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INTERNATIONAL CENTRE FOR ENVIRONMENT AUDIT AND SUSTAINABLE DEVELOPMENT (ICED), JAIPUR

GREEN FILES

Newsletter on Environment Audit and Sustainable Development issues

International Centre for Environment Audit and Sustainable Development (iCED)

EDITORIAL

Green Files, a newsletter brought out by iCED every quarter, highlights contemporary environmental issues, environmental law, status of environment in Indian provinces, national – international events about environment and sustainable development, comments on national – international environmental audits, etc.

I am happy to present 19th issue of Green Files. As in the past this issue features glimpses on the recent environment news, persons and environment projects in focus, to make readers aware of emerging trends in innovation, initiatives and efforts of different environment organizations to protect the environment. Court judgements on environment issues as well as recent national and international audit reports on environment and sustainable development, International Audit activities carried out by SAIs world over are also included in this issue for knowledge sharing among the auditors.

Recent activities at iCED for Capacity Building in the area of environment audit and sustainable development inculuding Training of Trainers for Environmental Audit, Audit of Infrastructure Projects. Environmental Impacts and Sustainable Development also find a reflection in this issue.

Aiming to share professional experience and information to enrich environmental auditors' domain knowledge, from this volume onwards we intend to extend readership through relatively wider circulation of this newsletter. I am happy that this volume of Green Files coincides with the inauguration of 6th Environmental Auditing Seminar of ASOSAI WGEA hosted by the CAG of India at iCED.

Needless to say, comments and suggestions on content, presentation of our Newsletter as well as further potential inclusions are welcome. We look forward to your suggestions to make Green Files more useful and appealing. Contributions in any form within the broad scope of the newsletter are encouraged. These can be mailed to iced@cag.gov.in

With regards

Sunil Dadhe
Director General, iCED

Contents		
Editorial		1
Contents		2
I. International Union for Conservation of Nature (IUCN) WORLD CONGRESS held in 1-10th September 2016, Honolulu, USA	Bhoopendra Kumar	3
II. Salient Features of the E-waste (Management) Rules 2016)	Pavan Kumar Meena	5
III. Environmental Case Law	Vijendra Tanwar	8
IV. Environment news snapshots	Pavan Kumar Meena	10
V. iCED News	Vijendra Tanwar	13
VI. State in Focus: Uttarakhand	Virendra S Jakhar	14
VII. United States Government Accountability Office (GAO) Report on "ELECTRONIC WASTE" -actions needed to provide assurance that used federal Electronics are disposed of in an environmentally responsible manner	S. Prabhakar Rao	20
VIII. Performance Audit Working of Tiger Reserves, National Parks and Sanctuaries in Madhya Pradesh (Report No. 01 of 2015)	Vijendra Tanwar	24
IX. Challenges in and strategies for audit of environmental and sustainability issues in irrigation projects	Anish D. DAG P.A.G.(G&SSA), Hyderabad	26

I. International Union for Conservation of Nature (IUCN) WORLD CONGRESS held in 1-10th September 2016, Honolulu, USA

Introduction- IUCN

The International Union for the Conservation of Nature and Natural Resources (The World Conservation Union) was founded in 1948 and its headquarters located in Gland, Switzerland. IUCN's primary rationale was to strengthen the nature conservation movement by networking to link expert individuals and national organizations and to pool environmental information at the global level and helped to share the world's knowledge to its national members would work more effectively and nature would benefit. IUCN's focused on scientific knowledge and research. The Red Data Books of IUCN are the most reliable statements on endangered species.

IUCN has two Member categories — governmental and non-governmental — combined with the more than 15,000 members of the six IUCN Commissions, offer a powerful platform for knowledge generation, for informed evidence-based policy choices and for real results on the ground, though the Union's project work spread across 160 countries.

UCN's six Commissions, made up of a broad and active network of experts who are passionate about nature and its importance for human well-being, help assess the state of the world's natural resources. They contribute scientific, legal and policy advice used to drive conservation and sustainable development. These experts, working closely with IUCN Members and the IUCN Secretariat, play a fundamental and critical role in developing and implementing the IUCN Programme. The six commissions are:

Commission on Ecosystem Management (CEM)

Commission on Education and Communication (CEC)

Commission on Environmental, Economic and Social Policy (CEESP)

Species Survival Commission (SSC)

World Commission on Environmental Law (WCEL)

World Commission on Protected Areas (WCPA)

World Conservation Congress- IUCN

The IUCN World Conservation Congress is the world's largest and most important conservation event held every four years. It aims to improve how we manage our natural environment for human, social and economic development. Leaders from government, the public sector, non-governmental organizations, business, UN agencies and social organizations joined together to discuss, debate and decide solutions for the world's most pressing environment and development issues.

Formation of the IUCN Congress

The Congress has two main components:

First, the Forum is a hub of public debate bringing together people from all walks of life.

Second, the Members' Assembly is IUCN's highest decision-making body. A unique global environmental parliament involves governments and NGOs.

The latest International Union for Conservation of Nature (IUCN) World Conservation Congress 2016 was held from 1st to 10th September 2016 in Honolulu, USA.

The theme of the IUCN World Conservation Congress 2016 was 'Planet at the Crossroads' to reflect the serious choices and actions the world needs to make to reverse environmental declines and secure a healthy, liveable planet. The congress discussions are an opportunity to move to sustainability and harness nature-based solutions for conservation, which requires meeting the major global challenges of species loss, ecosystem decline and climate change with their profound impacts on human life and wellbeing.

The Paris Agreement, the UN Sustainable Development Goals, IUCN World Park Congress-Sydney, the Aichi Biodiversity Targets, the Earth Charter, IUCN- Honolulu Challenge on Invasive Alien Species and the World Conservation Congress provided an opportunity where different voices could strive to find common ground in a spirit of partnership and collaboration.

In the Hawai'i context, the Commitments highlight three critical issues for conservation:

1. Nexus between biological and cultural diversity, and how their conservation and sustainability requires a combination of traditional wisdom and modern knowledge;
2. Significance of the world's ocean for biodiversity conservation and sustainable livelihoods;
3. Threats to biodiversity from habitat loss, climate change, invasive alien species, unsustainable exploitation and pollution.

Hawai's Congress highlight two opportunities to achieve the necessary transformation. First, cultivating a culture of conservation, while respecting human rights and gender equity through linking spirituality, religion, culture and conservation and through engaging and empowering youth.

The second area of opportunity of a planet at the crossroads, involves the challenges of sustaining the global food supply and conserving nature; preserving the health of the world's oceans; ending wildlife trafficking; climate change; and engaging with the private sector.

Discussion during IUCN Congress for solutions to these challenges:

- Engaging with the world's rich faith and spiritual communities to gain deeper understanding of our connection with nature;
- Enabling youth's access to nature, and recognizing that youth has as much to teach as they have to learn;
- Strengthening governance systems that manage the food production system, and maintaining crop genetic diversity and local systems of production;
- Preserving and expanding marine protected areas, while linking diverse methods and tools to solve the multiple challenges facing oceans, including reducing plastic waste and addressing ocean acidification and warming;

- Addressing the needs of local people, while improving protection of wildlife populations through laws and improved enforcement, behavioural change to reduce demand for illegal wildlife products, and enhancing cooperation at all levels; and
- Strengthening nature-based solutions to climate change, and providing solutions that reduce emissions;
- Engaging with governments, civil societies, and the private sector through partnership approaches.

Source: http://www.iucn.org/content/hawaii-host-next-iucn-world-conservation-congress, http://2012congress.iucn.org/about/index.html, Highlights of the 2012 IUCN World Conservation Congress, http://greenlaw.blogs.law.pace.edu/2012/09/27/green-gets-gold-at-natures-olympics-a-report-on-the-iucn-world-conservation-congress-by-dean-emeritus-richard-ottinger/, Congress document WCC-2016-1.2/1, Draft Agenda of the 2016 (1 June 2016) IUCN World Conservation Congress, http://www.iisd.ca/download/pdf/sd/enbplus39num24e.pdf

- ***Bhoopendra Kumar***

II. Salient Features of the E-waste (Management) Rules 2016)

Electronic waste creates a global crisis due to environmental degradation. Like other parts of the world, India is also facing serious challenges due to growing generation of e-Waste, lack of environmental awareness among the public, consumers, producers and the social and economic aspects associated with it, effective role of policy makers and legislators to address these challenges. India is going through an exciting phase of development and economic transformation. Information Technology has given India formidable brand equity in the global market. Electronics industry in India, however, depends heavily on imports of electronic goods to meet its domestic demand. More than 35 per cent of electronic appliances imports in India are sourced from China. Electronic and appliances industry would reach to US $ 400 Billion by 2020. In order to absorb this growth, the country would generate enormous electronic waste. Though no inventory assessment was conducted by any Government agency, the Central Pollution Control Board (CPCB) earlier indicated that the country had 0.8 million MT of e-Waste in 2012 and would reach 1.6 million MT by 2014. Experts, however, believe that the volume would be significantly high if one considers usage of electronic in all the sectors including ICT, automotive, medicals, strategic, etc.

