

ENVIRONMENTAL AUDITING (EA) AND AUDITING ENVIRONMENTAL MANAGEMENT SYSTEM (EMS): ROLE OF PUBLIC AUDITORS IN GREEN AUDIT

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Introduction

In view of the global concern over degradation of natural resources, ozone layer depletion, global warming, climate change, consequent sensitization towards environmental protection and sustainable development, industry and business have been increasingly adopting Environmental Management System (EMS) to meet the expectations of the stakeholders. While ISO 9001:2000 deals with Quality Management System, ISO 14000 series address environmental management systems, environmental auditing, environmental performance evaluation, life cycle assessment, environmental labeling and environmental aspects in product standards. The International Standards Organization defines EMS as 'the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy'.

This paper enunciates global and national initiatives concerning environmental protection and sustainable development, the concept of sustainable development, essential elements of EMS,

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important areas to be looked into while conducting an audit of EMS, SAI India's experience in EA and possible benefits of successful implementation of EMS and role of the public auditors in factoring environmental concerns in audits.

PART- 1

(a) - Global Initiatives for Environmental Protection and Sustainability

The United Nations Conference on Sustainable Development - Rio+20 was held in June 2012 at Rio de Janeiro, Brazil where all the heads of the government had unanimously agreed to renew the commitment to sustainable development by ensuring an economically, socially and environmentally sustainable planet for the present and future generations. The conference reinforced the commitment of the world community to eradication of poverty and hunger by promoting integrated, sustainable, inclusive and equitable economic and social development. Nations unanimously resolved striving to achieve the Millennium Development Goals by 2015 and promote ecosystem conservation, regeneration, restoration and resilience of natural resources in spite of the emerging global environmental challenges.

The world community reaffirmed its commitment to sustainable development. The concept is defined clearly for the first time by Brundtland Commission as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Sustainable development incorporates essentially three elements; firstly, protecting the environment and using natural resources wisely; secondly, recognizing the needs of everyone while ensuring social progress; and finally maintaining high level of economic growth. It is, therefore, essentially a trade-off between otherwise conflicting interests of economic advancement, social progress and environmental protection.

The first major international event where world nations seized of the problems arising out of uncontrolled exploitation of natural resources and environmental degradation was the UN conference on human environment in Stockholm in 1972. The

Earth Summit held in Rio de Janeiro in 1992 was instrumental in formulating possible strategies to protect the future of life on earth in the form of Agenda 21, blue print for sustainable development. In the conference, 168 countries signed the Convention on Biological Diversity, which required countries to identify and monitor their genetic resources and draw plans and action programs to conserve including setting up protected areas. Kyoto Protocol was signed in 1997 wherein 166 countries committed themselves to reducing or restricting Green House Gases (GHG) emissions. The world summit on sustainable development in Johannesburg in 2002 was another important landmark in the global imperative of sustainable development, because it looked at the road travelled so far, evaluated successes and shortcomings, and proclaimed again the collective commitment to sustainability, without which development is meaningless.

The comity of nations agreed that sustainable development strategies should be holistic and integrated, inclusive, people-centred, benefiting and involving every section of the society including youth, children and women. The nations underscored the importance of linking financing, technologies, capacity building, and dissemination of best practices for developing green economies. Important issues like poverty eradication, food security, nutrition and sustainable agriculture including crops, livestock, forestry, fisheries and aquaculture, water and sanitation, energy, sustainable tourism, transport, cities and human settlements, health and population, productive employment, social protection, disaster risk reduction, climate change, mining, afforestation have been highlighted to initiate suitable policy response, planning and preparing projects targeting to mitigate adverse impacts and to achieve the desired outcome.

(b) The Kyoto Protocol of 1997, Doha Amendment of 2012 and Clean Development Mechanism (CDM)

According to available data, at present the sea levels have risen by 20 cm over the last 130 years and are expected to rise by 1ft to 5ft in the next 100 to 300 years, which might threaten parts of countries like Bangladesh, Maldives, Egypt, Kiribati, Tuvalu or even cities like Shanghai, Tokyo, Mumbai, Amsterdam, London

and New York to be under water. Over the last century, the surface temperature of the earth on an average increased by close to 1°C. This phenomenon has been termed as "Global Warming".

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol was adopted in Kyoto, Japan in 1997 and came into effect on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted in Marrakesh, Morocco, in 2001, known as the "Marrakesh Accords." Its first commitment period started in 2008 and ended in 2012. In Doha, Qatar, in December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted. Under the amendment, new commitments were agreed by Annex I Parties to the Kyoto Protocol from 1 January 2013 to 31 December 2020.

During the first commitment period, 37 industrialized countries and the European Community agreed to set internationally binding emission reduction targets to an average of five per cent against 1990 levels; and during the second commitment period, to reduce GHG emissions by at least 18 per cent below 1990 levels in the eight-year period from 2013 to 2020. The composition of Parties in the second commitment period is different from the first. Recognizing that developed countries are principally responsible for the current high levels of GHG emissions, the Protocol places a heavier burden on them under the principle of "common but differentiated responsibilities."

Under the Protocol, countries must meet their targets primarily through national measures. However, the Protocol also offers them an additional means to meet their targets by way of three market-based mechanisms; i) International Emissions Trading (IET); ii) CDM and iii) Joint implementation (JI). These mechanisms help to achieve emission targets in a cost-effective way and facilitate deployment of appropriate technologies to reduce the impact on climate change. An Adaptation Fund was established to finance adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol. In Doha, in 2012, it was decided that for the second commitment

period, international emissions trading and joint implementation would provide the Adaptation Fund.

