD COP 14. The UNCCD's two subsidiary bodies, the Committee on Science and Technology (CST) and the Committee for the Review of the Implementation of the Convention (CRIC), convened in parallel to the COP. COP adopted about 35 decisions, among other topics: how to implement thematic policy frameworks addressing land degradation, drought, gender, sand and dust storms, desertification, involvement of Industry, migration and also land tenure as a new thematic area under the Convention.

There were 126 side events meetings and 44 exhibitions organized. The India Pavilion showcased various achievements/schemes conducted by the various Ministries, Institutions, Organizations, Universities, Industries, Think Tanks and NGOs. The Rio Conventions Pavilion, inter-alia, conducted various side events and programs. Youth Forum, Gender Caucus, Science Day, Sand and Dust Storms Day, Business Day, Local and Regional Governments Day, GEF Day, Land for Life Day and Drought Day, were also celebrated during two weeks meeting.

Land degradation

Land degradation is defined by the United Nations Convention to Combat

Desertification (UNCCD) as “the reduction or loss of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, grazing land, forest and woodlands resulting from a combination of pressures, including land use and management practices”. It is recognized in Sustainable Development Goal 15.3: “By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought, and floods, and strive to achieve a land-degradation-neutral world”. UNCCD is the custodian agency of one indicator (15.3.1, the “Proportion of land that is degraded over a total land area”). Land degradation neutrality (LDN) is achieved if new degradation is balanced by reversal of degradation elsewhere in the same land type by restoration or rehabilitation

Land degradation is one of the threats to human and natural systems. Fortunately, over the past few decades awareness of this challenge has grown, and 122 countries have committed to setting land degradation neutrality (LDN) targets, of which 84 have officially validated their targets, and 51 have put their targets into legislation. In this concept, LDN is achieved if new degradation is balanced by reversal of degradation elsewhere in the same land type by restoration or rehabilitation.

Variables that affect land degradation

The status of Land Resources is crucial to support rural livelihoods and ecology. In India there is a large rural population, especially marginal and landless that heavily depends on Land Resources for Agriculture, domestic energy and Livestock grazing and fodder needs. Additionally, these ecological balance revolves. Currently, 51 % of the employed population is working in the agriculture sector in our country. Also 46.02 of the total geographical area is under cultivation compared to only 11 % for rest of

the world. Therefore, the per capita availability of these resources is 4 to 6 times less than world average. If we look at the land related major production systems in India i.e. Agriculture Lands, Forestry and Livestock Rearing as given below we see that India’s lands are primarily devoted to agrarian purposes. land resources are fulcrum on which the local

Land Related Production Systems	Category	Total Area Million ha.
Forestry	Forest	71.79
Livestock Rearing	Others - (Wastelands and CPRs) which is a sum of Area not available for cultivations + Uncultivated land	69.71
Agriculture	Agriculture Land which is a sum of (Net Sown Area+ Fallow Land)	166.31
	Reported Area for Land Use Statistics	307.81
	Total Area	328.72

Drivers of land degradation: There may be direct and indirect drivers of land degradation. Direct drivers of land degradation, inter-alia, includes (i) Adverse Land use Conversions through Encroachments, Allotments and Land Diversions; (ii) Deforestation ; (iii) Over-exploitation for domestic use ; (iv) Overgrazing ; (v) Poor agricultural practices; (vi) Urbanisation and infrastructure; (vii)

Industrial activities, waste and mining; (viii) Discharges of effluents; (ix) Disturbance of water cycle; and (x) Over-extraction of water.

Indirect drivers of land degradation, inter-alia, includes (i) Population pressure; (ii) Land tenure; (iii) Poverty, (iv) Lack of Access to basic services like Education and Health; (v) Lack of Capacities and Skills; and (vi) Institutional settings etc.

INDIA'S DESERTIFICATION, LAND DEGRADATION AND DROUGHT (DLDD) STATUS

India is the seventh largest country in the world with 328.72 million hectare (mha) area and is second most populated country. India has documented its Sustainable Land and Ecosystem Management (SLEM) practices in form of SLEM book published in 2014 in collaboration with Indian Council of Forest Research and Education (ICFRE) Dehradun.

Desertification and Land Degradation (DLD) Atlas of India, was first prepared in 2007 covering DLD Status of India of 2003–05 time period, by the Space Applications Centre in collaboration with MoEFCC. This was followed by another Atlas at 1:50,000 scale published in 2016 covering the years 2011-13 and another atlas at 1:5,00,000 scale showing district level mapping published in 2018.

Sustainable Land Management (SLM) Practices

The primary instrument for achieving LDN is through the implementation of sustainable land management (SLM) practices. Because of its multifunctional roles and its sensitivity to land management soil organic carbon (SOC) was selected as one of three indicators for LDN. Compared with the other global LDN indicators, that is, land cover change and land productivity dynamics (LPD) (measured as net primary productivity), SOC is challenging to manage and monitor at large scales. Moreover, SOC density in soils can vary greatly, even on the scale of meters, and

fluctuates over time, for example between seasons.

Soil organic carbon plays a critical role in soil productivity as well as a wide array of ecosystem prepossesses, such as nutrient cycling, serving as a repository of resources for belowground biota, contributing to soil structure and soil hydrology.

The selection of SLM practices are played a very important role to maintain or enhance soil organic carbon and achieve LDN. It addresses the choice of SLM practices suited to the local socio-economic and biophysical context; methods for measurement and monitoring of SOC; and the use of tools/models for SOC assessment to estimate SOC and map SOC, and how to choose an appropriate tool/model according to the purpose. Policy-oriented options, inter-alia, include to (i) share the guidance for land managers at the appropriate level; (ii) monitor SOC change as an indicator of SLM intervention to support assessment of LDN achievement in 2030; (iii) apply gender-responsive actions addressing gender-based differences and promote gender equality and women's empowerment; and (iv) design a framework for LDN Planning and means to support it.

Decisions taken by UNCCD COP-14:

There are various decisions adopted by the COP-14, after detailed successful negotiations, in various Committees, viz. COW, CST & CRIC.

A. Committee of the Whole (COW)

The COW met first on Tuesday, 3rd September 2019 and established two contact groups. The Contact Group on Programme and Budget was facilitated by Dr. R.B. Lal, Scientist 'E', Ministry of Environment, Forest and Climate Change (India). The Contact Group on Other Matters was facilitated by Mr. Troy Torrington (Guyana). Work under both contact groups continued throughout both weeks of the meeting. On Thursday, 5th September, the COW reviewed

progress in implementing policy advocacy frameworks that address drought, sand and dust storms, gender and migration.

Indian delegation has actively participated in all the sessions of contact groups and negotiated the country position. The Conference of Parties (COP) has adopted the following decisions based on the negotiations in the Contact Group and recommendations of Committee of Whole (COW). The decisions are summarized in the table:

S. No.	Decision Document No.	Decision Title
1.	ICCD/COP(14) /L.1	Declaration of the Youth Forum
2.	ICCD/COP(14) /L.2	Follow-up on policy frameworks and thematic issues: Sand and dust storms
3.	ICCD/COP(14) /L.3	Declaration of civil society organizations attending the fourteenth session of the Conference of the Parties
4.	ICCD/COP(14) /L.4	Follow-up on policy frameworks and thematic issues: Gender
5.	ICCD/COP(14) /L.5	Credentials of delegations
6.	ICCD/COP(14) /L.6	Follow up on the positive role that measures taken under the Convention can play to address desertification/land degradation and

		drought as one of the drivers that cause migration
7.	ICCD/COP(14) /L.7	Draft report of the Conference of the Parties on its fourteenth session, held in New Delhi, India from 2 to 13 September 2019
8.	ICCD/COP (14)/L.8	Declaration from the Sustainable Land Management Business Forum
9.	ICCD/COP 14)/L.9	Special segment
10.	ICCD/COP (14)/L.10	Participation and involvement of civil society organizations in meetings and processes of the United Nations Convention to Combat Desertification
11.	ICCD/COP (14)/L.11	Participation and involvement of the private sector in meetings and processes of the United Nations Convention to Combat Desertification and the business engagement strategy
12.	ICCD/COP (14)/L.12	Multi-year workplan for the

		Convention institutions (2020–2023)
13.	ICCD/COP (14)/L.13	Modalities, criteria and terms of reference for a midterm evaluation of the UNCCD 2018–2030 Strategic Framework
14.	ICCD/COP (14)/L.14	Expression of gratitude to the Government and people of the Republic of India.
15.	ICCD/COP (14)/L.15	Date and venue of the fifteenth session of the Conference of the Parties
16.	ICCD/COP (14)/L.16	Implementation of the United Nations Convention to Combat Desertification communication plan and the United Nations Decade for Deserts and the Fight against Desertification (2010–2020)
17.	ICCD/COP (14)/L.17	Land Tenure.
18.	ICCD/COP (14)/L.18	Programme and budget for the biennium 2020–2021.
19.	ICCD/COP (14)/L.19	Programme of work for the fifteenth

		session of the Conference of the Parties.
20.	ICCD/COP (14)/L.20	Integration of Sustainable Development Goal 15 and related target 15.3 into the implementation of the United Nations Convention to Combat Desertification and land degradation neutrality.
21.	ICCD/COP (14)/L.21	Promotion and strengthening of relationships with other relevant conventions and international organizations, institutions and agencies
22.	ICCD/COP (14)/L.22	Policy Advocacy on Drought.