The Government of India notified E-waste (Management and Handling) Rules, 2011 under Section 6, 8 and 25 of the Environment (Protection) Act, 1986. Considering the evolution of the sector and increasing use of electronics and electrical equipment the rules were required to be changed. The Government of India has now notified revised E-waste (Management) Rules, 2016 which are an improvement over its previous version. The rules have been operationalised from 1st October 2016. The salient features of these new rules are mentioned below:

Application

These rules shall apply to every manufacturer, producer, consumer, bulk consumer, collection centers, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in schedule-I. The applicability of Rules to manufactures, dealers, refurbisher has been made explicit in new rules. The concept of Producer Responsibility Organization (PRO) is

included in new E-waste (Management) Rules-2016.

The rules are now also extended to the components, consumables, spares and parts to Electrical and Electronic Equipment (EEE) in addition to equipment as listed in schedule I. Compact Fluorescent lamp (CFL) and other mercury containing lamps are brought under the purview of new rules by its entry into Schedule I. The Bulk of E-waste comprises of components, consumables, spares and parts of EEE which were not getting addressed in previous rules entailing to the scope of their channelization to informal sector.

Responsibilities of various stakeholders:

1. **Manufactures** are responsible for collection e-waste generated during the manufacture of any electrical and electronic equipment and channelize it for recycling or disposal and seek authorization from SPCB.
2. **Dealers** are responsible for collection of the E-waste by providing the consumer a box, bin or a demarcated area to deposit E-waste or through take back system.
3. **Refurbishers** are responsible for channelizing the waste to authorized dismantler or recycler through its collection center and authorized refurbisher has to submit details of w-waste generated to the concerned SPCB on yearly basis. Majority of electronic items are reused by people after repairing them or by handing them down to family members, friends and acquaintances. Refurbishing usually generates a sizeable quantity of e-waste as a result of repair and assemblage of parts.
4. **Extended Producer Responsibility has been introduced under the new rules.** Single EPR Authorization for Producers is now being made CPCB's responsibility to ensure pan India implementation. Procedure for seeking the authorization and for effective implementation has now been elaborated with various kind of flexibilities provisions. Collection is now exclusively producer's responsibility, which can set up collection center or point or even can arrange by back mechanism for such collection. The rules provide for setting up of individual collection centers which were not necessitated as part of EPR authorization thus giving leeway to producers for not setting up such collection centers. The target based approach is adopted foe collection of waste under EPR. Need for separate EPR authorization from each state lead to significant delays and thus failure in implementation of EPR. There had been significant lack of initiatives from Producers for implementation of EPR and for capacity building and awareness initiatives, though mandated in the rules due to lack of elaborate procedure for the same in the rules which has now been elaborated stepwise. For implementation of EPR various non- mandatory options are provided under the rules. Option has been given for setting up of PRO, e-waste exchange, e-retailer, Deposit Refund Scheme as additional channel for implementation of EPR by Producers to ensure efficient channelization of e-waste. These are various non- mandatory options for ease of implementation of EPR. Deposit Refund Scheme has been introduced as an additional economic instrument wherein the producer charges an additional amount as a deposit at the time of sale of the electrical and electronic equipment and returns it to the consumer along with

interest when the end-of-life electrical and electronic equipment is returned.

5. The definition of Bulk Consumers has been expanded to cover large health facilities along with earlier defined institutional bulk consumers. All of them are now required to submit annual returns.

Responsibility of State Government: New rules make State Government responsible to ensure safety, health and skill development of the workers involved in the dismantling and recycling operations. The governments would now be responsible for providing space for e-waste dismantling and recycling, recognition and registration of workers engaged in this industry. The State Government is required to prepare integrated implementation plan of these rules and submit annual report to MoEFCC.

Reduction of Hazardous Substances (RoHS) during manufacturing stage: The procedure for implementation of ROHS has been elaborated and made explicit. Provision on Reduction of Hazardous Substances (RoHS) and related Schedule II has been revised in line with existing EU regulatory framework which forms the basis of the provision. In case the products not comply with the RoHS provision, provision has been introduced to withdraw or recall the product from market and take corrective measures to bring the product into compliance;

New rules are more focused on reduction of Hazardous substances used in manufacturing of electrical and electronic equipment.

Transportation of e-waste: The transportation of e-waste shall be carried out as per the manifest system whereby the transporter shall be required to carry a document (three copies) prepared by the sender so as to prevent leakage of e-waste to informal sector during transportation

Liability provision: Liability for damages caused to the environment or third party due to improper management of e-waste including provision for levying financial penalty for violation of provisions of the Rules has also been introduced.

Responsibility of Urban Local Bodies: Urban Local Bodies (Municipal Committee/ Council / Corporation) have been assigned the duty to collect and channelized the orphan products to authorized dismantler or recycler.

The growing economy of size of India which is also has string consumer base and thriving IT industry there was a need for elaborate rules for management of e-waste. The rules are addressing this requirement of the nation. The targets for collection of e-waste have been kept lower (30 per cent to begin with) in comparison to the international practice but it is something which can be decided over time. The experience of handling solid waste management in urban parts of India has not been a pleasant experience despite the existence of rules and elaborate procedures. The implementation of e-waste management has lower complexities as e-waste has economic value and handling would little more structured so it can be hoped that the compliance levels of these rules should be better.

The Parliamentary Committee on Subordinate Legislation in its 15th Report has expressed their serious concern over the handling of such an environmentally sensitive issue of e-Waste management and felt that the Government had done too little and too late to address such

a serious looming hazard. The Committee were of the considered view that merely notifying the Rules was not enough until or unless there was strong and effective implementation and monitoring mechanism coupled with the availability of the necessary infrastructural facilities for ensuring compliance of the Rules. The Committee, therefore, strongly recommended that the Government must evolve a robust mechanism and ensure creation of adequate infrastructural facilities in the country so that the Rules could be implemented in an effective, efficient manner and within the given time line. The Committee also felt that the management, handling and recycling of e-waste was a highly specialized field which required high level of technical knowledge, expertise and sufficiently skilled manpower. In this context, the Committee stated that the present setup of management of e-Waste under the Environment Protection Act, 1986 and the rules framed there under had failed to yield any tangible results. Moreover, the Central Pollution Control Board and the State Pollution Control Boards, which have been assigned a major role in implementation of e-waste handling rules, neither possess the skilled manpower nor the technical expertise on various aspects of e-waste. The Committee was of the view that in order to tackle the issue of e-waste handling and management in any effective and meaningful manner, the Government may consider bringing a separate legislation on e-waste instead of handling it under the Environment Protection Act. Such legislation may prescribe for establishment of a central authority /central public sector undertaking having experts from IT field and other technical domains possessing knowledge of e-waste disposal, management and recycling techniques and its own e-waste collection centre/ recycling plants with state-of-art technologies, in all major cities of the country.

The future legislative course on this important and contemporary environmental issue would be a space to watch for by the environmental auditors amongst other stakeholders.

- ***Pavan Kumar Meena***

III. Environmental Case Law

Outdoor air pollution has become the fifth largest killer in India after high blood pressure, indoor air pollution, tobacco smoking, and poor nutrition – says Global Burden of Disease (GBD) report. The report says that in 2010, about 620,000 premature deaths occurred in India from air pollution-related diseases. GBD has ranked air pollution as one of the top 10 killers in the world, and the sixth most dangerous killer in South Asia. Rapid urbanisation in India has increased air pollution in cities especially metros like Delhi to an alarming level. Weather in Delhi with large number of dry days without rainfall, fog, etc. aids in health hazards associated with air pollution for residents.

Recently, National Green Tribunal (NGT), Principal Bench, New Delhi has taken cognisance of adverse impact of deteriorating Ambient Air Quality in NCR, Delhi and particularly Delhi city. The original application 21 of 2014 (Vardhaman Kaushik Vs Union of India and others) regarding poor air quality in National Capital Territory of Delhi was filed by group of lawyers in Delhi viz. Adv. Vardhaman Kaushik, Adv. Sanjay Upadhyaya and Adv. Salik Shafique. NGT through its long list of landmark

orders has initiated action to clear up the capital's air. NGT through submissions (based on scientific studies and well supported data) made before it has issued various directions to administrative authorities to control three major causes of air pollution in Delhi viz. burning of plastic and other wastes including Agriculture or Horticulture waste in open; pollution resulting from construction and other allied activities emitting heavy dust contained in the air; and pollution resulting from vehicular traffic and industrial emission.