The Kyoto Protocol is seen as an important first step towards a truly global emission reduction regime that will stabilize GHG emissions. In Durban, the Ad Hoc Working Group on the Durban Platform for Enhanced Action was established to develop a protocol, another legal instrument under the Convention, applicable to all Parties. The Working Group is required to complete its work by 2015. In 2012 Doha climate change talks, the mechanisms under Kyoto Protocol serve the objective of both the developed countries with emission reduction targets, who are the buyers of carbon credits as well as of the developing and least developed countries with no emission targets, who are the sellers/suppliers of carbon credits. At present CDM is the relevant mechanism in India and number of entities are generating carbon credits/Certified Emission Reduction (CER) units.

(c) Evolution of EA, INTOSAI – WGEA: Guidelines, Research Papers & Case Studies

The International Organization of Supreme Audit Institutions (INTOSAI) Working Group on Environmental Auditing (WGEA) has been publishing research papers and reports on Environmental Auditing (EA) since 1998 and disseminating updated methodology, approach and techniques. The study papers published periodically by WGEA are available on its website <http://www.environmental-auditing.org>. These papers help SAIs to have better understanding of environmental issues and conducting EA by exchange of experience, guidelines, data and other informative material. INTOSAI-WGEA has so far published 26 papers including 7 Drafts under finalization. While some of these papers give fundamentals of how to conduct EA with SAI's known frameworks of Compliance, Financial and Performance audits, other papers focus on auditing significant environmental issues like water, biodiversity, waste management, energy, forest, fisheries, climate change, mining, land, environmental accords, natural resource accounting and environmental accounting.

Concerted efforts by INTOSAI-WGEA helped SAIs in attempting innumerable EA reports on different issues in a systematic and organized manner. These EAs have facilitated the nations to address environmental issues and formulate appropriate policy response and programmes like improving water quality of rivers and watersheds, controlling invasive species, protection of plants, animals, and ecosystems, management of natural resources, mitigation of environmental degradation of construction, reduction of pollution, desertification, strengthening biosphere.

PART 2

(a) ISO 14001 Standard - Environmental Management System (EMS)

Following the success of the ISO 9000 series of quality management standards, the ISO 14000 series of standards have been designed to cover the environmental issues for the organizations in the global markets. An EMS audit under ISO 14001:2004 is a management instrument to help identifying and mitigating environmental impact of the organization's activities, products and services; enhancing its environmental performance by implementation of a systematic and holistic response by formulating suitable environmental policy, planning, setting up quantitative and qualitative periodical objectives and targets and thereby continuously evaluate, measure and improve the organization's environmental management system.

ISO 14001:1996 and periodical versions like ISO 14001:2004 standard specify requirements for an EMS to enable an organization to formulate a policy and objectives keeping in view mandatory legislative compliance and information about significant environmental impacts. It applies to those environmental aspects, which the organization can control and over which it can be expected to have an influence. EMS helps the organization to identify its environmental goals and establish a program for monitoring its progress. There are essentially three components of an EMS: firstly, a written program requiring the organization to commit to producing the highest quality product with the lowest possible environmental impact; secondly, education and training;

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account environmental opportunities, anticipating change and responding to emerging trends.

- (xii) Emergency preparedness and response – EMS requires identification of potential emergencies and developing procedures for preventing and responding to such eventualities. Auditor should assess the risk potential for accidents and emergencies. Emergencies may include process hazards such as fire, natural disasters and accidental emissions of toxicants. The main emphasis in audit is to evaluate the industry's preparedness for potential accidents and emergencies with a view to substantially minimize the impact of uncontrolled events. The auditor shall review and comment, where necessary the organization's emergency preparedness and response procedure, in particular, after the occurrence of accidents. The auditor can have an independent assessment by checking how far the organization is periodically testing such procedures where practicable.
- (xiii) Monitoring and measurement – EMS requires effective monitoring of key activities and tracking of performance. Auditor must ascertain operations and activities having significant environmental impacts, key characteristics of these operations and activities and methodology followed in measuring the key characteristics. In EMS audit, performance indicators such as quantity of toxic emissions per unit of production, quantity of hazardous waste generated per year, number of employees who have undergone environmental training, average time taken for resolving nonconformities, energy use per unit of production and percentage of solid waste recycled/ reused.
- (xiv) Nonconformity and corrective and preventive action – Nonconformity refers to a situation when the system does not meet the EMS criteria or its implementation is not consistent with the ISO 14001 standard. Auditor should analyze system deficiencies to identify problems, root causes and to oversee whether corrective and preventive actions are identified and implemented to rectify the deficiencies. There should be

documentation indicating corrective actions taken from time to time.