B. Committee for the Review of the Implementation of the Convention (CRIC)

Indian delegation has actively participated in all the sessions of contact groups and negotiated the country position. The Conference of Parties (COP) has adopted the following decisions based on the negotiations in the Contact Group and recommendations of Committee for the Review of the Implementation of the Convention (CRIC). The decisions are summarized in the table:

S. No.	Decision Document No.	Decision Title
1.	ICCD/CRIC (18)/L.1	Collaboration with the Global Environment Facility
2.	ICCD/CRIC (18)/L.2	Improving the procedures for communication of information as well as the quality and formats of reports to be submitted to the Conference of the Parties
3.	ICCD/CRIC(18)/L.3	Enhancing the implementation of the United Nations Convention to Combat Desertification in support of the 2030 Agenda for Sustainable Development through the enhancement, strengthening and promotion of capacity building
4.	ICCD/CRIC (18)/L.4	Assessment of the implementation of the Convention against the strategic objectives of the UNCCD 2018–2030 Strategic Framework
5.	ICCD/CRIC (18)/L.5	Date and venue of the nineteenth session of the Committee for the Review of the Implementation of

		the Convention
6.	ICCD/CRIC (18)/L.6	Assessment of financial flows for the implementation of the Convention
7.	ICCD/CRIC (18)/L.7	Programme of work for the nineteenth session of the Committee for the Review of the Implementation of the Convention

C. Committee on Science and Technology (CST)

On 3 September 2019, CST Chair opened the meeting. UNCCD Executive Secretary noted the SPI team had fulfilled its CST 13 mandate, drawing attention to proposals for action, based on the synthesis and assessment of the latest science contained in the technical papers. Indian delegation has actively participated in all the sessions of contact groups and negotiated the country position.

The Conference of Parties (COP) has adopted the following decisions based on the negotiations in the Contact Group and recommendations of Committee on Science and Technology (CST). The decisions are summarized in the table:

S. No.	Decision Document No.	Decision Title
1.	ICCD/COP (14)/CST/L.1	Follow-up on the work programme of the Science-Policy Interface for the biennium 2018–2019: Objective 1
2.	ICCD/COP (14)/CST/L.2	Interfacing science and policy, and sharing knowledge
3.	ICCD/COP	Work programme of the Science-Policy

	(14)/CST/L.3	Interface for the biennium 2020–2021
4.	ICCD/COP (14)/CST/L.4	Programme of work for the fifteenth session of the Committee on Science and Technology
5.	ICCD/COP (14)/CST/L.5	Follow-up on the work programme of the Science-Policy Interface for the biennium 2018–2019: Objective 2
6.	ICCD/COP (14)/CST/L.6	Policy-oriented recommendations resulting from the cooperation with other intergovernmental scientific panels and bodies

Conclusion

The 14th session of the Conference of the Parties to the UN Convention to Combat Desertification (UNCCD COP 14) was successfully hosted by Ministry of Environment, Forest and Climate Change, Govt. of India. The whole world has appreciated the arrangements (viz. logistic, stay, meetings room, facilities at venue, transportation, food etc.) made by Republic of India and its active participations in the Negotiations meetings. India one of the country, hosted all three Rio Conventions [i.e. UNFCCC in 2002 (New Delhi); CBD in 2012 (Hyderabad); UNCCD in 2019 (New Delhi)].

There were over 9000 delegates participated in the COP-14, including more than 100 Ministers, Heads of United Nations

and Intergovernmental bodies, Country Parties, Youth, Local governments, Business leaders and representatives of CSOs/NGOs etc. COP-14 has adopted about 35 decisions, addressing land degradation, drought, gender, sand and dust storms, desertification, involvement of Industry, migration and also land tenure as a new thematic area under the Convention. There were 126 side events and 44 exhibitions organized during COP. The India Pavilion showcased various achievements/schemes conducted by the various Ministries, Institutions, Organizations, Universities, Industries, Think Tanks and NGOs etc. The Rio Conventions Pavilion, inter-alia, also conducted various side events and programs. Youth Forum, Gender Caucus, Science Day, Sand and Dust Storms Day, Business Day, Local and Regional Governments Day, GEF Day, Land for Life Day and Drought Day, were also celebrated during two weeks meeting.

India has announced the Government's support for, among other actions, an initiative for enhanced South-South Cooperation that aims to share India's experiences with cost-effective and sustainable land management strategies; and a "Global Water Action Agenda" to maximize synergies through holistic land and water management. After successful conduct of UNCCD COP-14, India has proposed to carry out the various activities for successful implementation of the objectives of the UNCCD convention.

The Conference adopted the Delhi Declaration in which parties expressed commitment for a range of issues, including gender and health, ecosystem restoration, taking action on climate change, private sector engagement, Peace Forest Initiative and recovery of 26 million hectares of degraded land in India

All previous issues of 'The Environment Management' can be viewed at: [http:// inwww.siesiem.edu.in](http://inwww.siesiem.edu.in)



Plastic Waste Management Rules, 2016: Impact on Waste Management Mechanism

Mr. Ashish Jain

Founder Director, Indian Pollution Control Association, New Delhi

Background

Globalization and industrialization has resulted in exponential growth in the consumption of plastic in various application Globally. In last 60 years, its consumption increased from negligible to 300 Million Tons per annum Globally (Figure I). Of this total consumption, approximately 36% consumption is in the packaging segment only, which is creating biggest nuisance to the environment due to it's very light in weight and non reusable nature; having either no commercial value after disposal or very costly, if collected and recycle/co-process.

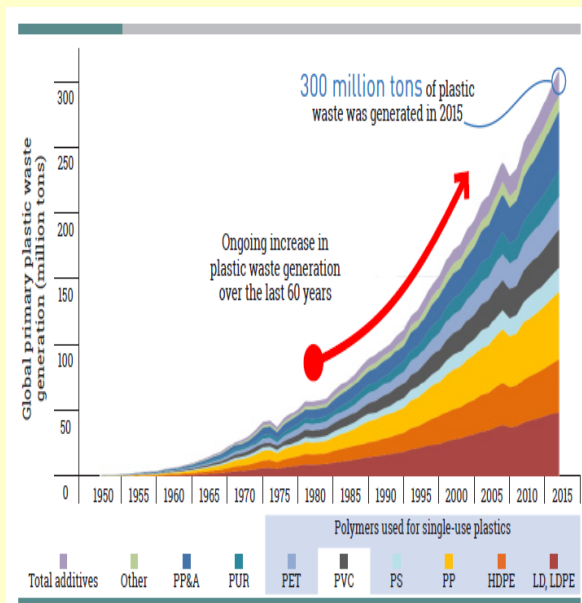


Figure I: Global trend of plastic waste generation (Source: UNEP, 2018)

Considering the logistic economics of single use packaging plastic, waste collectors/rag-pickers/scrap dealer or even municipality are having least interest or even no interest in

collection / storage / recycling of such littered plastic packaging waste. Therefore, our landfill, railway track, rivers, oceans, open park, road side or any public place has become disposal sites for plastic packaging waste. As per the Central Pollution Control Board (CPCB)'s report, India generates 5.6 Million tonnes of plastic waste annually, out of which total plastic waste, which is collected and recycled in the country is estimated to be 9,205 tonnes per day (approximately 60% of total plastic waste), and 6,137 tonnes remain uncollected and littered.

PWM Rules, 2016

Since, the plastic is non-bio-degradable and may take more than 1000 years to degrade and if it is not collected and recycle or co-process then it may cause lots of damage to environment by causing soil, air and water pollution, threat to the life of aquatic and stray animals, can also release micro plastic over a period of time, which can enter into food chain and cause serious health issues to human also. Considering these issues and challenges of plastic waste management, Ministry of Environment and Forest & Climate Change (MoEF&CC) has framed the Plastic Waste Management Rules, 2016, which was notified on 18th March 2016 and further amended on 27th March 2018. As per Rule 9 (1&2) of Plastic Waste Management (Amendment) Rules, 2018, the Brand Owner, Producer and Importer (PIBO), who produce or use plastic packaging to sale their products into Indian Market. The PIBOs have to develop of collection back mechanism for the equivalent quantity of

post consumer plastic packaging waste introduced by them into the Indian Market. Once these PIBOs collect the plastic packaging waste, they have to make arrangement for the recycling or co-processing of plastic waste.

