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Innovative audit experience

ARGENTINA

Integral management project and master plan for the development of the Pilcomayo river basin

1. Background

Pilcomayo river basin extends over Argentina, Bolivia and Paraguay, and is part of La Plata Basin, covering 288.360 km², of which 44% belongs to Paraguay, 31% to Bolivia and 25% to Argentina.

The basin, which harbours significant natural resources, has experienced large scale erosion and sedimentation processes that threaten its environmental sustainability. Pilcomayo is the only river in the world that undergoes the phenomenon of riverbed extinction due to siltation (filled by sediments); it has already been reduced in 270/290 km., affecting riverine dwellers and water distribution between Argentina and Paraguay.

Basin major problems

- Intense erosion and sediment transport which, together with weather events, produces landslides and retreat of the riverbed.
- Landslides that affect people, infrastructure and natural resources.
- Severe environmental degradation due to: (1) mining and oil exploitation liabilities; (2) water and sediment pollution; (3) deforestation, desertification and salinization processes.
- Restricted water use due to the arid conditions.
- Degraded fish resources.
- Unequal income distribution.

These phenomena determine social disarticulation –due to changes in household economies- and the degradation of life quality of inhabitants –which is reflected in impoverishment, less work opportunities, migration and loss of cultural values.

The main economic activity in the region is subsistence agriculture and a significant portion of inhabitants depend on fish resources; hence, water resources are fundamental for survival and food security in the three countries.

In 1994, Argentina, Paraguay and Bolivia sign the Formosa Declaration, in order to promote economic development in the Pilcomayo basin and an International Commission is established. A constituent accord for the Commission (signed in 1995) establishes a Delegate Council formed by two representatives of each country. The functions of the International Commission (IC) are:

- Perform studies and works necessary for the multiple, rational and harmonic use of the river resources, food control, sediment retention and flow regulation.
- Formulate the General Management Plan of the basin, prioritizing projects oriented to regional development.
- Monitor and analyze water quality on a systematic basis and communicate infringements to the parties.
- Promote and coordinate the installation and operation of a network of measurement stations to monitor weather and hydrological conditions.

In 2000, IC and European Union (EU) subscribe an agreement for financing the “Project of Integral Management and Master Plan of the Pilcomayo River Basin”, which would start in 2002 and last up to December, 31, 2008. The amount compromised was 12.600.000 euros (EU) and 8.000.000 euros (IC). Later,

the amount provided by IC was reduced to 3.929.225 euros and the financial commitment was extended up to December, 31, 2010.

The general objective of the project was to: improve livelihoods of the inhabitants of the Pilcomayo river basin and their natural environment, promoting regional integration. Specific objectives are oriented to deepen knowledge base of the basin, perform actions to stabilize erosion processes, reduce sediment input, mitigate negative impacts on dwellers and perform action to ensure the sustainability of the project. One of the main expected results is the formulation of a Master Plan for the Integral Management of the Basin, with a time horizon extending up to 2025.

2. Audit objectives and methodology

We examined the Project of Integral Management and Master Plan of the Pilcomayo River Basin in relation to the studies to increase the knowledge base on the situation and functioning of the river basin and the execution of pilot works with innovative technology for water management. Audit period: 2007-2009.

We focused on the development of studies, pilot actions, Master Plan and institutionalization of the IC, considering the participation of local institutions and communities, as established by the project.

Methodology

We performed a documentary analysis and triangulation of information from the Sub-secretary of Water Resources and from different institutions involved in the Project: IC, International Coordination Committee, Interjurisdictional Commission of the Pilcomayo River basin, Argentine Coordination Committee.