- (xv) Records – Records are important to ensure proper functioning of EMS as well as satisfying the regulatory authorities. Key issues in records management are identification of records to be maintained, authority who keeps them, and where and how they are kept, the retention time and how they are accessed, stored and disposed.
- (xvi) EMS audit – EMS audit is generally conducted by a qualified EMS auditor. It refers to a systematic and documented verification process to determine whether an organization's EMS conforms to the audit criteria set by the organization and for communication of the audit results to the top management. An effective EMS programme requires developing audit procedures and protocols based on the environmental importance of the activity concerned, determination of audit frequency and schedule, deployment of trained auditor and maintenance of updated audit records. A public auditor can evaluate the effectiveness and efficiency of EMS auditor by independently reviewing the entire process of implementation of EMS in an organization with reference to the standard, applicable legislative and regulatory requirements, and environmental policy set by the top management.
- (xvii) Management review – EMS requires that the organization's top management reviews the EMS to ensure its continuing suitability, adequacy and effectiveness. Auditor should keep in mind new standards, legislations, regulations and environmental performance indicators and oversee how far the EMS is in compliance with them. He should also obtain scientific/technical data on products, materials and processes used and how far they are in alignment with environmental regulations. The key issue is whether the EMS is suitable, efficient, effective and cost effective under the given circumstances of the organization. Management reviews are essential for continual improvement and ensuring that the EMS continues to meet the organization's needs. The auditor

targets are derived from the organization's environmental policy and whether the performance of objectives and targets are reviewed and monitored periodically by the top management for taking appropriate, corrective and preventive actions for continual improvement.

- (v) Environmental management programme – The organization should make an environmental action plan to achieve objectives and targets. An effective environmental management programme is a road map for achieving environmental goals. It shall specify designation of responsibility for achieving objectives and targets at each relevant functional level of the organization as well as the means and time frame by which they are to be achieved. Audit can examine whether the environmental action plan is in conformity with set objectives and targets and it delineates actions for application of programmes to new or modified activities, products or services.
- (vi) Structure and responsibility – EMS enables the organization to establish roles and responsibilities and allocate appropriate resources to achieve the objectives. A public auditor can independently assess whether adequate financial, technological, human resources with specialized skills have been provided to undertake the tasks. EMS requires appointment of a management representative who is assertive, knowledgeable and independent. Auditor needs to evaluate the entire organizational structure, assess the adequacy of resources and see whether environmental management is integrated with other business functions.
- (vii) Training awareness and competence – EMS requires that employees are well aware of environmental concerns and adequately trained to competently carry out their assigned environmental responsibilities. The entire process of training needs to be evaluated independently in audit. The organization should identify its training needs and ensure that all personnel, whose work may create a significant impact on environment, have received appropriate training.

- (viii) Communication – EMS demands that the organization establishes internal and external communications on environmental management issues. Auditor needs to evaluate the effectiveness of internal communication between the various levels and functions of the organization and the process of receiving, documenting and responding to relevant communication from external interested parties.
- (ix) EMS documentation – EMS documentation describes how EMS is being implemented in the organization in its entirety. EMS documentation may be maintained either on paper or electronically and it inevitably describes the core elements of the management system and their interaction and provides directions to related documentation. Auditor should examine documented environmental policy, organizational structure and key responsibilities, description of ISO 14001 requirements and how far they have been complied with. He should refer to key procedures, controls and other system elements, evaluate emergency response plans and training programmes.
- (x) Document control – EMS ensures effective management of procedures and other system documents. The auditor can go through basic EMS manual, Environmental Management Programme manual and EMS procedures manual and come to an independent judgment on economy, efficiency and effectiveness of implementation of EMS in the organization with reference to the standard. It should be kept in mind that EMS documentation should be dynamic and in line with changing organizational responsibilities with reference to new regulations.
- (xi) Operational control – Organization is required to identify, plan and manage the operations and activities in line with its environmental policy, objectives and targets. Auditors should see activities assigned to prevent pollution and conserve resources. While developing new products, designing new process and reengineering activities for strategic environmental management, the organization has to take into

should go through the internal audit reports and corrective and remedial action taken as well as reports of emergencies such as spills, leaks and incidents, accidents and corrective and preventive action taken thereafter to avert such occurrences in future.

PART - 3

(a) India's Approach to Sustainable Development

Along with the international efforts and commitments undertaken, various environmental legislations were enacted in our country followed by rules and regulations framed under these acts. Some of the significant legislations are the Factories Act, 1948, the Mines Act, 1952, Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Public Liability Insurance Act, 1991, the Energy Conservation Act, 2001, and the all-encompassing Environmental Protection Act, 1986, empowering the government to bring out appropriate regulations to address any pressing environmental concerns. A few important rules framed under the Environmental Protection Act, 1986 are the Environmental Protection Rules, 1986, the Biomedical Waste (Management and Handling) Rules, 1998, the Hazardous Wastes (Management and Handling) Rules, 1989, the Municipal Solid Wastes (Management and Handling) Rules, 2000, the Ozone Depleting Substances (Regulation and Control) Rules, 2000 and the Noise Pollution (Regulation and Control) Rules, 2000. Regulatory and implementing institutional infrastructures have been set up, and environmental standards for ambient air, water and waste disposal have been fixed, entrusting significant responsibilities to both private and public sectors.

(b) SAI India's Approach to Environmental Auditing (EA)

In the well-researched book of history titled as 'The Comptroller & Auditor General of India - A Thematic History - 1990-2007' the departmental historian and ex-Deputy Comptroller and Auditor General, Shri. Vijay Kumar allocates a complete Section on 'Environment Audit' mentioning it as 'perhaps the most challenging' emerging audit. Chapter 19 of 2002 edition of C&AG's Manual on Standing Orders (Audit) deals with different

facets of Environmental Auditing. Basic objective is mentioned as 'to ensure that appropriate and adequate policy and procedures are in place and are duly complied with to achieve the goal of sustainable development'.