NGT, New Delhi while recognising various studies which established that diesel vehicles are major source of pollution and major cause for deteriorating ambient air quality mentioned that that many countries of the world such as Brazil, China, Sri Lanka, Denmark and Paris are in the process of doing away with diesel vehicles and are imposing very heavy taxes and levies on such vehicles. It directed all the registering authorities in National Capital Region (NCR) of the states of Haryana, U.P. and NCT, Delhi not to register any diesel vehicle which is more than 10 years old in its order dated 07 April 2015. Further, in its order dated 20 July 2016, NGT issued following directions:

1. Deregistration of diesel vehicles more than 10 years old in a phased manner, starting with diesel vehicles more than 15 years old and then vehicles which are 15 years to 10 years old.
2. All the vehicles which are deregistered in NCR would not be permitted to ply in NCR. However, the authorities will issue NOC for such vehicles to be registered in only those areas which have been identified by states where dispersion of the air is higher and vehicular density is least.
3. The diesel vehicles which are more than 15 years old and are BS-I or BS-II compliant shall be scraped and no NOC will be issued for transfer of the vehicles.
4. The vehicles which possess national permit, but are covered under the directions of the Tribunal will also not be permitted to ply in NCR. However, they would be permitted to by-pass Delhi and follow the routes directly connecting Haryana and Rajasthan or vice-versa.
5. NCT / Delhi to take immediate steps for improving and expanding the mass transportation system. NCT/ Delhi should introduce CNG buses or hybrid or electric buses which should preferably be run from destination to destination thus making the travel much easier for the commuters. The buses should be of different kinds, including providing buses to the metro stations.
6. The DDA was also directed to provide space to the DTC and the Police for the purpose of parking of Vehicles, including impounded vehicles. Chief Secretary, Delhi was directed to take up a meeting with the Commissioner of the Delhi, Vice-Chairmen of the DDA and all the Commissioners of the respective Municipal Corporations, NDMC and Delhi Cantonment Board within a week and report to the Tribunal. This would identify the land already given by DDA to the authorities for the purpose of parking to DTC or other authorities for parking of running buses as well as impounded vehicles, it would further identify the sites which are required to be provided for that purpose.
7. The heavy industries ministry was directed to file an affidavit on the status of electric and hybrid vehicles in the country, and on the proposed "Scrapping Policy" for old

vehicles to provide new incentives to the public to scrap their old vehicles.

NGT order has been called "arbitrary and impractical" by some of the stakeholders on following grounds:

1. Some of the institutional studies has indicated that there is a limited impact of cars and old diesel vehicles and banning them will have a negligible impact on air quality.
2. There has been no thought given over the disposal of vehicles, which may actually end up being registered in other cities.
3. There is also no clarity on how to dispose of the cars in the absence of an end-of-life policy." Any such thing should be implemented only when there is a scrappage policy laid down by the government, which will lead to a gradual phasing out of older vehicles."
4. Motor Vehicles Act does not have a provision to deregister vehicles. Centre has to make necessary amendments to Central Motor Vehicles Rules, 1989 (CMVR) to implement complete phasing of diesel vehicles. Order runs the risk of being challenged in court as owners of cars paid road tax for 15 years and any effort to move them off the roads before that tenure may attract legal action.
5. A alternative solution could have been making annual vehicle health checks mandatory and removing old vehicles step-wise and stage-wise instead of doing it at one go. An increase in Road tax for diesel vehicles could also have been a solution in short term, putting reasonable restraint on sale and purchase of diesel vehicles till the time a proper policy for disposal of pollution causing old diesel vehicles is brought up.
6. Concerns regarding continuation of social services as many ambulances, public buses and other state vehicles are under ambit of order.

There are mixed reactions on the NGT orders but it can be recognised that environmental issues are such that one cannot ignore beyond a point of time and some action has to be taken up otherwise the issue can have devastating effects on the lives of people. It is not an ideal situation where the judiciary has to take certain decisions through their authority for imparting justice but as has been throughout the history of environmental governance it can be a beginning of some positive steps. It can only be hoped that from this interaction between the executive and judiciary some positive things like new policies, laws and or amendments to them would come out which would help the nation / society resolve the problems on a long term basis with material impacts on the lives of human beings. It remains to be seen as how the situation of air pollution in NCR improves as rest of the country also watches the outcome as it would be there turn to face similar situation sometime in future. It would be a great learning for the nation if the issue of air pollution in metros like NCR is resolved in a sustainable manner.

- ***Vijendra Tanwar***

IV. Environment News and Snapshots

- **Highway through the Mowgli Land gets 186 crore to take care of wildlife**

The National Highways Authority of India has committed Rs. 186 for the cause of wildlife conservation in its road project of widening of

the Madhya Pradesh/Maharashtra border - Mansar section of the existing NH-7 which cuts across the tiger corridor in the state of Maharashtra. The wildlife mitigation measures would take care of any possible adverse impact on the tiger population in the Pench – Kanha Tiger Corridor. As per the recommendations of the Wildlife Institute of India and the National Tiger Conservation Authority, NHAI is providing elaborate mitigation measures on this road stretch. The measures include three elevated sections of 750m, 750m and 300m length, so that wildlife can move across the highway alignment following their natural paths. Besides these, 6 other wildlife crossings of different dimensions are also being provided.

- **NHAI to spend Rs. 58 Crore to mitigate impacts on Wildlife in Karnala Bird Sanctuary for widening of part of Panvel – Indapur section of NH-17**

NHAI has also approved Rs. 58.16 Crore to mitigate impacts on Wildlife in Karnala Bird Sanctuary (KBS) for widening of part of Panvel – Indapur section of NH-17. The highway stretch passes for about 1.5 km length within the Karnala Bird Sanctuary under Thane wildlife division of West Mumbai Wildlife Circle. The sanctuary is particularly rich in climbers and as many as 11 species are recorded from KBS. KBS is particularly known for its rich avifauna and is home to over 146 species of resident and 37 species of migratory birds that visit during winter. The major mitigation measures being adopted by NHAI, as per the recommendations of the Wildlife Institute of India, include four wildlife passages (each 30 m wide and 3.5 m high) in the 1.5 km sanctuary stretch. Besides, seven number of box culverts (3m wide and 3m high) are also being provided. As there are no large animals in the KBS, box culverts may also create permeability for wildlife across habitat patches. NHAI approval also includes other wildlife management measures like retaining wall, fencing, signages, watch towers, provision of water for wildlife. An additional amount of Rs 15 lakh shall also be deposited in the fund of KBS for awareness raising among people through developing the nature interpretation centre.

- **Khangchendzonga National Park (KNP), Sikkim Inscribed as India's First 'Mixed' Site on UNESCO World Heritage List**

Khangchendzonga National Park (KNP), Sikkim has been inscribed as India's first "Mixed World Heritage Site" on UNESCO World Heritage List, by fulfilling the nomination criteria under both natural and cultural heritage. The KNP exhibits one of the widest altitudinal ranges of any protected area worldwide. The Park has an extraordinary vertical sweep of over 7 kilometres (1,220m to 8,586m) within an area of only 178,400 Ha and comprises a unique diversity of lowlands, steep-sided valleys and spectacular snow-clad mountains including the world's third highest peak, Mt. Khangchendzonga.. The KNP is located within a mountain range of global biodiversity conservation significance and covers 25 per cent of the State of Sikkim, acknowledged as one of India's most significant biodiversity concentrations. The KNP is home to a significant number of endemic, rare and threatened plant and animal species and has one of the highest number of plant and mammal species recorded in the Central / High Asian Mountains.

- **Study on Polluted Rivers**

Pollution abatement of rivers is a continuous and ongoing process. It is the responsibility of the State Governments/ concerned local bodies to set up proper facilities for collection, transportation and treatment of sewage being generated and ensure that untreated sewage does not fall into the rivers thereby polluting

them. The Ministry of Environment, Forest and Climate Change, has been supplementing the efforts of the State Governments in abatement of pollution in identified stretches of various rivers under National River Conservation Plan (NRCP) and NGRBA (National Ganga River Basin Authority) programmes. The programmes of NRCP and NGRBA (till 31/07/2014) have covered polluted stretches of 43 rivers in 200 towns spread over 21 States at a sanctioned cost of Rs. 12202.59 crore so far. Sewage treatment capacity of 5169 million litres per day (mld) has been created so far under these two programmes.

- **Steps to Tackle Banned Pesticides**

The Government registers pesticides after a detailed evaluation of efficacy of the product and safety to human, animal and environmental health. Technical reviews are carried out from time to time to assess the safety of pesticides. An expert committee was constituted under Dr. Anupam Verma, Former Professor, Indian Agriculture Research Institute (IARI), to carry out technical review of 66 pesticides that are banned, restricted, withdrawn in one or more countries but continued to be registered in India. The Expert Committee, inter alia, recommended 13 pesticides to be banned, 27 pesticides to be reviewed in 2018 after completion of certain technical studies and 6 pesticides to be phased out by 2020. The Committee further recommended continuation of ban on 1 pesticide and did not offer any assessment of a pesticide which is currently sub judice. The Verma Committte recommended continued use of 18 pesticides.