3. Summary of audit findings

Advances during the audit period:

- Institutionalization of the International Basin Body.
- Conclusion of environmental and socio-economic baseline reports.
- Formulation of the Master Plan (MP), validated by two of the countries by the end of the audit period. The plan states the importance of articulating scientific knowledge with native people ancestral knowledge and promotes ample and inclusive participation, including local communities, regional and national governments, and asserts the premise of integrating sectors involved in actions that may affect them.
- Implementation of monitoring networks to measure weather, hydrological conditions and water quality. Information consolidated in a single database comprising hydrology and water quality.
- Pilot works in 16 communities for water access and use; integral management of microbasins, support for fishing activities, erosion control and basin protection.
- Studies oriented to drinking water provision, project evaluation and irrigation systems, erosion studies, soil rehabilitation and sustainable production, fish community dynamics and topo- bathymetric surveys.

Audit findings

- The International Coordination Committee of IC, is limited in its functioning, since regular meeting with the Council of Delegates do not occur. It should be noted that the Master Plan promotes a more open participatory approach, proposing bilateral relation among the political, executive and coordination instances.

- The institutionalization process of the international body took place before the creation of the national committee, against the principles of water policy established in the Interjurisdictional Accord. The Interjurisdictional Committee was formed after the Argentine Coordination Committee and after the formulation of the Master Plan.
- The financial strategy for funding projects already formulated was not designed, this precludes the prosecution of the integral management of water resources and associated natural resources.
- The IC has not completed the validation process of the Master Plan, bring pendant a workshop in Bolivia. While Argentina did validate the master plan, provinces posed the need for increased participation in the formulation of global and annual operating plans (POA).
- Delays in the approval of Operational plans and in the implementation of activities expected to start in 2009 have been identified.

Recommendations

- Propose in the context of the Delegate Council an agenda for regular meetings of the International Coordination Committee.
- Strengthen the link between the Argentine Coordination Committee, Provincial (regional) Committees and the Interjurisdictional Committee, and with international bodies of the river basin (International Coordination Committee, International Commission and Executive Directorate).
- Design and implement a financial strategy with international and national funds, both to performed projects already formulated and to ensure the prosecution of the integral management of water resources and associated natural resources.
- Complete the validation of the Master Plan.
- Promote that provinces get to know better the Master Plan, and take part in the formulation of POG and annual operational plans.
- Correct delays in the approval of annual operational plans and in the implementation of expected actions.

Conclusion

Major problems of the river basin have been examine in the baseline documents and are considered in the Master Plan. Both the participatory and executive dimensions of the international institutional structure are being consolidated; studies and pilot actions have been performed, monitoring networks of water quality and hydrology have been implemented, among other things. The master plan proposes that inhabitants and public and private organizations of the basin manage and restore water resources and associated natural resources in an integral manner.

In order to ensure Project sustainability, the following actions are required: validate the Master Plan, design and implement a financial strategy, strengthen participation and relation among institutions involved. This would permit to improve livelihoods of the inhabitants of the basin, as stated in the Formosa Declaration and in the Constituent Accord of the International Commission.

Comment

In spite of the weaknesses indicated, the Project has a reasonable performance. The promotion of public participation and the inclusion of ancestral knowledge by indigenous communities provide effectiveness to the management of natural resources in the basin.

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Innovative audit experience

BRAZIL

Work performed by TCU involving the Precautionary Principle

The paper outlines a work carried out by the Brazilian Court of Audit that used the Precautionary Principle to justify its decision about the mullet fishing in the South and Southeast of Brazil.

The origin of this inspection was a representation made by a member of the Federal Prosecution Office who questioned the legality of Intraministerial Normative Instruction which allowed mullet fishing in 2010 by a number of vessels in excess of what was being authorized in the years prior to 2008. The mullet is a classified species according to a norm by the Ministry of the Environment as overexploited or threatened with overexploitation and its fishing has been authorized during the reproductive migration period.

After hearing the parties responsible for issuing the norm, in this case, the Ministry of Fisheries and the Ministry of the Environment, the Court conducted an analysis of documents and demonstrations presented by them. It was considered in the analysis not only the legal normative part, but also the current status of fish vessels resources in Brazil and worldwide, as well as the International Agreements signed by Brazil, including the Rio Declaration on Environment and Development, drafted at the Rio 92 Conference, whose art. 15 deals with the Precautionary Principle. It is important to highlight that the Guide "Auditing Sustainable Fisheries Management: Guidance for Supreme Audit Institutions", prepared by the INTOSAI Working Group on Environmental Auditing (WGEA) in 2010, was used as a bibliographical reference.