IA&AD's initial attempts on Environmental Audit began when two or three important audit reviews on environmental aspects were brought out including Ganga Action Plan a flagship programme for cleaning the river Ganga of all pollutants and a report on 'Afforestation of waste land and agro-forestry' in 1995-96 Audit Report on Haryana Government. Series of Environmental Audit related reports were brought out on Ganga Action Plan in March 2000 Union Government (Scientific Departments) as well as in the Audit Reports of the concerned State Governments. In 1995-96, Audit Report of Maharashtra Government featured a review on Pollution Control Board of Maharashtra. In 2000-01, Audit Report an important Environmental Audit related review called 'Implementation of Environmental Acts relating to Water Pollution' appeared in the category of Compliance Audit.

SAI India is an active member of INTOSAI WGEA and ASOSAI Working Group on Environment. SAI India had been conducting a long duration International training programmes on Environmental Audit. More than 100 participants from 40 countries participated over the years. SAI India is a member of the 8th ASOSAI Research Project on 'Guidance on conducting Environmental Audit' along with China Pakistan, Malaysia and Saudi Arabia. The research group is in process of framing environmental audit guidelines specifically suited for use by member ASOSAI nations. An Indo Polish joint seminar on Environmental Audit was held in November 2007 in Warsaw. The two countries are collaborating to share their experiences in the field of EA.

SAI India also imparted specialized training in EA to officers of SAI Bhutan in July 2007. ASOSAI seminar in China on auditing air pollution issues was attended by representatives of SAI India. India is a member in the INTOSAI WGEA and has been actively participating in the committee's deliberations.

(c) **Role of Regional Training Institute (RTI), Mumbai in EA Capacity Building**

Shri Vijay Kumar elaborates the pioneering work done in the field of capacity building in EA by the Regional Training Institute, Mumbai. The institute, established in 1980 for catering to the training needs of the 16 offices of the Indian Audit & Accounts Department situated in Mumbai, Pune and Goa was designated by the then Comptroller and Auditor General of India Shri. V. N. Kaul to develop as a Centre of Excellence for training in EA. The office of the Principal Director, Scientific Departments, the audit office of the nodal ministry – Ministry of Environment and Forest was designated as the nodal office for EA in 2002. Consequent to posting of a Principal Director as head of the Institute in 2003, the institute organized many intensive training programmes including training for trainers on EA inaugurated by the CAG of India in 2004 and developed knowledge resources including Structured Training Module (STM) on EA with theory and case studies in 2004, incorporating important inputs from INTOSAI-WGEA papers, training material developed by INOTOSAI Development Institute (IDI), Ministry of Environment and Forest and SAI India's rich expertise in the field of EA since 1998.

As a nodal institute, RTI Mumbai played a key role in capacity building in the area of EA by organizing series of training programmes and workshops, networking with specialized premier environmental institutions, research centres, pollution control boards, academic institutions and NGO activists in the country. The institute continuously trained trainers in all the training institutions as well as audit professionals of SAI India, by collaborating with all other training institutions at regional and national levels in EA and Natural Resource Accounting and trained many national and international audit professionals also. The Institute prepared training material, collected research papers and compiled EA database, disseminated to all the training institutes and audit offices of SAI India. Important products of the institute include STM on Environmental Audit; Compilation of EA reports undertaken by SAI India; Central legislations on EA; International Environmental

Accords signed by Government of India; WHO Water Quality Publication; material on Clean Development Mechanism; Compendium on the First and Second Workshop on Natural Resource Accounting (NRA) organized by the institute in collaboration with Central Statistical Organization. The institute had also developed an Environmental Audit Manual and Structured Training Module on Natural Resource Accounting for SAI India's approval.

(d) **Environment and Climate Change: Auditing Guidelines**

SAI India prepared a manual in 2010 "Environment and Climate Change: Auditing Guidelines" setting out clearly an audit approach for EA within the broad framework of Regularity and Performance Audit. The Guidelines have two sections: in Section-1 is introduction to Audit of Environment and Climate and Section-11 outlines detailed guidelines for the audit of EA and Climate Change.

Section-1 deals with the basic concepts to comprehend 'environment' and 'climate change'; brief explanation of important international treaties, Basel Convention on Control of Transboundary Movements of Hazardous Wastes and their disposal, 1989; London Convention, 1972 on the Prevention of Marine Pollution by Dumping Wastes and Other Matters; MARPOL, 1973/1978 – International Convention for the Prevention of Pollution from Ships; Ramsar Convention, 1971 on wetlands of international importance especially as waterfowl habitat; Convention on Combat Desertification, CBD, 1992; Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES, 1973; Vienna Convention on Protection of Ozone Layer, 1985 and Montreal Protocol on Substances that Deplete the Ozone Layer, 1987; United Nations Convention on Laws of the Sea, UNCLOS; International Convention for the Control and Management of Ships Ballasts Water and Sediments; The Cartagena Protocol on Bio-safety, Montreal, 2000. The manual also provides important policy initiatives of the government for environmental protection and climate change including important legislations, regulatory bodies like Central Pollution Control Board and State Pollution Control Boards, National Environment

Tribunal, National Environment Appellate Authority, Compensation Afforestation Fund Management & Planning Authority. Further, it provides EA planning and process, objectives, mandate, scope, coverage and evaluation of policy issues in EA, selection of audit criteria, selection of topics, methodology and processing of audit reports. Besides detailed guidelines for conducting financial, compliance and performance audits under EA with detailed questionnaire and checklists.