- **Energy and Water Conservation Measures at Airports**

AAI is following GRIHA (Green Rating for Integrated Habitat Assessment) system for sustainable and environment friendly design. All the new buildings are constructed as per the ECBC (Energy Conservation Building Code) norms and obtain 4 star GRIHA rating. New Terminal Building at Chandigarh Airport has already obtained 4 star GRIHA rating.

Airports Authority of India (AAI) has taken measures to generate solar energy for airports. AAI has signed MoU with SECI and completed 6.8 MWp roof top solar projects at 16 different airports/ units across India. AAI further awarded another 2.9 MWp solar roof top plants & 19.8 MWp solar ground mounted works at 14 airports. Energy audit has been conducted at 42 airports in the year 2015-16 and 14 more airports are being taken up for energy audit in the year 2016-17. 15 airports were identified and taken up for replacement of conventional lights with energy efficient LED lights during the year 2015-16 and water conservation measures have been taken at 37 airports.

- **Master Plan for Making Chandigarh Model Solar City Prepared**

Government of India has prepared a master plan for making Chandigarh a Model Solar City under the 'Development of Solar Cities' programme of Ministry of New and Renewable Energy . The UT Administration, Chandigarh has empanelled 48 Solar Power Aggregators from whom any resident of Chandigarh can install Rooftop Solar Power Plant and can avail 30 per cent subsidy. Solar rooftop power plants of aggregate 7.70 MWp capacity are installed on 145 Government buildings till May, 2016..

- **Rs 142 Crore allocated to for National Biogas and Manure Management Programme**

Ministry of New and Renewable Energy (MNRE) is implementing the National Biogas and Manure Management Programme (NBMMP) for setting up of family type biogas plants in rural and semi-urban areas of the

country. A target of 1,00,000 biogas plants has been fixed for the current year. The family type biogas plants generate clean gaseous fuel particularly for cooking and meeting lighting needs and replaces use of fuel wood, avoid cutting of trees thereby reducing pressure on forests. Biogas plants help in reducing emission of Green House Gases (GHGs). A budget allocation of Rs. 142.00 crore has been provided for the BiogasProgramme for the current year, 2016-17.

- **Electricity to Railway Stations by Solar Energy**

In order to reduce dependence on fossil fuels, Ministry of Railways has planned to harness 1000 MW of solar power through developer mode by putting up solar plants on Railway buildings / stations and through land based plants across the country. The Ministry of New and Renewable Energy (MNRE) has signed a Memorandum of Understanding (MoU) with Ministry of Railways for cooperation in the areas of renewable energy. MNRE has sanctioned / approved subsidy / incentives for aggregate 500 MWp capacity to Ministry of Railways with as estimated Central Financial Assistance of Rs. 600 Crore for Grid connected solar rooftop systems. MNRE has not made any State-wise allocation under the 500 MW project sanctioned to Indian Railways.

- **NMCG and IOC sign MOU for industrial use of treated water**

A foundation was laid for construction of 20 MLD Sewage Treatment Plant in Vrindavan to be built at a cost of Rs. 40 crore. The treated water would be used for industrial purpose at Mathura refinery through a pipeline of 9 Km. A MoU was also signed to this effect between National Mission for Clean Ganga (NMCG) and Indian Oil Corporation (IOC). The government expects substantial change in the complexion of Yamuna in Mathura-Vrindavan stretch by the year 2018. The government has planned to use pressure technology in irrigation and save about 60 percent water of Ganga and Yamuna which will help to maintain good flow of water in these rivers.

Source http://pib.nic.in/newsite

- ***Pavan Kumar Meena***

V. iCED News

During the quarter July to September, 2016,

Participant's on Study Trip to Barefoot College, Tilonia

iCED organized National Training Programme on Environment Audit from 11th to 15th July, 2016. This programme holds an important place in capacity building of officers in the department on environment audit and sustainable development issues. It aims at capacity building of trainers in the department who could further provide training to officers in the department on environment and sustainable development issues in RTIs and RTCs. As part of the training programme a study trip to Barefoot College, Tilonia, Rajasthan was organised. The Barefoot College connects rural communities to solutions related to solar power, water, education, professions and advocacy to help communities and individuals take control of their lives and the wellbeing of their communities. Solutions adopted by Barefoot are based on principles of Mahatma Gandhi viz. equality, collective decision making, decentralization, self-reliance and austerity as core values, which can offer a roadmap for Sustainable Development Goals (SDGs). Participants

Participant's learning about Harnessing Green Energy for Sustainable Development

witnessed successful models for sustainable development at Barefoot using village wisdom, village – based solutions, appropriate technology and involve women.

iCED also organized a specially designed National Training Programme on "Introduction to Environment Audit and Sustainable Development issues" from 25th to 29th July, 2016 for PAsG / DGs / AsG / PDs heading field audit offices. This training program aims to sensitize heads of field audit offices conducting audits on environmental and sustainable issues. Keeping in view, senior officers of the department as participants, faculties/ experts were invited with immense knowledge and experience in the field. Ms. Sunita Narain known environmentalist and present Director General, Centre for Science

Dissussion on topic "New global Developments in Sustainable Development, Climate Change and role of public audit"
From right 1. Mr. Rakesh Jain, Dy. CAG 2. Mr. Sunil Dadhe, DG iCED 3. Mr. J.R Inamdar, Director iCED

and Environment was invited as guest speaker for the training programme, who shared her views on the topic "Challenge of air pollution in economic terms" with participants. The importance of the training programme can be judged from the fact that Shri Rakesh Jain, Dy. Comptroller & Auditor General (RC & LB) also delivered session on the topic "New global Developments in Sustainable Development, Climate Change and role of public audit" which not only helped participants in enriching their knowledge of the subject but also made them aware of recent global developments on Sustainable Development Goals to be achieved by 2030.

iCED also conducted following NTPs during the quarter:

i. UN Audit Training Programme on UMOJA ERP from 01st to 05th August, 2016;
ii. NTP on Audit of Infrastructure projects from 01st to 05th August, 2016;
iii. NTP on Data Analytics from 29th August to 02nd September, 2016;
iv. UN Audit Training Programme from 19th to 23rd September, 2016;
v. NTP on Audit of Waste and Water issues from 19th to 23rd September, 2016; and
vi. NTP on Audit of Environmental Regulatory Authorities and bodies in the states from 26th to 30th September, 2016.

- ***Vijendra Tanwar***

VI. State in Focus: Uttarakhand

Uttarakhand was carved out of UP on 9th November 2000 with 13 Districts as 27th state of Republic of India. The geographical area of the state is 53483 sq. km and the terrain and topography of the state is largely hilly with large areas under snow cover and steep slopes. It is geopolitically also very sensitive state due to its international boundaries in

North (Nepal & Tibet). It forms North-Western boundary with Himachal Pradesh, North and North-Eastern boundary with Tibet, Eastern with Nepal and Southern with plains of UP. Whereas, the Southern boundary is artificial, remaining namely Northern, Western and the Eastern boundaries are natural with Tons and Yamuna rivers in West, Kali in the East and the Indo-Tibetan watershed in the North.

Major portion of the state is mountainous and these mountains (Himalayas) are one of the youngest mountain systems of the world (40 million years in age compared to peninsular mountains of 1500-2500 million years old) and hence ecologically very fragile and relatively much more susceptible to earthquakes and landslides. There are four major river systems viz. Ganga, Yamuna, Ramganga & Sharda originating from the state along with their tributaries are major source of water for drinking, irrigation and hydropower. The major wealth of the state is its forests with very rich biodiversity. Therefore, any let up in land management, of which forest management is the core, will have a telling effect on state's downstream with regard to water supply, soil erosion and consequent floods and impoverishment of agricultural land.

The state has 13 districts as administrative units with 78 Tehsils and 95 community development blocks .The human population of the State is 101.17 lacs (2011) compared to 25.18 lacs in 1951 and that of livestock is 49.4 lacs in 2003 as compared to 41.68 lacs (1993) and 38.692 in 1972. The human and livestock population is largely dependent on forests due to Agrarian economy and age old pastoralism leading to heavy pressure on forests and consequent degradation of ecology and environment of the area.

The state is represented by biographic zone 2B Western Himalaya and 7B Shiwaliks consisting of Kumaon and Garhwal two regions. Total geographical area of the state (53,483 sq.km) is 1.6 % of country's geographical area, out of which 46,035 sq.km is hilly. The state has thus varied terrain, major portion of which is mountainous with unique ecological diversity consisting of high alpine areas to the Sub-tropical and Tropical regions.