Impacts on Waste Management Mechanism

The PWM Rules, 2016 have tried to bring responsibility of managing plastic waste to each stakeholders of our society with a great emphasis on Extended Producer Responsibility (EPR) for PIBOs. The section 9(1&2) of the rules is acting as revolutionary tool in developing supply chain for the low weight, non-recyclable, non-commercial plastic packaging waste like Multi-layer Plastic packaging.

As of now, around 500 PIBOs are executing their EPR liability through various means as suggested by CPCB like (i) through own distribution network, (ii) engaging Urban Local Bodies and Municipalities and supporting them in developing infrastructure, and (iii) engaging waste management agencies, who has network of waste collectors and rag-pickers.

The EPR initiative has brought meaningful social, environmental and economic benefits, which included collection and recycling/co-processing of approximately 0.2 Million ton of plastic

packaging waste in two years time and stopped it to reach to any biotic or abiotic eco-system to damage them. To collect 0.2 Million tons of plastic packaging, waste collectors and rag-pickers were incentivized by the PIBOs. It is estimated that their income has increase by 10-15%. To meet the EPR compliance, a significant efforts are being made by Govt., PIBOs, ULBs and waste management agencies in creating awareness among the waste generators and to bring sense of responsibility towards waste management. The remarkable efforts are being made on recycling and co-processing technologies. To follow the MoEF & CC's recommended four technologies or mechanism (Waste to Energy, Road Construction, Cement Kiln and Pyrolysis) for the co-processing of non-recyclable MLP, PIBOs are channelizing their collected MLP to Cement Kiln as they are spread across the country and having great potential to utilize MLP as a alternate source of energy is emerging the best available mechanism for the disposal of MLP. Another remarkable initiative is taken by National Highway Authority of India (NHAI), who has decided to construct national roads in India using the plastic waste in mix with bitumen to reuse the plastic waste and also to improve the strength and durability of roads.

Disclaimer:

Editors have taken utmost care to provide quality in this compilation. However, they are not responsible for the representation of facts, adaptation of material, and the personal views of the authors with respect to their compilation.

GRADUATION CEREMONY OF POST GRADUATE DIPLOMA IN SUSTAINABLE ENVIRONMENT MANAGEMENT 2018- 2019 BATCH

Graduation ceremony of Post Graduate Diploma in sustainable environment Management batch 2018- 2019 WAS CONDUCTED ON 13th October, 2019 at the institute. The Chief Guest of the event was Mr. Ashish Gupta, Corporate Head, EHS, BPCL, Guest of Honour was Mr. Vinod Sant, Ex. DG, National Safety Council and Special Guest was Mr. R. K. Mehra. Mr. Ashok Satpute was industry sponsored candidate from Shapoorji Pallonji Ltd. and has received Shri. Ramaswami Iyer Endowment Award for best student of the group.



A group photograph of graduate students with guests and faculty



Mr. Ashok Satpute receiving Shri. Ramaswami Iyer Endowment Award for scoring highest marks in the diploma programme

Workshop on ‘Environment Matters in Everyday Life’

A workshop on the theme ‘Environment Matters in Everyday Life’ was organized on 30th November, 2019 with My Retired Life Foundation. Around 55 participants have registered in the event. The presentations focused on the importance of environment and nature in our day to day life, how we have polluted our environment and pertinent solutions to manage environment in our day to day life. The participants were very enthusiastic and interact with experts during the sessions.



Inauguration of the event



Participants actively interacting with the experts

India's National Biodiversity Action Plan (NBAP), its strategic linkage & Implementation status

Mr. Shivaraman LVC,

Senior Manager Environment, Health & Safety
CEAT LTD., Village Road, Bhandup (West),
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Biodiversity:

The Term "Biodiversity" was first coined by W. G. Rosen in 1985. United Nations Conference on the Environmental and Development (UNCED) defined the biodiversity which is the single legally accepted definition of biodiversity adopted by the UN convention on Biological Diversity.

Definition:

The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

In Simple words: Variety, Variability between genes, Species & Ecosystem.

UNCED held at Rio de Janeiro (Brazil) in 1992 laid immense stress on the biological diversity of our earth planet and the need to preserve it for posterity.

The Convention on Biological Diversity (CBD) which entered into force in December 1993, is an international agreement among the nations of the world to arrest and reverse this situation for the welfare and survival of the planet and its denizens, as well as for intergenerational equity.

The Convention has three objectives, namely:

- The conservation of biological diversity

- The sustainable use of the components of biological diversity
- The fair and equitable sharing of the benefits arising out of the utilization of genetic resources

The CBD's governing body is the Conference of the Parties (COP). This ultimate authority of all governments (or Parties) that have ratified the treaty meets every two years to review progress, set priorities and commit to work plans.

Acts / Rules related to Biodiversity:

After CBD, India enacted its Biological Diversity Act, 2002 published on 5th February 2003 & Rules (2004). Act has a clear alignment with the objectives of the Convention on Biological Diversity (CBD).

Other Important Indian Acts passed related to Biodiversity are:

1. Fisheries Act 1897
2. Indian Forests Act 1927
3. Prevention of cruelty to animals 1960
4. Wildlife protection act 1972
5. Forest Conservation Act 1980
6. Biological Diversity Act 2002, 2010
7. Scheduled Tribes and other traditional forest dwellers (recognition of rights) Act

Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets

The purpose of the Strategic Plan for Biodiversity 2011-2020 is to promote effective implementation of the Convention through a strategic approach, comprising a shared vision, a mission, and strategic goals and targets ("the Aichi Biodiversity Targets"), that will inspire broad-based action by all Parties and stakeholders.



















In decision X/2, the tenth meeting of the Conference of the Parties under CBD, held from 18 to 29 October 2010, in Nagoya, Aichi Prefecture, Japan, adopted a revised

and updated Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets, for the 2011-2020 period.

Additionally, in decision X/10, the Conference of the Parties decided that the fifth national reports, due by 31 March 2014, should focus on the implementation of the 2011-2020 Strategic Plan and progress achieved towards the Aichi Biodiversity Targets. These targets enforce the application of natural capital in the GDP of a country by 2020. The Natural Capital Assessment will be a great leap in the conservation of biodiversity and its valuation.

Overview of Aichi Biodiversity Targets



Target No	National Biodiversity Targets	Relevant Aichi Biodiversity Targets																				
1	By 2020, a significant proportion of the country's population, especially the youth, is aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	1	█																			
2	By 2020, values of biodiversity are integrated into national and state planning processes, development programmes and poverty alleviation strategies.	2	█																			
3	Strategies for reducing the rate of degradation, fragmentation and loss of all natural habitats are finalized and actions put in place by 2020 for environmental amelioration and human well-being.	5 & 15			█											█						
4	By 2020, invasive alien species and pathways are identified and strategies to manage them developed so that populations of prioritized invasive alien species are managed.	9									█											
5	By 2020, measures are adopted for sustainable management of agriculture, forestry and fisheries.	6,7 & 8				█	█															
6	Ecologically representative areas under terrestrial and inland water, and also coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably, based on protected area designation and management and other area-based conservation measures and are integrated into the wider landscapes and seascapes, covering over 20% of the geographic area of the country, by 2020.	10, 11 & 12									█	█										
7	By 2020, genetic diversity of cultivated plants, farm livestock, and their wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	13														█						
8	By 2020, ecosystem services, especially those relating to water, human health, livelihoods and well-being, are enumerated and measures to safeguard them are identified, taking into account the needs of women and local communities, particularly the poor and vulnerable sections.	14															█					
9	By 2015, Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization as per the Nagoya Protocol are operational, consistent with national legislation.	16																			█	
10	By 2020, an effective, participatory and updated national biodiversity action plan is made operational at different levels of governance.	3, 4 & 17			█	█																█
11	By 2020, national initiatives using communities' traditional knowledge relating to biodiversity are strengthened, with the view to protecting this knowledge in accordance with national legislation and international obligations.	18																				█
12	By 2020, opportunities to increase the availability of financial, human and technical resources to facilitate effective implementation of the Strategic Plan for Biodiversity 2011-2020 and the national targets are identified and the Strategy for Resource Mobilization is adopted.	19 & 20																				█

Implementation Status:

12 National Biodiversity Targets with Composite Indicator, Description of the Indicator, responsible agency who will implement & monitoring / reporting frequency are clearly identified for proper implementation.