Section-11 of the manual elaborates relevant background information about strategies, policies, international treaties, legislation and area of audit examination with audit checklists for auditing major domains of EA – Biological Diversity, Air Pollution, Water Pollution, Waste Management, Climate Change, and Coastal Zone Management.

PART -4

(i) Review of Some of SAI India's EA Reports with Compliance and Performance Audit Framework

INTOSAI Working Group on Environmental Audit Guidelines has classified Environmental Audit into five distinct categories: Compliance Audit of Environmental laws, Performance Audit of Environmental programmes/schemes, Environmental impact of any programme or activity, Evaluation of environmental policies and Audit of Environment Management Systems (EMS).

Of the five specific categories of EAs, SAI India has, by now, produced reports identifiable in all the five distinct categories applying the government audit frameworks, though INTOSAI guidelines might not have been fully applied in preparation of some of those earlier reports for obvious reasons. SAI India has not only conducted audit of air, noise, water, waste management, biodiversity, Environmental Impact Assessments, Environmental Management Systems and audit of execution of projects and programmes resulting into policy review by the executive by now, but also endeavoured to tread along new critical domains of environmental audit relating to flora, fauna, rehabilitation and relief issues, urban planning, agricultural activities, energy audit, and even on disaster planning and preparedness. The following

discussion is an attempt to touch upon some of those significant EAs conducted in multi spectra domains of audit.

Reviewing the CAG's central and state reports during 2001 to 2006, about 187 EA reports/paras could be identified on varied subjects ranging from performance audit of Ganga Action Plan, 2000, compliance audits of applicable environmental regulations on air, water, solid waste management, hospital waste management, biodiversity etc. Some of the reports such as Ganga Action Plan were deliberated in depth by the PAC and recommendations offered for better management of the projects. These reports also provided in some cases, key inferences, valuable database and analysis for failure and non-achievement of objectives with a view to help the executive making appropriate changes in policy formulation and strategy. There are few CAG reports falling in the fourth category of EA, commenting on the environmental impact of non-environmental program or any program or activity till 2006 or so.

Reviewing the SAI India reports of 2006, it is seen that Report No.4 – Union Government (Defense Services) contained performance reports on three naval projects – construction of a naval academy, a naval base and modernization of a navy hospital – where environmental impact had been commented upon. These three projects were not essentially environmental projects, but audit had commented environmental impact on coastal ecosystems, destruction of flora, fauna and degradation of beaches. Report No.5 of 2006 – Railways included performance appraisal of medical and health services highlighting non-maintenance of the prescribed standards for drinking water and food products and non-conformity in case of bio-medical waste management in railway hospitals. The Report recommended creation of facilities such as autoclave/incinerator for treatment of biomedical waste. Report No.2 of 2006 on Department of Atomic Energy commented on non-installation of incinerator system even after a lapse of nine years; causing environmental hazard by inefficient nuclear waste management. Performance Audit Report No.18 of 2006 on 'Conservation and Protection of Tigers in Tiger Reserves' is

entirely a performance audit of an environmental project and hence undoubtedly an EA report.

A review of CAG's State Reports prepared in 2006 revealed that Accountant General of West Bengal had undertaken EA of arsenic alleviation programme as part of Receipt, Works and Local Bodies Audit. Accountant General of Himachal Pradesh had reviewed government commercial and trading activities and commented on air, water, soil pollution and non-existence / malfunctioning of sewage treatment plant (STP) and effluents treatment plant (ETP), afforestation and deficiency in EMS of State PSUs. State Report (Commercial & Receipt Audit) contained a report on EMS in a State PSU. State report of Tamilnadu had an EA report on water supply to Chennai city. State Report (Commercial & Receipt Audit) of Andhra Pradesh dealt with environmental safeguards in thermal power station of Power Generation Corporation Limited. Report of Goa for 2006 also contained a performance review on water supply and sanitation programme.

These reports were prepared by following internationally accepted INTOSAI performance audit guidelines and methodology. EA reports of SAI India cut across different streams of SAI India's audits – Defense, Railway, Central Government Departments and State Governments. Some of these reports were on non-environmental projects, but their environmental impacts were commented upon unlike in earlier performance reports and therefore, these reports became EA reports too. Methodology, audit criteria, evidence gathering and analytical techniques used for bringing the audit conclusions were based on internationally accepted performance audit framework. These performance reports are well structured with defined audit scope, objectives, conclusions based on data analysis, supported by relevant and adequate audit evidence, accompanied by recommendations.

In 2006 SAI India conducted audit of floods in Maharashtra commenting on the disaster management and preparedness of the government. In 2007 SAI India had also attempted EA of the fifth category – audit of environment management system of a port, first of its kind on ports by any SAI so far.

(b) Environmental Management by Mumbai Port Trust

It is a pioneering effort for SAI, India to conduct a comprehensive performance audit on environmental management of a port. The audit was primarily aimed at assessing the extent of compliance of applicable, mandatory legislative requirements, performance of the port against the stipulated conditions, obligations and commitments along with effectiveness of implementation of the specified environment protection measures. As there was no comprehensive EA report on ports available on the World Wide Web as a benchmark, SAI India referred to best practices pertaining to environmental management for port as suggested by American Association of Port Authorities' (AAPA) Handbook along with mandatory and relevant regulations for identifying port environmental management practices and thereby deriving irrefutable audit criteria. Audit focused also on the adequacy and effectiveness of implementation of Environmental Management Programmes.