Physiographically, the state can be divided into three zones namely, the Himalaya, The Shiwalik and the Tarai Region. The state has a temperate climate except in plain areas where the climate is tropical. The average annual rainfall is 1550 mm.

There are Four major river systems viz. Ganga, Yamuna, Ramganga & Sharda originating from the state along with their tributaries which are major source of water for drinking, irrigation and hydropower. The major wealth of the state is its forests with very rich biodiversity. The state ranks sixth among the other states in terms of percentage of recorded forest area.

Source: http://forest.uk.gov.in/pages/view/64-about- uttarakhand

(1) Environment Scenario

(a) Forests

As per Government of India's Forest Survey Report 2015, total recorded forest area in the state is 38000 sq. km., of which 26547 sq. km. is reserved forest, 9885 sq. km. is protected forest and 1568 sq. km. is unclassed forest, thus constituting 71.05% of the geographical area of the state and 4.97% of India's forest area.

As per Champion & Seth Classification System, the state has 37 forest types which belong to 8 forest type groups viz. Tropical Moist

Deciduous, Tropical Dry Deciduous, Subtropical Pine, Himalayan Moist Temperate, Himalayan Dry Temperate, Sub Alpine Forest, Moist Alpine Scrub and Dry Alpine Scrub.

Although the State is well endowed with biological resources, the past decades have seen an increase in pressure on the state's natural ecosystems. The entire Siwalik ecosystem of Uttarakhand has been virtually degraded of its forest cover, and forested landscape has been pushed to the Upper reaches of the State. The main reason for decrease in forest cover is rotational fellings, diversion of forest lands for developmental activities.

Source: http://fsi.nic.in/isfr-2015/isfr-2015-forest-and-tree-resources-in-states-and-union-territories.pdf , http://fsi.nic.in/sfr2009/uttarakhand.pdf, http://forest.uk.gov.in/pages/view/64-about-uttarakhand)

(b) Biodiversity

Uttarakhand is renowned for its unique bio-diversity. Due to geographic and climatic diversity in different areas of the state different forest types are found spanning from the Himalayas to the plains of the Terai. Due to biodiversity present in state 12 percent of total geographical area is protected areas which includes 6 National Park and 7 Wildlife Sanctuary and 4 Conservation Reserve. Uttarakhand is home to rare species of plants and animals, many of which are protected by sanctuaries and reserves. National parks in Uttarakhand include the Jim Corbett National Park (first national park of India) at Ramnagar in Nainital District, and Valley of Flowers National Park and Nanda Devi National Park in Chamoli District, which together are a UNESCO World Heritage Site. A number of plant species in the valley are internationally threatened, including several that have not been recorded from elsewhere in Uttarakhand. Rajaji National Park in Haridwar Districtand Govind Pashu Vihar National Park and Sanctuary and Gangotri National Park in Uttarkashi District are some other protected areas in the state.

According to scientific studies in the state 102 mammals, 600 of birds, 19 amphibians, 70 reptiles and 124 species of fish are found. Amongst above mentioned species there are globally endangered species which consists of tiger (Panthera tigers), Asian elephant (Elephus maximus), Guldar (Panthera pardus), Musk deer (Moschus chrysogaster), Snow leopard (Panthera uncial), Monal (Lophophorus impejanus) etc .

Source: http://forest.uk.gov.in/pages/display/80-protected-area-network

(c) Wetlands

Wetlands are one of the crucial natural resources. Wetlands are areas of land that are either temporarily or permanently covered by water. This means that a wetland is neither truly aquatic nor terrestrial; it is possible that wetlands can be both at the same time depending on seasonal variability. Thus, wetlands exhibit enormous diversity according to their genesis, geographical location, water regime and chemistry, dominant plants and soil or sediment characteristics. In Uttarakhand, 994 wetlands are mapped, including 816 small wetlands (<2.25 ha area). The total area under the wetlands is 103882 hectare, which is 1.92 per cent of the total geographic area of the state. River/stream is the most dominant one with 77.14 per cent share of wetlands (81033 ha). Reservoirs/Barrages are the second largest wetland category.

Total 10 Reservoirs/Barrages are mapped with 20319 ha area, contributing 19.56 per cent of wetland area of the state. High altitude

wetlands, mainly lakes are of specific feature of the state. Total 29 such wetlands are mapped which lie above 3000 m altitude. However, there are numerous small (<2.25 ha) high altitude wetlands in the state which are mapped as point features. The other wetland types are: Lakes/ponds (2081 ha), Tank/pond and Waterlogged. The open water area of these wetlands ranges from 54221 ha during post-monsoon season and 46244 ha in pre-monsoon season. Most of the wetlands are oligotrophic in nature.

Source:http://wetland.u-sac.in/uttar_wetland.html

(d) Municipal Solid Waste management

Solid Waste Management is one of the essential obligatory functions of the Urban Local Bodies in India. This service is falling too short of the desired level of efficiency and satisfaction resulting in problems of health, sanitation and environmental degradation. Most urban areas in the country are plagued by acute problems related to solid waste. Due to lack of serious efforts by town / city authorities, garbage and its management has become a tenacious problem and this notwithstanding the fact that the largest part of municipal expenditure is allotted to it.

Uttarakhand State's which is having combined rural and urban population over a crore have its municipal solid waste management system in a state of disarray. State is generating approx.3000metric tons of municipal solid waste every day of which only 40-50% is only being managed and disposed of through unscientific traditional means.

Practically all municipal waste is either burned, dumped or buried illicitly on vacant land throughout the urban local bodies of the state, causing significant environmental damage and threatening human health. Apart from the MSW there are other wastes like – hazardous, industrial and medical wastes whose scientific management are either inadequate or not as per the prescribed norms. Uttarakhand's 7 municipal waste generation Centres are estimated to accelerate to approx. 9500 tons per day by 2040, resulting in an estimated total of 9.0 million tons of municipal waste generated during 2014-41, thus solutions are needed urgently.

SWM Practices and Key Constraints are summarised below:

- Average current Waste Per Capita MSW Generation: 500gms/day
- Average ULB's Current Municipal Solid Waste Generation (tons / day): 1400
- Current daily lifting and dumping of MSW at dumpsites is approx. 50%
- Suitable Land for developing Landfill site is almost 85% short of its requirement.
- The awareness level among the ULB officials and public about the waste management is also not adequate.
- Lack of continuous funding to ULBs for sustainable SWM.
- The staff, tools and infrastructures that are required in compliance with the MSW rules at ULB level are inadequate, need urgent attention
- Lack of inter-departmental coordination, makes it even more difficult to identify a suitable land and meet legal compliances Lack of waste management infrastructure for other wastes are also a threat, which is getting mixed with municipal waste and is getting diverted to dumpsite
- Lack of transparency, expertise and inefficiency in handling and disposal of solid wastes.

Source: http://www.indiaenvironmentportal.org.in/files/file/draft%20urban%20municipal%20waste%20management%20of%20uttarakhand.pdf

Biomedical Waste Management

Environment Protection and Pollution Control Board Government of Uttarakhand enforces the Bio Medical Waste (Management and Handling) Rules, 1996 / 2000. As per the provision of the rules it is mandatory for all HCEs to treat BMWs generated by them either on their own or through some authorized Common BMW Treatment Facility (CBWTF). There are two CBWTFs in the state. According to a CPCB report, in 2009, against 1872 kg/day (2009) of biomedical waste generated, 740 kg/day was properly treated. There were approximately 589 health care facilities in the state with 10096 beds.

Source: http://www.cpcb.nic.in/wast/bioimedicalwast/StatusBioMedicalWaste2009.pdf

(e) Water issues

Uttarakhand, though dominantly rural, is fast urbanizing, particularly in districts like Dehradun, Nainital, Haridwar, and Udham Singh Nagar. This is putting tremendous pressure on water availability, sanitation, and degeneration of land due to construction of new houses and avenues. In Dehradun, which is the interim capital of Uttarakhand, the problems of depleting forest, shrinking agricultural land, and increasing vehicles are adding new dimensions to the environmental degradation. It is projected that by 2026 the share of urban population is likely to rise to 37.3 percent, making Uttarakhand one of the seven most urbanized states in the country. This means Uttarakhand will be more urbanized than states like West Bengal, Andhra Pradesh, and Kerala.

According to Bureau of Indian Standard, at least 70-100 litre per head per day water is required for domestic needs in urban communities without flushing requirement . The availability of fresh drinking water in ample quantity is an important criterion for the selection of place for settlement purposes in the hilly terrain. However, there is also deficit of water in developed cities like Dehradun, Haridwar, Rudrapur and Kashipur due to huge number of settlements. During rainy season, the fresh water of glacial fed major rivers of the state is not suitable for human consumption due to the presence of excessive suspended and dissolved solids.