The findings obtained after the analysis were:

- 1) There is no sufficient scientific information and monitoring data on the mullet to subsidize the definition of criteria for maximum sustainable catching and maximum fishing effort, aimed at planning the fishing of this species, which would be the ideal control measures of the sustainability of stocks.
- 2) Although the Normative Instruction of the Ministry of the Environment 05/04 (IN MMA 05/04), the norm that recognizes as endangered species and species threatened by overexploitation or overexploited aquatic invertebrates and fish listed therein, provided for a period of 5 years to develop a management plan for endangered species, it was found that the mullet management plan had not yet been established. In fact, of all species listed in IN MMA 05/04, only the lobster has an approved management plan. And, although in progress the development of management plans for several species listed in MMA IN 05/04, the mullet is not among them.
- 3) To the limit of 115 vessels that would have acted in catching mullet in 2008 it was not submitted any statistical or scientific grounds to justify the maintenance of that number in subsequent years. Historical data point to an average of 67 vessels operating in mullet fishing, and the year 2008 would have been unusual, with a peak of 115 vessels, nearly 90% above the annual average.
- 4) The catching of mullet is largely related to the market of spawns, which are eaten as a delicacy like caviar. The spawns are destined for the export market, the mullet being sold in local market at affordable prices. The absence of a ban on landings of mullet spawns without the carcasses enables the remaining carcasses, after the removal of the spawns, can be disposed of at sea. This provides more space on board for mullet spawns, multiplying the number of individuals caught and discarded, i.e., the overfishing of this resource.
- 5) The total direct financial resources allocated to the then Program for the Evaluation of the Sustainable Potential of Living Resources in the Exclusive Economic Zone - REVIZEE, whose goal was to

conduct survey of potential sustainable catching of living resources in the Exclusive Economic Zone in the period 1994-2003 were around R\$ 30 million, representing an average annual value of R\$ 3 million. By comparison, the UK invests in marine research around £270 million annually, supplemented by £ 220 million of funds from fishing industry.

One of the innovations of this work was the consideration by the Brazilian Court of Audit of the Precautionary Principle to undo the reasons of justification presented by the Ministry of Fisheries. This was the first time that a court decision was based on this principle. The Department of Fisheries claimed that there was no evidence to prove that the increase in fishing effort to catch mullet caused injury or threat of harm to the environment. Based on the Precautionary Principle, which states that if an action can lead to irreversible environmental damage in the absence of scientific consensus, the burden of proof is on the side of those who intend to carry out the act or action that may cause the fraud, the Court dismissed the application by the Ministry of Fisheries. In this sense, it would be necessary for the Ministry of Fisheries to show that the increase in fishing effort did not cause potentially serious or irreversible damage to the environment, and not otherwise.

TCU decided that the Ministries of Environment and Fisheries should submit, within 120 (one hundred and twenty) days, a joint proposal for an action plan containing schedule of necessary steps for establishing and implementing the management plan for the sustainable use of mullet, setting deadlines and those responsible for such measures. TCU also recommended that while it had not been prepared the management plan for the sustainable use of mullet, the quantified technical parameters and standards adopted for the sustainable management of the next crop of mullet should be defined, based on existing scientific and technical data, and in the case of non availability of the data indicated in the previous section, the number of vessels allowed to fish mullet should be established based on historical data, observing the precautionary principle.

Due to the TCU recommendation, the Ministry of Fisheries and Ministry of the Environment issued a norm limiting the amount of 60 vessels for the 2011 harvest, in addition of prohibiting the landing of mullet roe unaccompanied of their carcasses. The Fishing Industry Union, with support from several lawmakers, appealed against the recommendation of TCU, claiming that limiting the quantity of vessels in the harvest of 2011 could cause significant economic damage to fishing activity in the region. Considering the allegations made by the Union, the Court just excluded the recommendation limiting the quantity of vessels, but recommended that the precautionary principle should be observed in the sustainable management of fisheries resources. As a result, the Ministry of Fisheries together with the Ministry of the Environment issued a new rule allowing for mullet fishing for the same amount vessels of previous crop (82), however, limiting the fishing effort of these vessels in volume and maintained the restriction on the landing of spawns without carcasses.