The implementation of the NBAP involves the Central Government, the state governments and institutions of governance in the States/ Union Territories (UTs) at the local level. These three tiers of governance implement the NBAP with the active involvement of all other stakeholders such as Non-Governmental Organisations (NGOs), Civil Society Organisations (CSOs), industry and business, technical and educational institutions, local and traditional communities.

India has submitted its sixth national report (NR6) to the Convention on Biological Diversity (CBD) highlighting the progress it has made in achieving the 12 National Biodiversity Targets (NBT) set under the convention.

Highlights of the Report:

India was among the first five countries in the world, the first in Asia and the first among the biodiversity-rich megadiverse countries to have submitted NR6 to the CBD Secretariat.

The major findings of the report are:

- India has already achieved two targets and was on track to achieve another eight soon. The remaining two would be met by the stipulated time of 2020.
- While the biodiversity is facing increasing pressure on account of habitat fragmentation

and destruction, invasive alien species, pollution, climate change and over-use of resources globally, India is one of the few countries where forest cover is on the rise, with its forests teeming with wildlife.

- India has done well in raising awareness about biodiversity.
- India is a mega diverse country harboring nearly 7 to 8 % of globally recorded species while supporting 18 % of the global human population on a mere 2.4 % of the world's land area. India is pursuing its economic development by maintaining the integrity of its natural capital through various programs and strategies.
- India has adopted measures for sustainable management of agriculture, fisheries and forests, with a view to ensure food and nutritional security to all without destroying the natural resource base while ensuring intergenerational environmental equity.
- India has put programs in place to maintain genetic diversity of cultivated plants, farms livestock and their wild relatives, towards minimizing genetic erosion and safeguarding their genetic diversity
- Mechanisms and enabling environment are being created for recognizing and protecting the vast heritage of coded and oral traditional knowledge relating to biodiversity for larger human welfare while safeguarding the interests and rights of the local communities as creators and holders of this knowledge.
- India is investing a huge amount on biodiversity directly or indirectly through several development schemes of the Central and state governments which is to the tune of Rs 70,000 crore per annum as against the estimated annual requirement of nearly Rs 1,09,000 crore.



Environmental Law and Policy in Sustainable Development

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Sustainable Development-“talk of the planet” and “paradigm of the balanced development”, can be well summarised in a phrase-“it is guarantee to the present and bequeath to the future generations”. Awakening of the man in terms of Environment degradation has led to the coining of this word “Sustainable development”. It is a global effort to strike a balance or harmonize a conflict between the benefits and the environment. The key element in this “Word” lies in the unity of Environment and Development, both being ubiquitous and essential.

Brief till date

Sustainable Development first appeared in 1969 when 33 African Countries signed the Charter; then it was discussed in the Stockholm Conference in 1972; then came to light during Brundtland Report in 1987 called “Our Common Future” and was adopted at Rio de Janeiro in 1992 by more than 178 countries in the name of “Agenda 21” which was a compressive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment at the same time. With lagging behind the set targets, in 2012, at Rio de Janeiro, the concept of Sustainable development goals (SDG’s) was launched with 17 SDG’s at the core for the 2030 Agenda for Sustainable Development.

Concept and Principles

The two key concepts of sustainable development are:

1. To maximise the Biological System Goals (Genetic Diversity, Resilience, Biological productivity); Economic System

Goals (meeting needs in particular of the world’s poorest people, equity etc.) and Social System Goals (Social Justice, Poverty eradication, People’s participation etc.) and that too simultaneously.

2. To improve the quality of human life while living in support of the ecosystems with idea of limitations on environment’s ability to meet both present and future needs.

Since its appearance on the global table, the concept of Sustainable development have perplexed the environmentalists and development professional due to its ambiguity as existing laws were human centric and there was dire need of Environment based laws so that the concept of sustainable development should not be mere euphuism and overshadowed by harsh development waves. Although being problematic in the beginning, the nations have started the inclusion of Sustainable development in their constitutional regimes and the Adjudication has been initiated since the past few decades.

The principles which serve as a lighthouse for the legislatures and tribunals to achieve the objective Sustainable development were widely discussed in a series of UN conferences. Those are:

1) **Intergenerational Equity:** The principle of intergenerational equity states that every generation holds the Earth in common with members of the present generation and with other generations, past, and future. The principle articulates a concept of fairness among generations in the use and

conservation of the environment and its natural resources. This principle is the foundation of sustainable development.

2) Use and Conservation of Natural Resources: This principle is based on the maximum use of perpetual resources like solar energy; tidal energy and wind energy. It seconds the maximum production of renewable resources like trees and biomass. It also supports the minimum utilization of non-renewable resources like fossil fuels, minerals, etc. And finally, it strongly backs the re-use and recycling of non-renewable resources and waste materials.

3) Environmental Protection: Environmental protection refers to any activity to maintain or restore the quality of the environment by preventing human activity or diverting the natural activity like emission of pollutants etc. and formulating the proper statutes.

4) The Precautionary Principle: The precautionary principle requires that, if there is a strong suspicion that a certain activity may have environmentally harmful consequences, it is better to control that activity now rather than to wait for incontrovertible scientific evidence. This principle is expressed in the Rio Declaration, which stipulates that where there are “threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”

5) The “Polluter Pays” Principle: The ‘polluter pays’ principle is the commonly accepted practice that those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. For instance, a factory that produces a potentially poisonous substance as a by-product of its activities is usually held responsible for its safe disposal. The polluter pays principle is part of a set of broader principles to guide sustainable development worldwide. It is considered to

be “one of the best” methods for the prevention of roadblock to sustainable development.

6) Principle of liability to help and cooperate: As principle 9 of Rio declaration, “States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion, and transfer of technologies, including new and innovative technologies” and as per principle 27 of the Rio Declaration, “States and people shall cooperate in good faith and in a spirit of partnership in the fulfillment of the principles embodied in this Declaration and in the further development of international law in the field of sustainable development”.

7) Poverty Eradication: It was attributed in Brundt land report that poverty is a potential cause of environmental degradation as it reduces people’s capacity to use resources in a sustainable manner which eventually brings more pressure on the environment and results in its deterioration. It was again stressed in Johannesburg 2002 that eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development, particularly for developing countries

8) Principle of ‘Public trust’:- The Public Trust Doctrine as part of its jurisprudence primarily rests on the principle that certain resources like air, sea, waters and the forests have such great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership. The public at large is the beneficiary of the natural resources. The State as a trustee is under a legal duty to protect them and save them to be converted into private ownership.

Environmental Law at Global Level

International Environmental Law is derived primarily from three sources

- (i) Customary International Law
- (ii) International treaties, bilateral or multilateral agreements
- (iii) Judicial decisions of International Courts w.r.t. to Environment

Although, International Court of Justice was established in 1945 and was handling disputes between the nations but laws were more dimmed prior to 1972. After the Stockholm conference, basic framework with regard to environment started and some 1100 agreements were proliferated during 1972 to 1992.

The four important Environment conventions under which the member states hold conference of parties (COP)

- (a) UNFCC : United Nations Framework on Climate Change
- (b) UNCCD:- United Nations Convention to Combat Desertification
- (c) CBD: Convention on Biological Diversity
- (d) CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora.

COP is the governing body and advances the implementation of the Convention through the decisions. Apart from decisions mandated to it by Conventions it regularly reviews the implementation of the same and takes further decisions to promote its effective implementation. It also assesses the overall effects and its sustainable use along with the extent to which progress is being made to achieve the objectives of the Conventions. It periodically examines the obligations of parties i.e. the adequacy of their commitments in the light of their National Plans and considers and adopts regular reports on the implementation. The COP also has powers to promote the exchange of information on measures adopted by parties in implementation and its

effects. It can also develop and periodically refine the methodologies for the effective implementation. As COP serves as Watchdog and data analyst for the Environment problems, it can serve the ICJ with the proper and accurate feedback.

Apart from International Environment disputes (case studies in this article), there are Environmental Crimes as reported by United Nations Environment Programme (UNEP)-Interpol. These types of Crimes are on rise and are market of \$256 Billion annually and include:

- (i) Wildlife Crime like hunting, poaching, capturing etc.
- (ii) Illegal Logging
- (iii) Illegal Mining
- (iv) Illegal Fishing
- (v) Pollution like Illegal Dumping of Waste Material in other country, illegal production of Chlorofluorocarbons and hydrochlorofluorocarbons and other ozone depleting substances.

These crimes are committed by organized criminals groups and gaps in preventing those accounts for limited use of legislation and a lack of international cooperation. These gaps can be well plugged by enhancing of International cooperation, information sharing and initiating joint actions and strengthening of Environmental laws at each level. UNEP is helping countries to establish the strong legal framework by training and developing enforcement guidance to help nations in enforcement.