The availability of fresh and pure water quality has become a serious issue not only in urban areas but in rural areas of the state besides this, hilly as well as plain area of the state also facing with the problem of standard water quality.

In general, the state has abundant water of good quality except geologically hard rocks at some places. However, more proper management of natural water resources is required to conserve the resources as well as for rainwater also. Now it has become necessary to ensure the participation of local people in planning preparation, management and operation of water resources. Besides, different organizations either govt. or non govt. sector should work in collaboration to preserve the nectar of this planet earth for future generations and for the development of the state in sustainable manner.

Source: http://populationfoundation.in/wp-content/uploads/2015/09/State-Series-Uttarakhand-2012.pdf , http://pubs.sciepub.com/ajwr/4/1/2/

(f) Ground water issues

The predominantly hilly State of Uttarakhand has a varied hydrogeological setup and can be divided broadly into two distinct hydrogeological regimes viz. the Gangetic

alluvial plain and the Himalayan mountain belt. The former is covered with a vast expanse of alluvium and unconsolidated sedimentary material of varying size fractions (ranging from boulder to clay) and is a promising zone for ground water development. The latter zone, being predominantly hilly, offers much less potential for large scale development of ground water. Ground water in the hilly region occurs mostly in fissures/fractures and emerges as springs. The springs are amenable to small scale development of ground water resources in the State. The yield of tube wells in Siwalik formation ranges from 50.4 m3/hr to 79.2 m3/hr, in Bhabar formations yield is upto 332.4 m3/hr. In Tarai belt yield of tubewell ranges 36m3/hr to 144 m3/hr and in Indo-Gangetic plain yield varies from 90 m3/hr to 198 m3/hr. Ground water of the different parts of districts of Dehradun, Hardwar and Udhamsinghnagar is contaminated with nitrate.

Source: http://cgwb.gov.in/gw_profiles/Uttarakhand.htm

(h) Air Pollution

Growing air pollution has emerged as a serious concern in the cities, with vehicular emission and dust contributing a major share of the deteriorating air quality. Central Pollution Control Board initiated National Ambient Air Quality Monitoring (NAAQM) programme in the year 1984 with only seven monitoring stations in the country. Further, it has been strengthened by increasing the number of monitoring stations with two monitoring station at Dehradun in HP.

In a study carried out in four location of Dehradun and Haridwar in 2010, It has been observed that the concentrations of the pollutants are high in winter in comparison to the summer or the monsoon seasons. It was noticed that the SPM and PM10 levels at three sites exceeded the prescribed limits as stipulated by Central Pollution Control Board. Apart from this the SO2 and NOx levels in residential, industrial and commercial areas remain under prescribed limits of CPCB.

Source: http://cpcb.nic.in/Non_attainment.php, http://www.cpcb.nic.in/Network.php, http://www.jofamericanscience.org/journals/am-sci/am0609/65_3291am0609_565_574.pdf

(2) Laws and Polices

The Uttarakhand Environment Protection and Pollution Control Board (UEPPCB) is a statutory authority entrusted to implement environmental laws & rules within the jurisdiction of the State of Uttarakhand.

(3) Environment Sustainability Index (ESI) 2011

The index aggregates indicators that reflect:

- Anthropogenic activities of production, consumption and distribution that exert pressures on the environment,
- State of air quality, water quality, land use & agriculture, forests & biodiversity;
- Measures of the impact of the current state of the environment and resource extraction on ecosystem and human health; and
- Policy responses and society's efforts to preserve the environment.
- ESI is constructed as a composite index from 41 key environmental indicators selected using the Driving Force-Pressure-State-Impact-Response (DPSIR) framework. These indicators capture the driving forces that extract from and pollute the environment (Driving Force); depletion and pollution (Pressure); present condition of the environment (State), impact on the ecosystem and human health (Impact) and

policy and societal efforts to reduce impacts and protect the environment (Response)

- ESI is designed to compare Indian States with their peers and does not indicate an absolute level of achievement. Although there are no clear normative benchmarks or thresholds for 'good' performance on many of the indicators, the sources on each indicator can be ordered from 'better' to 'worse'. The overall ESI score provide a quick snapshot of State performance, the sub-indices are far more indicative and far more informative, highlighting areas for State intervention.
- Based on the aggregate ESI, states are categorized into five groups where in Uttarakhnad falls in the group with 60-80 percentile. This means State has potential to maintain its environment.

- ***Virendra S Jakhar***

VII. United States Government Accountability Office (GAO) Report on ELECTRONIC WASTE :Actions Needed to Provide Assurance That Used Federal Electronics are Disposed of in an Environmentally Responsible Manner

Back Ground

The Environmental Protection Agency (EPA) of USA estimated that across the federal government 10,000 computers are discarded each week. Federal agencies have stipulated several options for disposing of them, however, they are not required to track the ultimate destination of their donated or recycled used electronic products. Instead, agency officials generally consider this to be the recipient organization's responsibility. Consequently, federal agencies often have little assurance that their used electronic equipment are ultimately disposed of in an environmentally responsible manner. The federal government's approach to ensuring environmentally responsible management of used electronics has relied heavily on EPA. The EPA's Federal Electronics Challenge (FEC) initiative, which, among other things, encourages federal facilities and agencies to manage used electronics in an environmentally safe way.

The National Strategy for Electronics Stewardship aimed to Improve the Federal Government's Management of Used Electronics and in July 2011, an interagency task force, co-chaired by CEQ, EPA, and GSA, issued the National Strategy for Electronics Stewardship, which described the goals, action items, and projects that are intended to lay the groundwork for enhancing the federal government's management of used electronic products. The FEC guidance however, directed participants to provide recipients of donated electronics with instructions on how to have the electronics recycled responsibly and how to verify that responsible recycling occurs—procedures known as "downstream auditing."

In the foregoing background the GAO was asked to examine the status of federal initiatives to appropriately manage the disposition of used electronic products -that is, selling, donating, recycling, and disposing of federal electronics.

The performance audit by GAO was conducted from October 2010 to January 2012 in accordance with generally accepted government auditing standards of USA.

Objectives the Review

Objectives before GAO for the review were:

1. To examine key initiatives aimed at improving the management of used federal electronics and

2. Improvements resulting from these initiatives and challenges that impede progress, if any.

Criteria

To fulfil the twin objectives, GAO reviewed and evaluated federal guidance and documents, as well as guidance and initiatives at five selected agencies.

To address the first objective, The GAO reviewed guidance and documents regarding improvement initiatives led by the EPA; analysed the electronics stewardship requirements contained in the applicable executive orders and implementing instructions; the Federal Acquisition Regulation, which governs the process through which the federal government acquires goods and services; the Federal Management Regulation (FMR), which, among other things, regulates the disposal of federal personal property, including electronics; the General Services Administration's (GSA) Personal Property Disposal Guide (Reutilization, Donation, Sales, Abandonment or destruction, which serves as an index and quick-reference guide to personal property management provisions in the FMR; and other relevant electronics stewardship guidance.

To address the second objective, status of Policy implementation at several departments, the GAO selected a nonprobability sample of five federal agencies-the Departments of Defense (DOD), Energy (DOE), Education (Education), and Housing and Urban Development (HUD); and the National Aeronautics and Space Administration (NASA) - to examine how the federal policy framework is carried out in those agencies. The DOD, DOE, and NASA and the Education Department was also selected for review as the former three departments as per FEC program purchased large amounts of electronic products - ranking first, eighth, and tenth, respectively.

Sample Selection

To examine how the federal policy framework is carried out above five federal agencies were selected by the GAO for performance audit review from October 2010 to January 2012. Site visits to the Kennedy Space Center in Cape Canaveral, Florida, and Defence Logistics Agency (DLA) Aviation in Richmond, Virginia were also conducted.

Audit Methodology Applied

During the review it was verified in agencies using various programs, the extent to which they utilized each disposition method for their used electronics. A data collection instrument was employed to collect data from the five selected agencies on how they disposed of electronic products for fiscal years 2009 and 2010.It was attempted to resolve inconsistencies in the data provided through these efforts.

To discuss the procurement and disposition of electronic products, the GAO teams also visited three recycling facilities that have a role in electronics recycling at federal agencies and interviewed facility officials about recycling procedures and examined key provisions of the July 2011 National Strategy for Electronics Stewardship and compared them with existing policies for electronics stewardship, obtained information from the FEC program's manager, officials within each of the five agencies, and seven champions for the FEC program regarding challenges that may affect agency participation in electronics stewardship initiatives.