According to the Ministry of Fisheries, for the harvest of 2011, permits were issued for mullet fishing for 82 vessels. Although the Court has withdrawn its recommendation that limited the number of vessels, the fact that a decision on the exploitation of an endangered natural resource, signalled to policymakers the importance that environmental sustainability has for public policy and the country. Currently, the Ministries of Fisheries and the Environment are seeking to establish control criteria to limit the amount fished within sustainable parameters, according to the precautionary principle. In addition, TCU has strengthened the role of the Ministry of the Environment in decision making and regulations to address exploitation of fishery resources, since there is a need to balance the interests of the two ministries, one concerned with the exploitation of the resource and the other with its preservation.

The lesson learned in this case was that the Precautionary Principle can be used to support the decision of the Court, since there were no scientific studies sufficient to define the amount of sustainable mullet catching, and considering that there was a risk of serious harm against this species, the lack of scientific certainty has not been used as a reason for it to postpone the adoption of effective measures to prevent the degradation of this resource. The Precautionary Principle assisted the Court in interpreting the legislation,

guiding the understanding of regulation that had the potential to cause serious harm to the marine environment and the country's natural heritage.

Thus, the Court showed a strong concern with environmental issues, especially the sustainability of fishing resources in Brazil, expanding the vision of a national public protection to the natural heritage.

Innovative audit experience

INDIA

Managing stakeholder expectations ... new initiatives in environment audit by SAI India

1. Background

The indiscriminate utilization of natural resources for meeting development demands, rapid industrialization and unplanned urbanization are adversely impacting the environment and its sustainability. Dumping of wastes into rivers and lakes, clearing forest land for industrialization, habitation and agriculture and increased emission of harmful pollutants into the environment are indicators of development which is unsustainable in the long run. Symptoms of environmental degradation and unsustainable development like global warming, destruction of biodiversity, climate change etc., has become a cause of grave concern all over the world.

Every society, small or big, is feeling the ill effects of environmental degradation which poses a high level of risk to the existence of plant, animal and human life. **There is evidence of unprecedented environmental change at global and regional levels**¹. The Earth's surface is warming which is evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. More than 2 million people globally die prematurely every year due to outdoor and indoor air pollution. The "hole" in the stratospheric ozone layer over the Antarctic – the layer that protects people from harmful ultraviolet radiation – is now the largest it has ever been. Unsustainable land use and climate change are driving land degradation, including soil erosion, nutrient depletion, water scarcity, salinity, desertification and the disruption of biological cycles. The per capita availability of freshwater is declining globally and contaminated water remains the greatest single environmental cause of human sickness and death. Aquatic ecosystems continue to be heavily exploited, putting at risk sustainability of food supplies and biodiversity. The great majority of well-studied species are declining in distribution, abundance or both. **These unprecedented changes are due to human activities in an increasingly globalized, industrialized and interconnected world, driven by expanding flows of goods, services, capital, people, technologies, information, ideas and labour, even affecting isolated populations.**

India too is affected by these environmental threats and as such, proactive governmental intervention in India is needed to combat and manage these environmental threats more effectively. This calls for sustained action by many agencies, especially by the Ministry of Environment and Forests which is the main agency for conservation and protection of the environment in India.

2. Protection and conservation of Environment in India: role of Ministry of Environment and Forests

The Ministry of Environment & Forests (MoEF) is the nodal agency in the administrative structure of the Central Government of India for planning, promotion, coordination and overseeing the implementation of India's environmental and forestry policies and programmes. **The primary concerns of the Ministry are implementation of policies and programmes relating to conservation of the country's natural resources including its lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals and the prevention and abatement of pollution.** While implementing these policies and programmes, the Ministry is guided by the principle of sustainable development and enhancement of human well-being. The broad objectives of the Ministry are:

- Conservation and survey of flora, fauna, forests and wildlife
- Prevention and control of pollution

¹ Source: Global Environment Outlook 4 published by United Nations Environment Programme.