Subsequently comprehensive EA report was also attempted on Jawahar Lal Nehru Port Trust. The Parliament Committee discussed the report and appreciated the efforts of SAI India in undertaking EA.

(c) Performance Audit of Floods in Maharashtra – Preparedness and Response

Maharashtra state faced unprecedented torrential rainfall in 2005 flooding all the four regions of the state, claiming around 1100 human lives and 27000 cattle lives. Similar disaster repeated in 2006 killing 400 human beings, resulting in relief and rehabilitation measures by the government. Audit reviewed implementation of the disaster management plan and commented on varied deficiencies in the system such as delay in desiltation works in Mithi river, nonfunctioning of the disaster warning system, inadequacies in distribution of relief assistance and diversion of funds. Disaster management audit was done for the first time by SAI India. Report examined the magnitude of the calamity, pre-disaster management, post disaster management, relief and rehabilitation measures, financial management,

monitoring and reporting mechanism, and analyzed the lessons learnt along with sensitivity to error signals. Recommendations were accepted by the government.

(d) EA Audit on Waste Management

In 2008, performance audit on "Management of Waste in India" was conducted across 24 states pointed out deficiencies in policies regarding waste reduction/recycling/reuse, inadequacy of rules for disposal of all different kinds of waste as per the legal provisions and poor compliance to the Municipal Solid waste, Bio-medical waste and Plastic waste rules. Poor quality of data, poor monitoring and lack of accountability led to the ineffective management of waste in India.

(e) Green Audit Report on Green Ministry

The CAG's comprehensive report on Ministry of Environment and Forest, the nodal ministry on environment and sustainable development issue contains observations on green projects and schemes meant for afforestation, conservation of biodiversity, pollution control and environmental awareness, which are administered, monitored and executed by the nodal ministry for environment. The audit finds that funds were provided to concerned agencies for increasing tree cover but the projects were not implemented and forest resources not developed to improve the degraded forest land as planned, leaving more than 70% projects incomplete, funds unutilised and targets unachieved.

In case of biodiversity conservation, the green ministry had not issued important regulations regarding access to biodiversity, transfer of results of research and intellectual property rights. The ministry did not complete identification and preparation of the list of endangered and endemic species, including plant species as well as biological resources as a first step to protect them. Further, surveys and explorations were not adequately carried out to identify fragile ecosystems and protected areas.

The ministry has an ambitious project to improve environment in selected cities—the Eco-city programme. Its prime objective is to prevent and control pollutants in air, water and land,

and create awareness for de-stressing environmental burden in cities having cultural, historical, heritage and tourist importance. The project was conceptualised by the Central Pollution Control Board. Out of the 12 cities to be covered in the first phase, it selected only six cities—Puri, Kottayam, Ujjain, Vrindavan, Tanjavur, Tirupati. As the project implementation was found deficient in many respects, the board was asked to recast the entire Eco-city programme to factor environmental concerns afresh with municipal functions, providing adequate resources for pragmatic and participative planning and implementation.

(f) Compliance with Environmental Legislations in Karnataka Metropolitan Region

The performance audit showed that the Karnataka State Pollution Control Board had not drawn up any concrete action plan to address pollution related issues, leading to under-utilization of available funds; the Board did not maintain a proper inventory of polluting sources, allowed operation of a large number of polluting units without installing pollution control systems; the existing sewage network covered only 40 per cent of BMR and the sewage treatment plants received only 47 per cent of the sewage generated. The remaining 53 per cent was discharged directly into storm water drains and lakes, contaminating the water bodies and ground water. The ground water quality in BMR was affected due to presence of pollutants in excess of permissible limits. Although concentrations of air pollutants continued to be high at many places in BMR, an effective plan to control air pollution could not be drawn up due to non-finalization of source apportionment studies.

(g) Kolkata Environmental Improvement Project

Kolkata Environmental Improvement Project (KEIP) is a joint effort of the Government of India, Government of West Bengal, Kolkata Municipal Corporation and Asian Development Bank to arrest environmental degradation and improve the sewerage and drainage infrastructure in the outer boroughs 39 of the Kolkata Metropolitan Area (KMA) through up-gradation of the city's sewerage and drainage system, restoration of the drainage canals choked by silt, evolving an efficient solid waste

management system, providing basic urban services in slums and improving the facilities in parks and water bodies. The project was started in April 2002 and was scheduled to be completed in June 2007. The completion date has been extended to June 2012.

(h) CAG Report on Water Pollution in India

This is one of SAI India's important EA reports discussing the water pollution in the country which helped the government to grasp the seriousness of the problem and to dovetail appropriate policy response. The Performance Audit was conducted from 2010 to 2011, examining relevant documents at Ministry of Environment and Forests, Central Pollution Control Board, Ministry of Water Resources and Central Ground Water Board at the central government and State Pollution Control Boards, State Environment Departments, State Urban Local Bodies, Nodal Departments and implementing agencies for National River Conservation Plan, National Lake Conservation Plan and selected blocks in districts for ground water in 25 out of 28 states. The sample consisted of 140 river projects, 22 lakes and 116 ground water blocks in 25 States. The results of audit, both at the Central level and the State level, were taken into account for arriving at audit conclusions.