Key Findings

1. Federal Electronics Challenge (FEC) - a voluntary partnership program encouraged federal facilities and agencies to purchase environmentally friendly electronic products, reduce the impacts of these products during their use, and manage used electronics in an environmentally safe way.
2. The executive branch (GSA) has also undertaken several initiatives to improve federal agencies' management of used electronics like issue of various guidelines and National Strategy for Electronics Stewardship.
3. During the review it was found the data were not sufficiently reliable for the purpose of reporting on amounts of electronics disposed of by the five agencies.
4. Little information existed, on whether obsolete electronic products are reused, stored, or disposed of in landfills. This left scope for adverse environmental impacts including the potential for harmful substances such as cadmium, lead, and mercury entering the environment.
5. Federal agencies often had little assurance that their used electronics are ultimately disposed of in an environmentally responsible manner as they are not required to track the ultimate destination of their donated or recycled used electronic products.
6. Some U.S. electronics recyclers were found apparently willing to circumvent U.S. hazardous waste export laws and export certain regulated used electronic products to developing countries.
7. The federal government's approach to ensuring environmentally responsible management of used electronics has relied heavily on EPA's FEC initiative, which among other things, coordinated several key improvement initiatives to assist agencies with the management of used federal electronics, including the Federal Electronics Stewardship Working Group, encouraged federal facilities and agencies to manage used electronics in an environmentally safe way and recycler standards for use in certification programs.
8. The Federal Electronics Stewardship Working Group coordinated interagency efforts to promote federal electronics stewardship. It also acted as an advisory board for the FEC program through working group's monthly meetings which served as a primary mechanism to facilitate communication with agency management regarding the FEC program.
9. The EPA has worked with the recycling industry to promote partnership programs that address the environmentally sound management of used electronic products to develop Responsible Recycling (R2) practices to enable electronics recyclers obtain certification to the effect that they are voluntarily adhering to the adopted set of best practices for environmental protection, worker health and safety, and security practices.
10. GSA has issued Personal Property Disposal Guidance and instituted new requirements for Electronics Recyclers Listed on GSA's Contract Schedule handling to test electronics diverted for reuse, and confirm that key functions of the unit are working before it may be exported.

11. The EPA encouraged electronics recyclers to obtain certification to either R2 practices, or to e-Stewards, a separate voluntary certification program initiated by the Basel Action Network in 2008.
12. Executive Order (13514 of 2009) called for agencies to develop, implement, and annually update strategic sustainability performance plans to specify how they intend to achieve the environmental goals of the order.
13. Growth in FEC Participation: It was revealed in the review that since November 2005 and as of September 2011, participation and opportunities have grown. However, participation still represented only about one-third of the federal workforce. In some cases, agencies have identified their current practices for managing electronic products and set goals to improve them but have not reported on progress toward achieving these goals as required. For the five agencies reviewed, participation in FEC was also found varied.
14. The Number of Certified Recyclers has grown and opportunities exist for Agencies to Increase their Use. For those agencies or facilities that actively participate in the FEC, participation provided federal officials with the information and resources needed to provide greater assurance that their used electronics are disposed of in an environmentally responsible manner, according to EPA documents.
15. The Tracking and Reporting of Data on the Disposition of Used Electronics Presents Challenges: The National Strategy for Electronics Stewardship acknowledged the challenges associated with tracking and reporting the ultimate disposition of used federal electronics and proposes some solutions for improving the data that agencies report to GSA.

Recommendations:

To improve federal electronics stewardship, the following recommendations were made by the GAO.

1. General Services Administration with identified federal agencies collaborate on developing and issuing implementing instructions for Executive Order 13514 that define key terms such as “electronic products” and “environmentally sound practices;”
2. Inconsistencies between different executive orders are to be addressed and as appropriate, clear direction on required agency actions under the national strategy provided;
3. Require consistent information tracking and reporting on the disposition of used electronics among agencies.
4. Transparency on progress toward completing the actions identified in the National Strategy for Electronics Stewardship, is to be provided. Quarterly status updates are to be provided on a publicly accessible website.
5. To ensure that electronic products procured by federal agencies are appropriately managed, GSA should include measures in its policy to ensure that all electronics sold through auction are appropriately managed once they reach the end of their useful lives.
6. Ensuring purchasers or recipients of functional electronic products sold through government auctions use certified recyclers or perform due

diligence and conduct downstream auditing.

Response of Executive

The concerned federal agency issued implementing instructions for Executive Order 13514 that define key terms; require consistent information tracking and reporting; and provide clear direction on required agency actions under the national strategy

The concerned federal agencies agreed that they would update a publicly accessible website on the status of progress toward completing the actions identified in the National Strategy for Electronics Stewardship.

Learning for Environmental Auditors

The federal agencies of USA have adopted various strategies for ensuring environment friendly disposal of electronic waste. The audit strategy also included audit of all these initiatives in an integrated manner so as to attempt a kind of assurance regarding achievement of objectives of the policy in place. The audit objectives were very limited in number but were much focussed. GAO did not hesitate in reporting that some US electronics recyclers were found apparently willing to circumvent US hazardous waste export laws and export certain regulated used electronic products to developing countries though such comment was damaging for international image of the nation. The monitoring of compliance of environmental regulations and policies including lack of information / data remains challenge for the executive even in USA like that of India.

Source
United States Government Accountability Office (GAO) Report on "ELECTRONIC WASTE" - actions needed to provide assurance that used federal Electronics are disposed of in an environmentally responsible manner. 2012

- ***S. Prabhakar Rao***

VIII. Performance Audit - Working of Tiger Reserves, National Parks and Sanctuaries in Madhya Pradesh (Report No. 01 of 2015)

Introduction

The Wild Life (Protection) Act, 1972 (Act) empowers the State Government to declare any area of adequate ecological, faunal and floral, geomorphological, natural or zoological significance as a Sanctuary, a National Park (NP) or a Tiger Reserve (TR) for the purpose of protecting, propagating and developing wild life or its environment and make rules for implementing the provisions of the Act. A forest area with substantial presence of tigers with due recommendation of National Tiger Conservation Authority (NTCA) is considered for declaration as TR. The NPs have greater degree of restrictions compared to Wild Life Sanctuaries (WLSs), as grazing and passage of livestock and land rights to a person is allowable in WLSs, whereas it is prohibited in NPs. The provisions for penalties for similar offences are greater in TRs compared to NPs and WLSs. As of November 2014, the Government of Madhya Pradesh (GoMP) notified six Tiger Reserves (TRs), four National Parks (NPs) and 19 Wild Life Sanctuaries (WLSs) spreading over an area of 16,370.288 sq km which is 17.29 per cent of total forest area of 94,689 sq km in Madhya Pradesh.

Audit objectives:

The performance audit seeks to assess whether:

- planning for conservation and protection of wild life such as preparation of conservation plans, formation of

protected areas and up-dation of planning documents etc. was adequate;

- adequate measures were taken for conservation of wild life and its habitats such as phasing out of activities not in consonance with the Act, translocation of endangered species, habitat development, etc.;
- protection of wild life and its habitat such as establishment of well-equipped veterinary infrastructure, staff, etc. was efficient and effective; and
- the initiatives for eco-development such as participation of local inhabitants, their requirements, etc. were ensured.

Audit criteria

Audit findings are based on criteria derived from:

- Wild Life (Protection) Act, 1972;
- Wild Life (Protection) Madhya Pradesh Rules, 1974, Vikas Nidhi (Revised) Rules, 2009;
- Orders of the Supreme Court, guidelines and orders issued by the GoI and by GoMP and
- Conservation and Management Plans for Protected Areas.

Scope and methodology of audit

Performance Audit was carried out during November 2013 to July 2014 through test check of records of 10 divisions (four TRs , one NP and five WLSs) including buffer zones of TRs selected on the basis of stratified random sampling covering the period 2009-14. The audit objectives, scope, methodologies and criteria of audit were discussed in an entry conference with the Principal Secretary. In the exit conference audit findings were discussed with the Secretary. The Government accepted all the audit recommendations. The responses of the Government on audit observations have been suitably incorporated in the Performance Audit.

Major findings

- Planning for conservation and protection of wildlife and its habitat was deficient as Tiger Conservation Plans / Management Plans were not prepared. There were delays in incorporation of buffer area. New Ratapani TR in Sehore, one NP and two sanctuaries in Khandwa were not notified by the Government and wild life corridors were not declared as conservation reserves, which affected the efforts for conservation of wild life.
- Compared to the year 2006, population of tiger was stable in 2010. The population of great Indian bustards, chitals, sloth bears and wild dogs declined in two sanctuaries. The proposed translocation of barhasinga could not be done and inefficiency in translocation of blackbucks resulted in high mortality. Presence of commercial activities, residential infrastructures in core areas affected conservation of wild life and its habitat.
- Protection of wild life was not adequately ensured as electric lines passing through the protected areas were not insulated, veterinary infrastructure was not available and wireless sets and other surveillance instruments were lying idle. Online monitoring system for wild life offences was deficient. Beat inspection was not carried out as prescribed.
- Eco-development through Eco-Development Committees was not ensured. Biotic pressure could not be reduced because fuel wood could not be produced from plantations and Nistar

(sale depot) facilities for villagers were not established.