- Afforestation and regeneration of degraded areas
- Protection of the environment and
- Ensuring the welfare of animals

These objectives are well supported by a set of legislative and regulatory measures, aimed at the preservation, conservation and protection of the environment. Besides the legislative measures, the National Conservation Strategy and Policy Statement on Environment and Development, 1992; National Forest Policy, 1988; Policy Statement on Abatement of Pollution, 1992; and the National Environment Policy, 2006 also guide the Ministry's work.

3. Introduction to SAI India

India is a federal constitutional republic governed by a parliamentary system of governance. As such, there is a central government as well as state level governments in the 28 states of India. In the Indian system of governance, the policies set by the Parliament and State legislatures give the goals to be achieved through public spending. These policies are translated into programmes and implemented by various departments of the government. For this, the Parliament sanctions the budget which prescribes how the government will collect money through taxes and how much and for which purposes will it spend money. There are also financial rules which the government departments and other public bodies must follow when they receive and spend public money. The spending departments are accountable to the Parliament for both the quantity and quality of their expenditure. **Articles 148 to 151 of the Constitution prescribe a unique role for the SAI India in assisting the Parliament to enforce the said accountability of the government departments.** These articles SAI India him wide mandate and put almost every spending, revenue collecting and aid/grant receiving unit of the government under SAI India's audit domain.

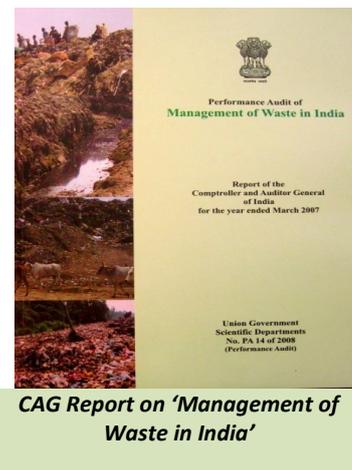
4. Purpose and priorities of the initiative by SAI India

Trends towards environmental degradation can be slowed and even reversed by active governmental interventions. In this context, public auditors, being one of the stakeholders can play a significant role with timely, relevant and evidenced reporting. This **facilitates all other stakeholders like Non Governmental Organisations, service providers, research agencies, implementing agencies, regulating agencies, media and the public administration in tackling critical environmental concerns more effectively.**

Over the years, SAI India has been involved in evaluating the efforts of public administration in the management of the environment by carrying out more than 100 environmental audits on issues like air & water pollution, waste management, biodiversity etc. Most of these reports dwelled on lack of compliance to the acts/rules enacted by the Parliament and weaknesses in monitoring programmes of the Government. Even though various efforts have been made by Government in India to improve compliance with rules/regulations, the complexity of the agencies involved, absence of a unified ownership in a federal system and the inability of the various stakeholders to address each other's concerns has led to interventions in combating environmental degradation being less effective than desired. This prompted us to **revisit our traditional role of critiquing governmental interventions and move towards a more constructive role by actively involving other stakeholders with the ultimate aim of aiding public administration in managing the environment more effectively.**

5. Managing stakeholders expectations—new initiatives taken by SAI India

Issues like climate change, glacial melting, erratic monsoons, high level of pollution etc, continue to impact the quality of human and animal life in India. Keeping in view the rapid pace of environmental degradation and its adverse impact on the quality of life, SAI India, as the public auditor, undertook comprehensive evaluations of the public administration's effort in the field of environment protection. **These comprehensive evaluations took the form of Performance Audit on Management of Waste in India, Performance**



Audit of Water Pollution in India and evaluation of role of Ministry of Environment and Forests in areas of afforestation, pollution control, protection of biodiversity and environment education. The new initiatives taken in these audits undertaken by SAI India are discussed below:

(i) A consultative audit process: The audit process is being made much more consultative by SAI India **through the increased involvement of stakeholders** so as to bring all the stakeholders on board and identify with the issues being evaluated by us. Usually, it has been SAI India's experience that the public administration almost always take a defensive posture to the audit findings, even though, they themselves recognise the validity of many issues being flagged by audit. **A wider consultative process at each stage of audit evaluation ensures that the final report will find ownership and acceptability with all the stakeholders.**

For the Performance audit on 'Waste management in India', SAI India consulted a large number of stakeholders while framing audit objectives. This helped SAI India to define audit objectives in a more focused and more meaningful manner. Involvement of stakeholders also ensured that SAI India's report was widely disseminated. Important stakeholders like Non Governmental Organisations (NGOs), waste management service providers, implementing agencies, regulating agencies etc., were involved right from the stage of identification of significant environmental issues to the stage of dissemination of findings. This ensured that the concerns of the various stakeholders were taken on board.

For the Performance Audit of 'Water Pollution in India', SAI India also involved a wider spectrum of stakeholders, through an international conference, before the audit was taken up. This conference was attended by various Civil Society Organisations, Government Agencies, International Agencies and Regulatory Bodies like Jheel Samrakshan Samity, Arghyam, Tarun Bharat Sangh, Wateraid India, Ministry of Environment and Forests, Central Pollution Control Board, Central Ground Water Board, Jammu & Kashmir Lakes & Waterways Development Authority, International Union for the Conservation of Nature, Food and Agriculture Organisation, GTZ etc. The Heads of Supreme Audit Institutions from Austria, Bhutan, Maldives and Bangladesh also shared their concerns about water pollution. The Conference flagged important areas of concern with regard to river, lake and ground water pollution. Some of the issues raised during the Conference are attached as **Annex 1**.

The Comptroller and Auditor General of India will be conducting a Performance Audit on the subject. "Pollution of ground water, lakes and rivers in India" during 2010-11. In case you want to draw attention to any specific problem / issue regarding water pollution which is affecting you or the environment around you, please get in touch with us. We would try to address these important issues in our report.
E-mail: cag.water@gmail.com
Postal Address: Office of the Principal Director of Audit, Scientific Departments, DGACR Building, IP Estate, New Delhi-110 002.
Fax No: 011-23702353
 davn 51101/11/0005/0910

Advertisement placed in newspaper by SAI India

Further, SAI India put out advertisements in various national and local newspapers all across India, inviting suggestions from the general public regarding the water pollution problems faced by them through e-mail and letters. SAI India got a huge response of more than 700 e-mails and letters. All these inputs facilitated SAI India in the framing of audit objectives, sub-objectives and questionnaires for our Performance Audit. A lot of issues regarding water pollution were raised and some of these were used in sample selection as well as in framing audit questions. **This consultative approach helped all the important stakeholders in taking ownership of the findings and recommendations of SAI India.**

(ii) A concerted effort to review the adequacy of policy interventions by the public administration in tackling critical environmental issues instead of merely assessing compliance with existing environmental rules and regulations. In the PA on Management of Waste in India, SAI India commented on lack of policy on management of waste in India and similarly, in the PA on Water pollution in India, SAI India commented on inadequacy of the policy framework in India for effective prevention and control of water pollution in India.

(iii) Compilation of best practices in waste management adopted both locally and internationally and adoption of a more positive style of reporting which included specific recommendations along with references to a bouquet of



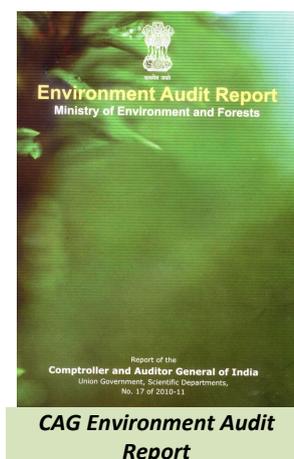
Visual Booklet on Management of Waste in India

best practices. This enabled stakeholders to influence policy makers to make more effective policy level interventions based on successful practices adopted worldwide which would also facilitate the government to contemplate solutions suitable to local conditions.