(i) Coal block allocation issue – CAG Report -2012-13

Report of the CAG on 'Allocation of Coal Blocks and Augmentation of Coal Production, 2012' on the Ministry of Coal is referred by media as a report on coal allocation scam or 'coalgate'. Though the report does not discuss the environmental impact of coal mining and environmental management systems in the coal fields, the report can be considered as one of the significant reports on unfair allocation of natural resources by the executive. In 2011-12 CAG of India had conducted Corporate Social Responsibility of Coal India Limited (CIL), Steel Authority of India Limited (SAIL) and Rashtriya Ispat Nigam Limited (RINL).

The report of 2012-13 deals with allocation of coal deposits by the Ministry of Coal to the public sector and private companies during 2004-09. CAG commented adversely on the coal block allocations mainly on three counts; firstly, the Screening

Committee did not follow a transparent and objective method while making recommendations for allocation of coal blocks; secondly, competitive bidding could have been introduced in 2006 by amending the administrative instructions in vogue instead of going through a prolonged legal examination of the issue which delayed the decision making process and finally, the delay in introduction of competitive bidding rendered the existing process beneficial to a large number of private companies amounting to about Rs 1.86 lakh crore.

The government responded stating that the policy of allocation of coal blocks to private parties was not a new policy as the policy had been there since 1993. The Prime Minister made a statement on 25 August 2012 on the floor of the Parliament as the parliamentary business had been disrupted due to contentions in the report. The government found it difficult to accept the notion that a decision of the Government to seek legislative amendment to implement a change in policy should come for adverse audit scrutiny. The issue was contentious and the proposed change to competitive bidding required consensus building among various stakeholders with divergent views, which is inherent in the legislative process.

There are large number of CAG's reports pertaining to different streams like Railway, Telecommunication, Defense, Commercial, Autonomous Bodies, Joint Ventures and reports on Central, States, Urban Local Bodies commenting on significant environmental issues.

(ii) Financial Audits Using EA Framework

In regard to financial audit and certification of accounts of PSUs, autonomous bodies and other organizations, the Institute of Chartered Accountants of India is yet to bring out environmental accounting standards and till such time auditors can only use existing accounting standards for factoring environmental costs including contingent costs, environmental impact on assets, liabilities including contingent liabilities and disclosure. Certified Management Accountant (CMA) guideline categorizes environmental costs as regulatory, upfront, back end, voluntary,

contingent, image and relationship costs. Unless and until mandatory accounting standards are introduced, environmental audit of Balance Sheets, Profit and Loss Accounts of companies, Income and Expenditure accounts of other bodies and organizations could be done to a limited extent only. However, CAG's Report 11 of 2006 commented on non-provision of liability for removal of unauthorized hutments at Indira Gandhi International (IGI) Airport by Municipal Corporation of Delhi. Significant findings of statutory auditors included comment on Brahmaputra Valley Fertilizer Corporation Ltd., stating that the company did not recognize possible impairment loss in respect of unviable Ammonia – I Plant. Audit comments on Central Coal Fields Ltd. included non-provision of sunk cost of dropped project, prospecting, boring and development expenses of project not implemented since 1992-93.

PART -- 4

Green Audit and Emerging Role of Public Auditor

Public Auditor's responsibility is much higher than any other auditor, EMS auditor or any green auditor in the sense that the ultimate stake holder of public audit is the public at large through the constitutionally assigned parliamentary, democratic, institutional channel – the legislature, legislative committees, the executive, media and finally catering to the common people, community and public at large. Public Auditor has an inalienable responsibility of serving the public indirectly by discharging the assigned responsibilities in objective and transparent way, without being biased, partisan, irrational or judgemental and without fear or favour.

Professionalism demands that public auditor should keep pace with the changes in public audit profession as per the changing requirements of time. He is of course not intended to be a bloodhound, attacking ferociously the executive policy and spilling blood but he must consistently remain as an ardent watch dog of public finance, tracking the tax payer's precious resources, ensuring that the mobilization of government receipts is as per the legislative intent; as well as utilization of the government funds by

the targeted beneficiaries. The vision of the public auditor should not be narrow, sectarian, limited as he or she is expected to serve the public by judiciously discharging the responsibilities with due diligence and professionalism. He or she cannot remain static in the audit approach or be blind, deaf or dumb to the changing realities in a rapidly moving world.

Environmental Audit is not like any other traditional audit; because, its scope and ambit are much wider, essentially interlinked with sustainability and development priorities in an environmentally challenging world. EA subsumes all other audits in its fold, looks the issues holistically. At macro level, the impact of policies, planning, programmes, projects, schemes of the three tier governments and administrative establishments at the centre, states and Urban Local Bodies and Panchayati Raj Institutions in the country have to be probed and analysed with EA framework. At micro-level, activities, processes, aspects, products, services of entities functioning within the country impacting the environment should be assessed. Both qualitative and quantitative parameters of the essential components of the EA, analytical framework viz. impact on air, water, atmosphere due to emissions in air, discharge in water, impact on flora, fauna, including human settlements, habitats, and microorganisms and the entire biodiversity including abiotic components, land, waste management, impact on climate and ecology. Audit analytics, framework and tools have to be used to bring valuable audit inputs to help the legislature and executive to improve policy making, planning, implementation, review, monitoring and follow up for continuous improvement.