Recommendations

- The Tiger Conservation Plans of all Tiger Reserves should be prepared and notification of new Tiger Reserve, National Park, Sanctuaries and Conservation Reserves may be expedited.
- The Compartment histories should be updated regularly.
- The commercial activities such as petrol pumps, hotels etc. located in Protected Areas should be phased out and translocation of endangered species should be carried out expeditiously.
- The Government should complete the works of insulation / laying of underground electric lines on priority basis.
- The Government should ensure the availability and application of surveillance instruments for efficient protection of wild life.
- The Tiger Strike Force should be provided necessary equipment and online monitoring system should be streamlined.
- The participation of Eco-Development Committees in conservation and protection activities should be ensured.

Conclusion:

- Planning for conservation of wild life was deficient, since the proposed Ratapani tiger reserve at Sehore, one national park and two sanctuaries at Khandwa were not notified by the Government. Besides, wild life corridors were not declared as conservation reserves.
- Presence of commercial activities and residential infrastructures in the protected areas adversely affected conservation of wild life and its habitats.
- The proposed translocation of barhasinga was not done and high mortality occurred due to inefficiency in translocation of blackbucks.
- Protection of wild life suffered since the veterinary infrastructure for health care of wild life was not established and the insulation/ underground laying of electric lines passing through tiger reserves were not executed.

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IX. Challenges in and strategies for audit of environmental and sustainability issues in irrigation projects

Irrigation in India

Differential distribution of rainfall and natural irrigation across India makes irrigation projects a necessity for agriculture, as it ensures availability of water at the desired time in a desired area.

Irrigation projects are categorised as Major, Medium or Minor on the basis of the command area it serves. Sources of irrigation can be groundwater extracted from springs, open wells, bore wells or surface water drawn from streams, lakes or reservoirs. All these man made interventions for irrigation essentially involves diversion of water from one place to another and then local distribution.

Irrigation projects are essential for intensive agriculture with accelerated production of food grains and other crops to cater to the booming population of the country. However, along with benefits,

irrigation projects can lead to one or more of the following impacts on environment:

- Socio-economic and resettlement issues
- Reduction in downstream flow
- Impact on forests
- Impact on fisheries and aquatic fauna
- Impact on wildlife
- Evaporation of water from reservoir
- Increase in soil erosion
- Waterlogging
- Salinisation of soil
- Deterioration of water quality
- Pollution of surface water/groundwater via pesticides
- Increased nutrient levels in water (increased biochemical oxygen demand),
- Increase in agricultural pests/plant diseases
- Health impacts/waterborne diseases

While plans are being made for irrigation projects, it is necessary to ponder on the above environmental impacts. An Environment Impact Assessment (EIA) is undertaken to arrive at a decision on viability of the project in relation to environmental impacts. Irrigation projects can not only affect biodiversity in the geographical area, but can also have a profound and long-term impact on human health and livelihood. An environment audit of an irrigation project thus becomes essential to evaluate (1) the quality of EIA process, (2) decision made at the end of EIA and (3) implementation of the project duly incorporating adequate mitigating measures.

Challenges in Environment Audit of Irrigation Projects

Any environment audit of Irrigation project would essentially look at the effectiveness of mitigation measures for the environmental impacts of the irrigation project which were mentioned above. As some of the impacts cannot be directly correlated in terms of audit criteria and evidence, auditor faces many challenges during the audit of environmental and sustainability issues in irrigation projects:

1. **Period of audit**: timeliness of audit is very critical for effectiveness of audit. Since concurrent audit is not in vogue, it is a challenge to arrive at a point of time, after which the impact of project can be measured effectively. Environmental impacts may not be immediate in nature and a few impacts such as change in salinity may take decades to be observed.
2. **Planning for audit:** Water Resource Department or similar departments in the Union or State governments is responsible for an Irrigation Project. However, the scope of the subject is multi-sectoral and audit would require coordination with multiple departments like Pollution Control Board, Forest Department, Central Ground Water Authority, Agriculture Department, Fisheries Department, Land Revenue Department, Health and Family Welfare Department, Local Self Government Institutions etc. Identification of the source of audit evidence is a challenge in audit and more so in case of Irrigation schemes.
3. **Skills and knowledge of audit personnel:** Audit of environmental issues require a different skill set than used in regular compliance audit. Audit of sustainability issues requires a lot of consultation with experts in relevant areas outside the Supreme Audit Institution.

4. **Standard of evidence:** Audit evidence should be preferably sourced from government / audited entity itself, so that it finds acceptability with the executive and legislature. However, it is tough to find such evidences which shows deterministic relation between irrigation projects and their environmental impacts within a short period (5-10 years). However, in the absence of adequate data from government sources, audit will have to draw results from scientific/academic studies and statistical probabilistic models.
5. **Quantification of Impact:** Environmental impacts are not easy to quantify financially and at times quantification of a few aspects are done only by non-government organizations, acceptability of which can be an issue.
6. **Implementation of recommendations:** Some of the impacts of Irrigation Project may be irreversible in nature. Therefore, the recommendations may not be fruitful for the society at large.

Strategies for Environment Audit of Irrigation Projects

Most important aspect of an audit strategy for conduct of environment audit is preparation of an exhaustive checklist. The checklist should include analysis of various aspects of the EIA which was done before the implementation of the project. Compliance with regulatory mechanism should be the starting point of the audit exercise. Therefore, the audit should check whether an EIA has really been undertaken, sufficient public hearings were organized and demands/apprehensions voiced in public hearings were included in the EIA commitments, environmental clearance was given unconditionally or with conditions, Environment Clearance (EC) specified adequate mitigation measures against adverse effects of project, a monitoring authority was appointed with sufficient powers for ensuring compliance and all the required regulatory approvals were identified, sought and received.

During audit, technical, procedural and decision-making aspects of EIA have to be studied. This is the stage where expert advice is solicited, as it would help the audit team to identify and prioritise the issues based on commitments made in EIA/ EC.

Accuracy of predictions and assumptions: It needs to be checked if the predictions/assumptions made on the environmental effects of the project are reasonable and applicable to the local macro- and microclimate. Predictions depend on determining of the baseline condition and making predictions thereon. Therefore, it is critical to develop audit criteria for Environmental Audit, as change in air/water/soil quality needs to be assessed and compared with the baseline situation.

Suitability of mitigation measures: It needs to be checked if sufficient mitigation measures have been provided for each of the environmental and socio-economic impacts.

Efficiency of EIA procedure: Have to check whether the EIA team comprised of sufficient technical experts. EIA team typically include a hydrologist, irrigation engineer, biologist/fisheries expert, agronomist/pesticide expert, soil conservation expert, environmentalist, social scientist and epidemiologist. Audit needs to get convinced that the EIA team actually studied the given geographical area and that the report is not

plagiarized from another study. Satellite maps of the location for different times can be sought from remote sensing agencies for comparison purpose.

Fairness of public consultation mechanism: Study whether the public consultation measures taken up was properly done in its spirit. Audit needs to assess whether the participants belonged to the geographical area and whether they belonged to the affected communities.

Coordination among responsible agencies: Audit needs to check whether a team was formed with representatives from various departments/agencies and other stakeholders and meetings were conducted. It needs to be checked whether sufficient discussion and decision making happened among the agencies and documentation in this regard is available.

Utility of the process of decision making: Audit needs to assess whether an Environment Impact Statement was prepared based on EIA and if so the decision so arrived at was useful in implementation of the project. Audit could also comment on whether the mitigation measures proposed were useful.

Implications of project: Audit needs to find whether proper assessment was done on the benefits of the project before it was implemented. A cost-benefit analysis can be undertaken to find whether the benefits outweigh costs during the audit period. Audit could comment if the project is actually benefiting as it was envisaged. It may be found whether there are factors which prevent benefits from the projects. It should also be seen if the factors were included in the prediction and whether there was failure in predicting these factors.

Incorporation of recommendations of EIA during project implementation: It needs to be seen in the field whether these mitigation measures promised have been undertaken and if undertaken, whether it is sufficient and is giving results.

Further, the checklist should enquire if there is any protected area under the site or command area of project. In that case, it must be ensured that the national laws and international treaties are abided by.

Conclusion

Environment audit for irrigation projects is an effective tool to ensure sustainable development of agriculture. It provides feedback on the environment impact assessment process and reports upon the state of environment and ecology after implementation of the project. Like any other Audit report, an Environment Audit report should also include actionable recommendations on the environment audit findings.

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