Few Case Studies (International)

- (i) **Costa Rica V/s. Nicaragua (Certain activates carried out by Nicaragua in Border Area): (Polluter pays Principle)**
The case of territory dispute between Costa Rica and Nicaragua over a 3-kilometer area of wetland in Isla Portillas. In 2010 Costa Rica had instituted proceedings with the ICJ against the Republic of Nicaragua for unlawful incursion, occupation and use of Costa Rican territory, including claims of

serious damage to protected rainforests and wetlands. The environmental damage claim arose from Nicaragua's activities in excavating a Channel for navigational purposes, which included removal of trees and vegetation. Nicaragua responded by instituting proceedings against Costa Rica in 2011 claiming major environmental damage arising from a road construction works by Costa Rica along the border area between the two countries. The court developed its own method of evaluation of Environmental damage and awarded Nicaragua US\$120,000.00 for the impairment or loss of environmental goods and services of the area in question. However, the Court awarded in full Costa Rica's claim of US\$2,708.39 to compensate for measures taken to restore the wetland.

(ii) Hungary V/s. Slovakia (Gabcikovo-Nagymaros Project):

This case is concerned regarding a treaty to build a series of hydroelectric dams on River Danube. ICJ noted and referred to both parties, "This need to reconcile economic development with protection of environment is aptly expressed in the concept of Sustainable development. For the purpose of the present case, this means the parties together should look afresh at the effects of the environment of the operation of the Gabcikovo power plant..." It was also separately opined by the Vice president of ICJ, "Right to development does not exist in the absolute sense; it is relatively always to its tolerance by the environment. Right to development is clearly part of modern international law –compendiously referred to as sustainable development." The Court decided that Hungary and Slovakia must negotiate in good faith in the light of the prevailing situation and must take all measure to ensure the achievement of the objectives and Parties resumed to the negotiation with regular feedback to the court.

Environmental Law at India Level

Indian constitution envisions specific provisions for the protection and improvement of environment and made provisions for the protection and improvement of environment in its Constitution after 1972 Stockholm conference, by way of 42nd amendment to the Constitution in year 1976,

Article 48-A which specifically deals with Environment protection and its improvements in several environmental cases the Indian courts also guided by the language of this Article.

Article 51A (g) casts duty on the citizens for protection of environment. Schedule VII containing the three lists clearly lays down various areas relating to environment protection upon which the centre and states can legislate.

As a result of which the Indian Law makers enacted various legislations which deal with environment protection and put the idea on track of sustainable development.

Indian Parliament also passed various laws effecting and regulating the environmental issues. Legislative enactments were always with the principles of economic, social security and sustainable development.

The main environmental laws in India include the:

- Water (Prevention and Control of Pollution) Act 1974 (Water Act)
- Air (Prevention and Control of Pollution) Act 1981 (Air Act).
- Environment (Protection) Act 1986 (EP Act).
- Wild Life (Protection) Act 1972.
- Forest (Conservation) Act 1980.
- Public Liability Insurance Act 1991.
- Biological Diversity Act 2002.
- National Green Tribunal Act 2010.

The three regulatory authorities functioning in India are:

Ministry of Environment, Forests and Climate Change (MoEFCC).

- Central Pollution Control Board (CPCB).
- State Pollution Control Boards (SPCBs).
- The adjudication of disputes are handled by
- National Green Tribunal
- High Courts
- The Supreme Court of India

Few Case Studies (India)

Vellore Citizens Welfare Forum vs Union of India & Ors on 28 August, 1996:

In this case, the doctrine of Sustainable development was implemented for the first time in India. The Petitioners had filed a petition in public interest litigation against the pollution caused by discharge of untreated effluent produced by the tanneries in the River Palar in the State of Tamil Nadu. The Supreme Court held that the precautionary principle and polluter pays principle are a part of the environmental law of India. The court also held that: “Notwithstanding the economic benefits of leather industry, economic interest cannot be allowed to destroy the ecology, degrade the environment and pose a health hazard to the public at large”. It also held, “Remediation of the damaged environment is part of the process of ‘Sustainable Development’ and as such polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology”.

Narmada Bachao Andolan V/s Union of India; The issue before the court was whether the environmental clearance granted by the Union of India for the construction of a dam had been granted without proper study and understanding of the environmental impact of the project. Furthermore it was examined whether the environmental conditions imposed by the Ministry of Environment had been violated and if so, what was the legal effect of the violations. The evidence disclosed that the

Government had been deeply concerned with the environmental aspects the project and because there was a difference of opinion between the Ministries of Water Resources and of the Environment and Forests the matter was dealt with by the Prime Minister who gave the clearance. The court ordered compensatory measures for environmental protection in compliance with the scheme framed by the Government and ordered the construction to continue while the alleviate measures were carried out. In this Case, it was observed by the SC that, “Sustainable Development means what type or extent of development can take place, which can be sustained by nature or ecology with or without mitigation”.

Reality Check of India in terms of Sustainable Development

With context to India’s latest, the situation is far from achieving the SDG’s and compellingly questions the reality in terms of the discussed and written goals. The Data of Centre for Science and Environments have some startling, in fact, alarming statistics as below:

- (a) **Air:** Air pollution is responsible for 12.5% deaths in India including 100000 children below of age of 5. The national scheme of Electric vehicles is yet to pick up, against the target of 15 million Electric vehicles; India is reeling at 0.28 million till May 2019.
- (b) **Water:** Both the Surface and underwater sources are under stress. 86 water bodies are critically polluted. There is substantial increase of 136% in number of water polluting industries since last 7 years. No. of deep tube wells bores have increased by 80% from 2006 to 2014.
- (c) **Climate Change:** As it is featured prominently in UN SDG’s goals of 2030, with just 10 years to go, India is yet to identify the indicators with a loom of unawareness among the masses.
- (d) **Agriculture:** This sector is under huge duress as the Input costs are increasing; average farmland is decreasing; nature

dependency in irrigation and increasing suicides of farming community.

- (e) **Health:** With shortfall of 35 % of 24 x 7 Public Health centres and 26% positions of medical officers' vacant, health infrastructure is ailing. Surprisingly Kerala does not have a single 24 x 7 Public health centre. The country is sharing the world's largest burden of 11 major neglected diseases including dengue.
- (f) **Urban Cities:** India launched a much ambitious plan of 100 smart cities in 2015-16 and 4 years later only 21% funds have been spent out of allocated funds. BY 2050, 416 million urban people will be added from India in World's population which will account to 58% of total population. India is having 2613 where conditions are unfit for habitation.
- (g) **Waste management:** Almost 79 major protests against unsanitary landfills and dump yards were recorded in 22 states across country in last three years. The country recorded 56% increase in number of hazardous waste generating industries between 2009 and 2016-17 and they are also not maintaining waste as per the laws.
- (h) **Energy:** Gas based plants are running at 24% capacity due to natural gas shortage. Hydro power projects are running at 19% of their capacity. In wind, India met only 6.3% target and in Solar India only met 5.86 %.
- (i) **Climate :** India's Green House gases have increased by 22% from 2010 to 2014. Due to Global warming effects , India continues to bear the brunt of extreme weather conditions with 11 states recorded extreme weather claiming 1425 lives.
- (j) **Forests:** With the new Forest fire monitoring system in place, India recorded 69523 cases of forest fires which are 9.5 times higher than recorded by earlier methods.
- (k) **Wildlife:** 37 species were seized for poaching in 2018 including 13 lions. 161

Wild animals living in forests were killed in Road and Train accidents.

- (l) **Employment :** India has witnessed 1.9 times increase in unemployment rate in past two years which is contrary to another SDG- Decent Work and Economic Growth.

Conclusion

The question which still persists "Is Sustainable development possible". With Carbon dioxide emission bucket filling quickly than what was targeted; With Global Temperature rise reaching early than expected; With European Union renaming "Climate Change" as "Climate Emergency"; With USA, keeping aloof from most of the global commitments and on the Other hand Awareness level rising among the young generations; Continuous Call by the United Nations; Increasing sense of Cooperation among Developing & Under-Developed Nationsit is certainly going to be a fight to make the dream of Sustainable development possible.

In terms on India, it is booming and striving sustainable development becomes increasingly more important. India's population currently encompasses more than 1.2 billion people and is expected to grow by another 300 million within the next couple of decades. Needs are increasing and so is the dependency on Environment. It is certainly going to be an uphill task for India. India has to wake up; rope in all sectors and take emergent steps from the grass root level so that the Concept of Sustainable development should not be mere "Oxymoron".

Invitation for articles for next issue of Newsletter

Articles, photos etc. are invited for next issue (January - March, 2020) of the Newsletter on the theme ' Zero Carbon Emission by 2050: Challenges and Opportunities'.