The Green Auditor has to view the entire gamut of activities of the governments and entities from macro levels to micro levels and vice versa through the green goggles of sustainable development concerns. Audit perspective needs to be necessarily green by evaluating through the environmental angle of Big E-through which other 5Es of Performance Audit essential elements viz. Economy, Efficiency, Effectiveness, Ethics, and Equity will be assessed. The present generation's indispensable obligation to the future generations of leaving the planet earth with its natural resources and habitats intact, the way the present generation has

been enjoying by taking appropriate measures for conservation without affecting permanent damage to ecosystem should be borne in mind. At national level, policies are to be aligned with the obligations, as reflected in the ratified international treaties; legislation should follow to cover all that is committed by the nation at its apex level of policy making; rules, regulations, procedures, standards, norms, practices and processes have to be married to the legislative intent and mandatory commitments.

In compliance with commitments to international accords, the Government of India has taken significant steps towards integrating sustainable development concepts in policy formulation, strategic planning, design of programmes, projects and schemes, cutting across economic, social and environmental sectors. Adoption of Clean Development Mechanism prescribes technological solutions to environmental problems in economic sectors like transport, energy, agriculture and industry. In social sectors like poverty eradication, human resource development, urban governance and service arena, sustainable development concepts are increasingly being embedded. In so far as environmental resources are concerned, though legal and regulatory frameworks have been created to protect environment and reduce impact on air, water, land, forestry, biodiversity, and marine ecosystem, it is the responsibility of government auditors to increasingly use EA for reporting sustainable development status to the stakeholders especially the parliament while auditing economic, social and environmental sectors.

As auditing and accounting are inextricably interlinked, the important pre-requisite for effective environmental auditing is sound environmental accounting. Environmental issues and sustainable development concerns may get finally integrated into environmental accounting: firstly, at macro level, while calculating GDP, consumption of the nation's natural resources, both renewable and non-renewable are not presently taken into account to arrive at green GDP; secondly, at micro level, in financial accounting, firms and organizations need to estimate and report environmental liabilities including contingent liabilities and environmental costs, contingent costs; thirdly, in internal reporting

and decision making process, management accounting can use data on costs of possible alternative inputs for raw-materials, utilities like water, electricity with reference to emission and discharge of pollutants and conservation of non-renewable resources, choice of technology in processing, preventive and remedial measures to be taken for compliance with mandatory environmental regulations.

In the internal reporting within an organization, data on environmental costs and liabilities can be used for better decision making in areas like use of inputs, choice of technology for processing and handling of byproducts. These can in turn help decision making relating to usage of alternative raw materials, consumption of utilities like water and power, choice of processing technology based on environmental cost of treating emission into air, discharge into water, adverse environmental aspect and impact on flora, fauna and human beings. Treatment of byproducts, conservation of non-renewable resources etc. can be looked into systematically for achieving competitive advantage and image building. Substantial amount of work needs to be done in these areas for evolving an acceptable System of Environmental Economic Accounting (SEEA) which may finally provide a solid foundation for conducting more effective and purposeful environmental auditing.

Successful implementation of EMS helps the organization to derive substantial benefits such as raw material savings from complete processing, substitution, recycling of product inputs; increase in product yields and by-product utilization; reduced energy consumption; less downtime due to careful monitoring of processes; commercial viability of waste conversion; reduced cost of material storage, handling and packaging; reduced costs associated with emissions, discharges, waste handling, transport and disposal; improved consistency in product quality emanating from process changes; safer work place and safer products to customers; and higher product resale and scrap value.

The ultimate objective for effective implementation of EMS goes beyond merely obtaining EMS certification, primarily aiming at integrating environmental decision making into the organization's overall management strategy. A performance audit

of implementation of EMS in an organization evaluates not only its conformity to mandatory and applicable environmental acts, rules and regulations but also adequacy, suitability, effectiveness, efficiency, cost effectiveness and economy in implementation of the system, and wherever applicable even factoring ethics and equity concepts for corporate governance and good governance.

It is true that audit institution has no direct role in policy formulation. But it can facilitate the government in formulating policy and planning projects, programmes and schemes for environmental protection. This is done by providing valuable input on the basis of analysis of facts and data highlighting policy inadequacies and identifying the systemic and procedural deficiencies in execution and bringing lessons from experience. The prime objective of all environmental programmes—including the stakeholders and those who are responsible for policymaking and planning, formulating projects, executing, monitoring, reviewing as well as auditing—is the same i.e. continuously improving the performance of projects and achieving the desired outcome by taking timely preventive and corrective action.

It is essential for the Public Auditor to wear invariably the Green Spectacle of Environment while auditing so that he or she is in a position to comprehend the sustainable development and environmental preservation issues in correct perspective while discharging the assigned responsibility as an auditor. In 2013, SAI India has established an International Centre for Environmental Audit Sustainable Development (IECD) in Jaipur to impart capacity building and training to EA professionals all over the world and providing facilities for research in the field, but so far, there has been no clear demarcation of EA reports on CAG's website or any analysis or focused study on the subject has been conducted. This gap in the knowledge resources needs to be filled by producing valuable knowledge inputs for international research and further collaboration in studies in the field. Needless to emphasize that along with setting up of an international institution, the crying necessity in the field of EA is the quality and volume of knowledge resources to be produced for capacity building and further specialization in the field. The pioneering efforts initiated

and documented by RTI Mumbai by networking with all knowledge institutions in the field and producing knowledge resources need continuation, encouragement and further augmentation for the purpose of intense professionalization and achieving further excellence in EA.

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