(iii) Dissemination of findings to all stakeholders through a visual booklet: Environmental protection in general and effective management of waste in particular is not the responsibility of one department or agency of the government alone, but requires coordinated and concerted efforts on the part of the various ministries and departments of the government and other stakeholders such as NGOs, municipalities, hospitals etc. In order to make the findings available to a wider audience, **new dissemination techniques like distribution of a small vibrant booklet containing just the major findings**, addressing interest groups etc, were adopted. The readership of the reports of SAI of India has been usually confined to the implementing agencies and the ministries concerned, apart from the Public Accounts Committees. One of the reasons for the limited readership has been the traditional language, style, size and presentation of the Audit Reports. **SAI India felt that critical information on these environmental issues needed to be disseminated to all the stakeholders including the common citizens.** By educating and sensitising the stakeholders, SAI India hopes to build stronger partnership with them so as to ultimately achieve the common objective of effective environmental protection through cooperation of all. This prompted SAI India to innovate and come out with a small, vibrant booklet containing the major audit findings and conclusions which would be easily comprehensible to a lay person. The gist of the audit findings were presented in a visually appealing manner which enabled the readers to connect easily with the serious environmental concerns being highlighted in the report.

(iv) Creation of a nation-wide database during the course of audit: In the field of environment management, during the course of SAI India's performance and compliance audits, it was observed that most of the policy level interventions were at the central government level, leaving implementation of environmental policies and programmes to state governments, local bodies and private entities. As such, a country-wide status of implementation and monitoring of environmental programmes was difficult to ascertain, leading to difficulty in making timely interventions. **In order to aid the stakeholders including the public administration in obtaining a full picture of implementation, audit methodology was augmented by collecting information relating to compliance to enacted laws and compiling it as a database, which was also shared with the government. Such database, besides aiding the auditors in arriving at wider audit conclusions, also makes it possible for the central government to assess performance of different states across various environmental parameters.** This enabled the public administration to take timely corrective action at the policy level.

(v) Assessment of performance of the main Ministry² in conservation and protection of environment: Protection and conservation of the environment is increasingly becoming important, especially in light of observed climate change which has devastating consequences for the survival of humanity. In this context, effective environmental governance by the Executive is of utmost importance. Ministry of Environment and Forests is the nodal agency in the Government of India for planning, promoting, coordinating and overseeing the implementation of environmental and forestry programmes. We carried out an assessment of the performance of the Ministry **on issues relating to the adequacy and effectiveness of programmes, schemes and interventions made by it to tackle important environmental issues in the areas of afforestation, biodiversity, control of pollution and environment education.** This report also contained 37 specific recommendations which are expected to enable the Executive to take corrective action as also to frame policies and directives that will lead to improved environmental governance.



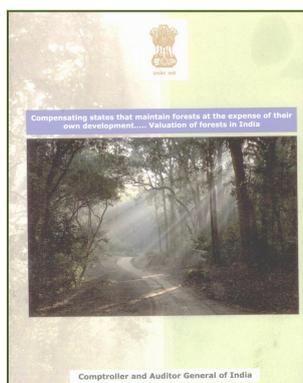
² Ministry of Environment and Forests in India is mandated in the central government of India for protection and conservation of the environment.

(vi) Brochure on “Ways to green your office”: As auditors to the Ministry of Environment and Forests, we had recommended that the government consider ‘green procurement’ to further the cause of environmental responsibility in government offices. **Pending any action from the Ministry on this issue, we took leadership and prepared a brochure which proposed small steps in areas of saving paper, using less energy, green procurement, recycling in the office etc., that people in an office could implement to be more environmentally conscious and conserve scarce environmental resources.** Besides circulating this brochure to all offices of SAI India, this brochure is being circulated by the Ministry of Environment and Forests amongst all central

government offices in the country.