Last Date for submission 31st January, 2020



Policy Assessment of Environmental Impact Assessment (EIA) in India

Mr. Avick Sil

Regional Director

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Environmental Impact Assessment (EIA) is a decision making tool to evaluate the impact of the project on the environment and come up with mitigation measures to combat those challenges. It mainly looks into the environmental damages that could be caused by the proposed project and also find out alternative to reduce or minimize the impact of these challenges.

History of EIA Notification

It started in 1976-77 when the Planning Commission asked the Department of Science and Technology to examine the river-valley projects from an environmental angle.

This was subsequently extended to cover those projects, which required the approval of the Public Investment Board. In 1994, Government of India, under the Environmental (Protection) Act 1986, promulgated an EIA notification making Environmental Clearance (EC) mandatory for expansion or modernization of any activity or for setting up new projects. Thereafter, in 2006, MoEF has notified a new EIA legislation which makes it mandatory for projects to take prior environment clearance before construction, expansion, or modification of a project. Now, a zero draft notification has been drafted by MoEF in 2019. Various project covered under this notification are:

Asbestos milling and asbestos based products	Chlor alkali industry
Mining of minerals	Slurry pipelines (coal, lignite, and other ores) passing national parks/sanctuaries/ coral reefs, ecologically sensitive areas
Offshore and onshore oil and gas development and production	River valley power projects
Irrigation projects	Thermal power plant
Nuclear power projects and processing of nuclear fuel	Coal washeries
Mineral beneficiation	Pellet plants/briquetting plant/agglomeration unit
Metallurgical industries	Cement plant and cement grinding industries
Lead acid battery manufacturing	Petroleum refining industries
Coke oven plants/calcination plants	Coaltar processing

Soda ash industries	Chemical fertilisers
Pesticide industry and pesticide specific intermediates	Man made fibres manufacturing
Petroleum products and petrochemical based processing such as production of carbon black, and electrode grade graphite	Synthetic organic chemicals industry
Distilleries, molasses based manufacturing unit	Integrated paint industry
Pulp and paper industry	Sugar industry
LNG terminals involving processing and transportation	Air ports
All ship breaking yards including ship breaking units	Industrial estates/parks/complexes/ areas/ export processing zones (EPZ), Special Economic Zones (SEZs), Biotech parks, leather complexes
Common hazardous waste treatment, storage and disposal facilities (TSDFs) and Common biomedical waste treatment facility	Ports, harbours, break water, dredging
Highways, expressways/ elevated roads	Aerial ropeways
Common effluent treatment plant (CETPs)	Common Municipal Solid Waste management facility (CMSWMF) involving landfilling and /or incineration
Building and construction projects	Townships and area development projects as well as industrial sheds, educational institutes, hospitals and hostel for educational purpose

Process of Environment Clearance

EIA is a process which begins with online application of the project (Currently it is applied to Parivesh website) along with pre-feasibility report of the project and duly filled Form I and IA as prescribed by MoEF. Thereafter, presentation happens in front of Expert Appraisal Committee (EAC) or State level Expert Appraisal Committee (SEAC). TOR happens for “A” category projects; but for project under “B” category, directly present itself to SEAC or EAC committee for

environment clearance purpose. Once, the TOR presentation happens, projects gets awarded with TOR and then they carry out EIA study along with baseline assessment. Thereafter, one submit the EIA report along with one season monitoring data or one month monitoring data (for rapid EIA). In between, project also carry out public consultation or public hearing in consultation with state pollution control board. Then MoM of public hearing is submitted to EAC or SEAC along with final EIA report for EIA presentation. After the presentation to EAC, one grants environment clearance. The entire process takes

about 12 months' time. The **Figure 1** indicates the flow of environment clearance process.

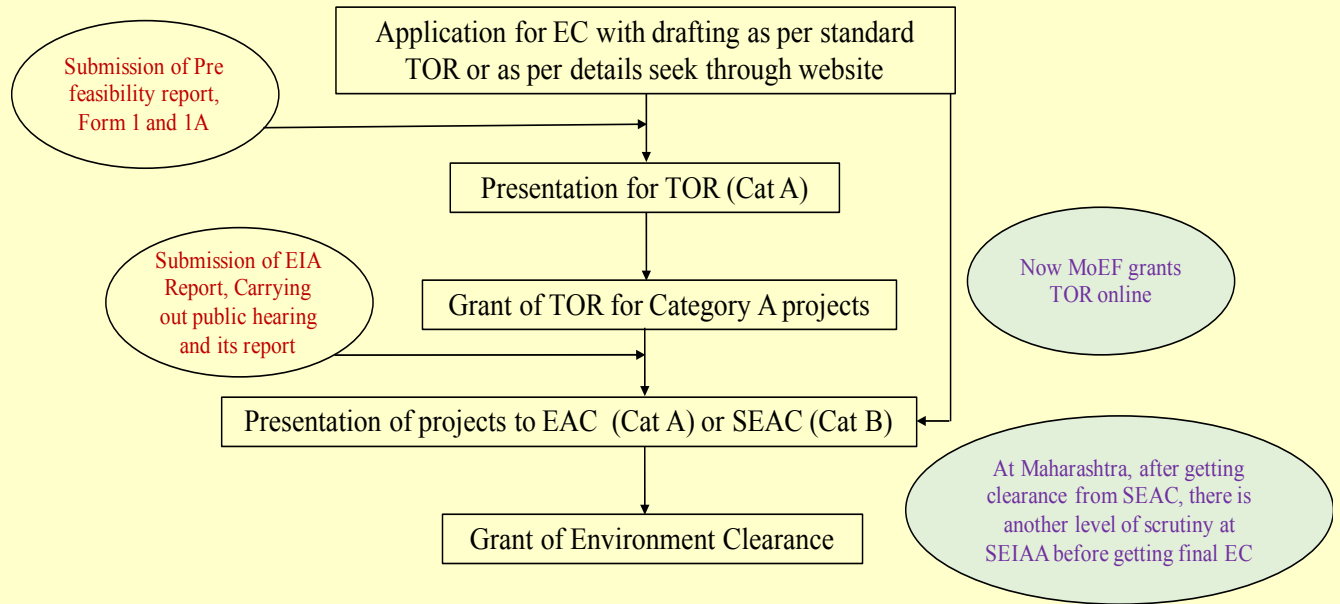


Figure 1: Process of Environment Clearance

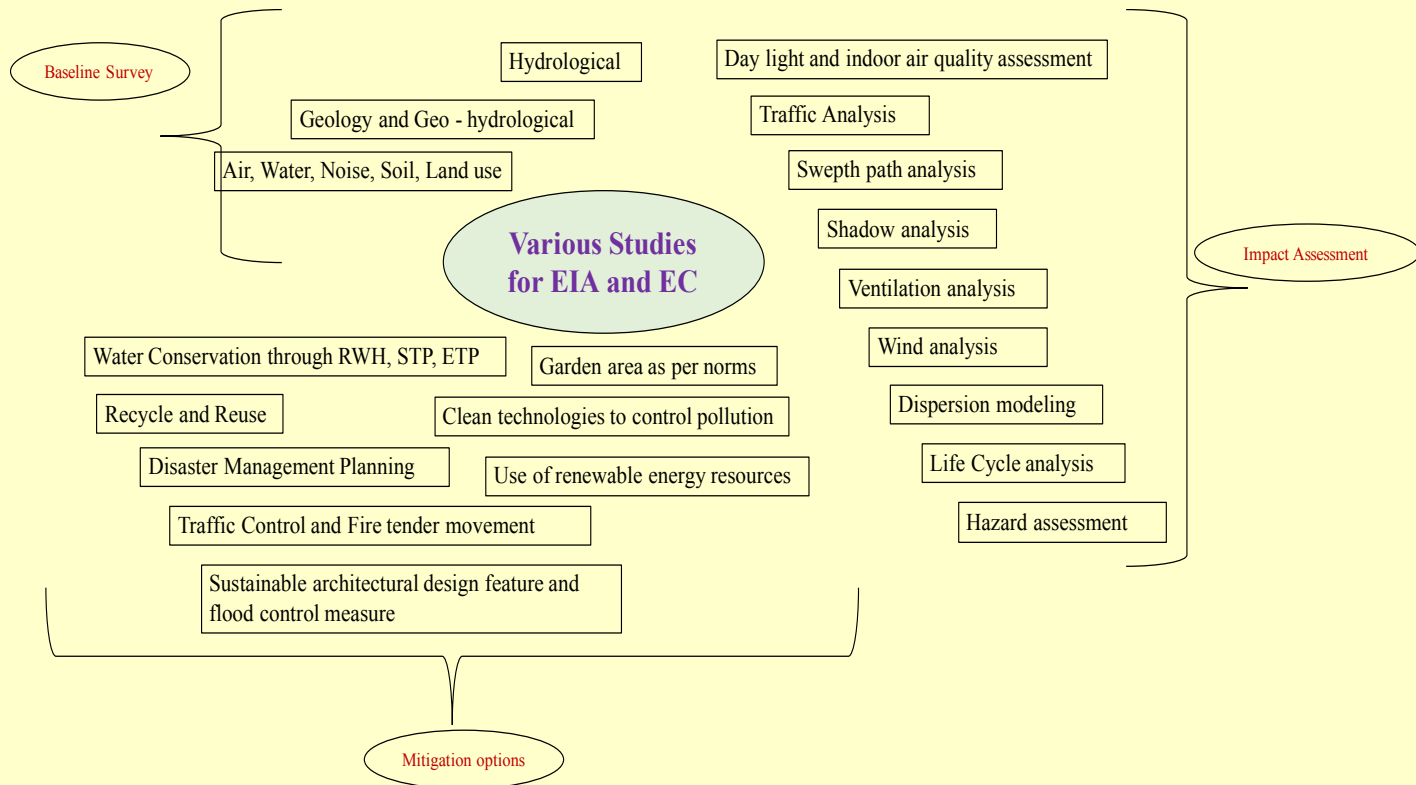


Figure 2: Various studies and feature of EIA/EC process

Conclusion and Recommendation

Environment clearance consist of various studies like air, water, noise, soil, vibration, hydrological, geo-hydrological, seismic, traffic analysis, energy, water harvesting, sanitary, shadow analysis, Disaster Management Plan (DMP), Swept path assessment, indoor air quality, daylight and ventilation assessment, hazard mapping, life cycle assessment, etc. (Figure 2).

Hence, this needs to become a decision making not only for the project proponent but also for the regulatory bodies. Impact assessment must be regulated and monitored for its mitigation measure. If proper mitigations are adopted, then it can lead to sustainable development and solution. Some of the mitigative options are:

- Control of air pollution and water pollution through use clean technologies
- Dust emissions can be controlled using dust suppressant. Though water sprinkling is carried out, still it is not enough to control dust emission. Hence, newer option can be found out
- Technologies opted for Sewage Treatment Plant (STP) and Effluent Treatment Plant (ETP) must be easier to handle with low maintenance. It is being observed, some of the high end STP which are being installed at residential projects, do not operate after formation of society. This is mainly due to their high maintenance cost, which society members are not able to bear and also continuous wire and tire. Hence, one
 - must focus on low cost and easy to operate STP and ETPs
 - Similarly, solid waste must be treated inside the project site (biodegradable waste). Again one must opt for easy to manage technologies for treatment of biodegradable waste
 - All other types of wastes like E-waste, Construction and Demolition Wastes, Non biodegradable waste, hazardous waste, etc. must be dealt as per the notification formulated by MoEF from time to time
 - Garden area must be maintained as per the prescribed norms
 - Hazard mapping and DMP must be formulated as per the project basis and it must be followed to prevent any big hazards (either man made or natural)
 - Proper indoor air quality and day light must be maintained as per the standard (NBC 2016) for the entire project. In order to achieve this, design and architectural feature need to be taken into account while designing these aspects
 - Traffic movement must be considered for inside as well as outside the project, this will ensure easy movement of vehicles and no congestion will be observed



Environment Policy and Law for Sustainable Development

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Technical Director

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Since the time of creation of first deliberate man-made fire during 12000 BC till pre-Industrial Revolution era in the Eighteenth Century, Earth did not face real challenge in the issue of environment protection. As the civilization progressed, so were the needs of the human race. Civilization brought about industrialization. Great inventions changed the world and brought comfort to our life style. These inventions have made a vast difference between the way of life as a human being and that of an animal. Industrialization has been rapid since the middle of the 19th century. The environmental effects of many inventions were far reaching. The development of industries has created enormous impact on the environment to such an extent that it has become a concern to the very existence of the civilization.

MAJOR REASONS: If we analyse different reasons for environmental pollution, we note that the following are the major ones:

- Air pollution due to various types of gaseous emissions and Suspended Particulate Materials (SPM).
- Water & soil pollution due to various types of effluents and disposal of other waste materials.
- Global warming due to various emissions, especially carbon dioxide, methane, nitrous oxide etc,
- Depletion of Ozone layer resulting in penetration of harmful UV rays on the Earth's surface.

Although all the above issues pose a challenge to the human and animal lives and all the living species on earth, however Global Warming is the most challenging

environmental issue in the world today. We are aware that despite all countries of the world are in agreement that immediate action plan is required to reduce the impact of the Global Warming on the planet Earth, still the largest polluting countries of the Earth's environment have not agreed on a common agenda on the action plan (reduce of Green House Gas Emission). Nevertheless, most countries of world have addressed these issues as collectively as possible to ensure that living on the Planet Earth becomes healthier and safer from the man – made environmental disasters.

Although environment policies have resulted in to laws for protection of environment, in reality in today's Industrial Era, development scores higher than protection of environment. Racing fast to achieve higher economic goal for the country or a part of it, often the environmental concerns are neglected. It is seldom realised that neglecting environmental concerns would badly affect the future generations to achieve higher degree of economic development

A serious impediment for arriving at a uniform environment policy across the Nations is the apprehension of losing out in economic front as well as dependence of the poor section of the population on wood for cooking their food which results in Green House Gas Emission. However, the paradox is, in predominantly cold weather countries both rich and the poor use wood for heating their homes. The issue is complex. Solution is also challenging. India had taken positive actions under the environment policy to popularise use of cooking gas instead of burning of wood among the mass.

Rank	Country	Waste Generation Rate [kg/ppd]	% of Waste that is Plastic	% Mismanaged Waste	Plastic Waste [MMT/yr]	% Mismanaged Plastic Waste	Marine Debris [MMT/yr]
1	China	1.10	11	76	8.82	27.7	1.32-3.53
2	Indonesia	0.52	11	83	3.22	10.1	0.48-1.29
3	Philippines	0.5	15	83	1.88	5.9	0.28-0.75
4	Vietnam	0.79	13	88	1.83	5.8	0.28-0.73
5	Sri Lanka	5.1	7	84	1.59	5.0	0.24-0.64
6	Thailand	1.2	12	75	1.03	3.2	0.15-0.41
7	Egypt	1.37	13	69	0.97	3.0	0.15-0.39
8	Malaysia	1.52	13	57	0.94	2.9	0.14-0.37
9	Nigeria	0.79	13	83	0.85	2.7	0.13-0.34
10	Bangladesh	0.43	8	89	0.79	2.5	0.12-0.31
11	South Africa	2.0	12	56	0.63	2.0	0.09-0.25
12	India	0.54	3	87	0.60	1.9	0.09-0.24
13	Algeria	1.2	12	60	0.52	1.6	0.08-0.21
14	Turkey	1.77	12	18	0.49	1.5	0.07-0.19
15	Pakistan	0.79	13	88	0.48	1.5	0.07-0.19
16	Brazil	1.03	16	11	0.47	1.5	0.07-0.19
17	Burma	0.44	17	89	0.46	1.4	0.07-0.18
18*	Morocco	1.46	5	68	0.31	1.0	0.05-0.12
19	North Korea	0.6	9	90	0.30	1.0	0.05-0.12
20	United States	2.58	13	2	0.28	0.9	0.04-0.11

Table: (Jambeck, J. R., et al. "Plastic Waste Inputs from Land into the Ocean." *Science*, vol. 347, no. 6223, 13 Feb. 2015, pp. 768-771, doi:10.1126/science.1260352). Waste estimates for 2010 for the top 20 countries ranked by mass of mismanaged plastic waste (in units of millions of metric tons per year). Interpretation of characters in the table: Mismanaged waste is the sum of inadequately managed waste plus 2% littering. Total mismanaged plastic waste is calculated for populations within 50 km of the coast in the 192 countries considered. ppd, person per day; MMT, million metric tons. If considered collectively, coastal European Union countries (23 total) would rank eighteenth on the list.

While overall environmental issues are wide in range, the focus mainly remains on man-made items and the effects of producing those on the environment in general. Due to interventions of respective authorities in various countries and the world community at large, producers have brought in modifications in the production processes so that abuse to the environment could be minimised to an acceptable level of tolerance. It could be claimed that this aspect of pollution has been largely contained due to the imposition of restrictions by the authorities.

However, modern world is facing the challenge of waste disposal after the use of the products. Unscientific disposal of waste is creating another challenge to the humankind. Indiscriminate littering cause environmental pollution of land and water streams, ultimately resulting in marine litter, causing safe living of the fish and other marine creatures.

Many developed countries have taken effective measures to control such occurrence by managing the waste generated

at the source itself and making arrangements for their scientific disposal without abusing the environment. Most Western European countries do not have any landfill; instead all the Municipal Solid Waste is either recycled or composted or the energy is recovered depending on the requirement and suitability.

For doing so, civic bodies require direct inputs, financial as well as technical, from the waste generators. Proper segregation of waste at the source, collection and transportation of the waste to specific areas and processing the same for disposal. EPR or Extended Producers' Responsibility is an important part of the responsibility for all the large users of all the products. This has become a law which has been implemented in many developed countries. Producers are required to pay for the waste management activities which are carried out by the civic bodies / other agencies. In absence of any financial commitment from the producers / user industry, the responsibility of collection and disposal of the specific waste would lie on the producer / user industry. For

example, Coca-Cola has to pay to a Centralised Waste Collection and Processing Organisation for handling any empty bottle of the brand from the consumer spot for its scientific disposal. The quantum of waste is Handler, it would be responsibility of Coca-Cola to collect its waste from the spot where it is being generated and to make arrangement for its re-use or other arrangements. This reference is based on the Green Dot System at Germany. This system has definitely given good results.

India too has made EPR as a law in its Waste Management Policy. However, proper implementation has not yet been done properly causing uncontrolled accumulation of MSW in landfills which are sources of environmental pollution.

One aspect of waste attracts attention of all concerned – The Plastics Waste. The UN had brought out a report on ‘Single Use Plastics’ terming certain types plastics products as the main reason of marine and

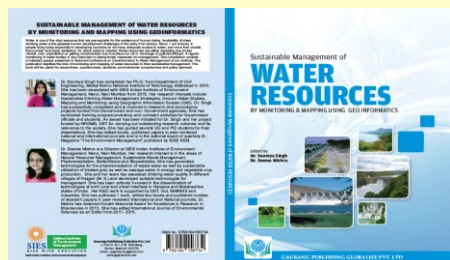
disclosed by the Company as per its sales plan / record in the area. If Coca-Cola decides not to pay this waste management fee to the designated Waste

land litters. Use of plastics as packaging materials has been threatened It is understood that if plastics waste is not managed, it will create a future challenge.

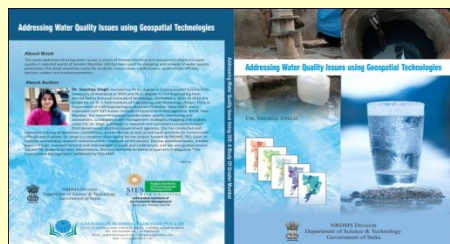
Interestingly, another UN Report on Plastics Waste Inputs from Land into Oceans revealed that India is among the top countries which send least quantity of mismanaged plastics waste in to the oceans. This is case where it is seen that although the systems are not in place, still informal sector can create an efficient work in the field of waste management.

Environment Policies need to stress on the importance of participation of general mass in achieving our goal of cleaner and safer environment.

BOOKS AND DOCUMENTARY RELEASED BY INSTITUTE DURING 2019- 2020



Singh, Saumya and Mishra, Seema, 2019. Sustainable Management of Water Resources by Monitoring and Mapping Using Geoinformatics, Published by: SIES- Indian Institute of Environment Management, Nerul, Navi Mumbai. ISBN- 978-81-941567-3-4, pp. 136.



Singh, Saumya, 2019. Addressing Water Quality Issues Using Geospatial Technologies, Published by: NRDMS Division, Department of Science and Technology, GoI. ISBN - NO. 978-81-941567-8-9.

A documentary on ‘Drinking Water Issues in Urban Slums of Greater Mumbai’ was Prepared under NRDMS, DST GoI sponsored R&D Project on Addressing Drinking Water Issues in Urban slums of Greater Mumbai by SIES Indian Institute of Environment Management.

INDUSTRIAL VISITS CONDUCTED FOR ACADEMIC COURSES



An industrial visit to Common Effluent Treatment Plant, Koperkhairane, Navi Mumbai was conducted on 19th October, 2019 for M. Sc. SDEM Part II and PGDSEM Courses.



M. Sc. SDEM students have visited IMD, Colaba, Mumbai on 3rd December, 2019



M. Sc. and PGDSEM students have visited MPCB, Regional Lab, Rabale, Navi Mumbai on 22nd November, 2019



An industrial visit of M. Sc. students was conducted on 18th December, 2019 to NOCIL India Ltd.



M. Sc. students have visited Adani Power Ltd., Dahanu (M. S.) on 14th November, 2019



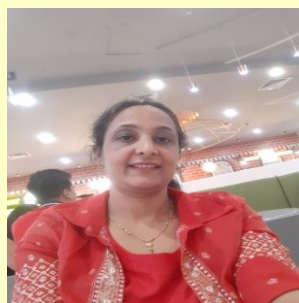
M. Sc. students have visited CRODA Chemicals, MIDC, Koperkhairane, Navi Mumbai on 9th October, 2019

SIES Indian Institute of Environment Management visited the IFAT India exhibition on 17th October, 2019 at Hall 1, Bombay Exhibition Centre, Mumbai

IFAT India focused on water treatment systems and services, water extraction, water desalination, sewage treatment services, sewers, water disposal solutions and services, water recycling techniques, sewage recycling techniques, air pollution control systems, energy from waste materials, environmental services and management, control and laboratory technologies and other related services and solutions. The faculty and students have visited different stalls and attended seminars to deeply understand the current development in the areas of environment management.



Mr. Ashok Yashwant T. M. of M. Sc. SDEM Part – II got First Position in Chess Competition held on 8th November, 2019 at University of Mumbai’s Garware Institute of Career Education and Development



Dr. Preetmaninder Kaur Chahal has joined the institute as a Scientist Fellow under Women Scientist Fellowship Scheme- B of Department of Science and Technology GoI in November, 2019. She will work on the R&D project entitled, ‘Climate Change Adaptation of Onion Crop’ up to 2022 under the mentorship of Dr. Seema Mishra. The total cost of the project is Rs. 35, 91,720/-.



Ms. Ankita Pawar has joined institute as a Assistant Professor in November, 2019. She has a two years of research experience in monitoring of Ganges river for nonputrifying properties at NEERI, Nagpur (M. S.).



Mr. Omkar Khade has joined the institute as a Lab Assistant in October, 2019. He is having an experience at Vadilal Industries, Gujarat.

Environment in News Headlines

Proposed EU-wide 'climate law' would set net-zero carbon target by 2050

The first EU-wide “climate law” would enshrine a legally binding target of reaching net-zero carbon by 2050, and Europe’s greenhouse gas emissions would be halved by 2030, under a set of proposals being discussed by the incoming European commission. Cars would be subject to new air pollution and all vehicles may be brought within the EU’s carbon emissions trading scheme. Three quarters of road transport would have to be moved to rail and inland waterways, and pricing would have to be adjusted to reflect the carbon output of different modes of transport.

The Guardian, 29th November, 2019

Government likely to extend forest clearances for over 40 mines in India

According to senior officials in the environment ministry, the extension of green clearances is necessary to avert major disruptions in the mining industry. Forest clearances for over 40 mines on which leases are set to expire on March 31, 2020, are likely to be extended for new lessees that will take over the mines. The environment ministry has drafted a policy of extending forest clearances for non-captive mines that have been already operating for the past 50 years. The policy is now awaiting approval from the ministry of law and justice.

Hindustan Times, 9th December 2019

Fresh Environmental Clearance Must For Expansion Beyond Limits Approved By Prior EC: Supreme Court of India

The Supreme Court has held that a fresh Environmental Clearance is necessary for the expansion of a project beyond the limits approved by the prior EC. In this case (Keystone Realtors Pvt. Ltd. v. Shri Anil V Tharthare & Ors), the project proponent had obtained clearance for the expansion of the project merely 'amending' the prior EC which was granted by the State Environment Impact Assessment Authority.

Live Law. in, 5th December, 2019

Marine pollution

The National Green Tribunal (NGT) on December 3, 2019 directed the Central Pollution Control Board (CPCB) to submit a comprehensive status report on coastal pollution within three months. The tribunal stated that it was necessary to ensure that coastal water at beaches remained suitable for bathing, survival of aquatic life, fishing and contact sports, in accordance with the directions of the Water Act, 1974.

Down to Earth, December, 2019

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Forthcoming Events

- Prakkathan
- Round Table Discussion on Zero Carbon Emission by 2050: Challenges and Opportunities
- Alumni Meet

Articles, photos etc. are invited for next issue (January - March, 2020) of the Newsletter on the theme 'Zero Carbon Emission by 2050: Challenges and Opportunities'