(vii) Contribution to knowledge-sharing in the field of environment

audit: As the nodal body for environment audit in the country, SAI India acts as a repository of information and experience in the field of environment audit. SAI brought out a paper on **“Compensating states that maintain their forests--Valuation of Forests in India”** which was shared with the Prime Ministers’ Office by SAI India. This paper talked about the methods of valuation of forests in India and ways of compensating states that preserve their forests at the expense of their development needs.



CAG paper on “Compensating states that maintain their forests—Valuation of forests in India”

SAI India was the team leader of the 8th ASOSAI Research Project which prepared **“Guidance on conducting Environmental Audit”** for the use of ASOSAI countries who wanted to undertake environment audit. The objective of the project was to provide specific guidance to ASOSAI member nations in conducting environment audit, which is an emerging area of audit enquiry.

SAI India has also brought out a comprehensive manual on **“Audit of Environment and Climate Change”** which details the steps and procedures for carrying out environment audit in India, in thematic areas like air pollution, water

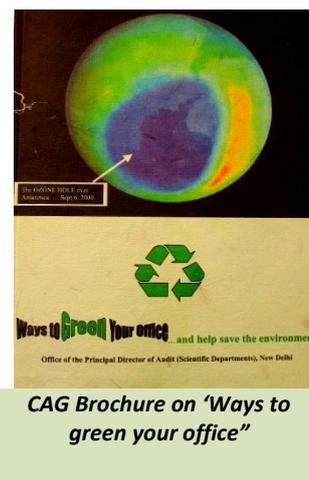
pollution, biodiversity, coastal zone management, waste issues etc. This Manual will be used in offices of SAI India all over the country in the practice of environment audit and will serve to give an impetus to environment audit all over

India.

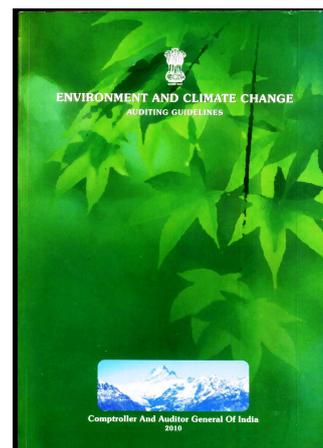
6. Outcomes of the initiative

- One of the most important outcomes of this initiative has been the change in the relationship between the public administration and the public auditor. **The adversarial relationship has metamorphosed to one where the public auditor and the public administration are on the same side of the table along with other stakeholders.** This has helped in addressing the critical environmental concerns more effectively.

- As audit findings were accompanied by practical recommendations along with international/national best practices, it facilitated the public administration to recognise the value addition being made by this initiative. A major outcome of the initiative has been that **government has accepted the need for undertaking an immediate review of the existing environmental policy framework.** Based on the recommendations made in our report, Ministry of Environment and Forests (MoEF) set up a high level committee to review and suggest the necessary policy changes. More than 30 top experts in various areas of waste management as well as representatives of SAI India were involved in this exercise. The prompt action by the government underscores the value and utility



CAG Brochure on ‘Ways to green your office’



CAG Manual on Audit of Environment and climate change

of the recommendations made. The committee has since made more than 100 recommendations which are being implemented by the government

- SAI India's environmental audit reports have been picked by the Public Accounts Committee for detailed discussion. The Public Accounts Committee (PAC) is a committee of selected members of Parliament, constituted by the Parliament of India, for the auditing of the expenditure of the Government of India. After detailed discussion of the report wherein the ministry officials and SAI India is called for evidence gathering, the PAC issues its recommendations on which action has to be taken by the government of India. **This has ensured that the issues raised in the audit reports of the public auditor are followed up and action taken on these issues by the government.**
- As a result of **new methodologies adopted in the process of audit, reporting and dissemination, the findings of the audit reports are reaching a wider audience.** SAI India's reports are now being very widely covered by the media. This has not only led to increasing the awareness of the stakeholders and the general public but also led to faster response from the public administration for taking remedial measures. Thus the new initiative promoted a more responsive public administration ready to build partnership with all stakeholders to find a solution for better environmental management in the future.
- A direct relationship between the reports and its outcomes can be established from the response generated by stakeholders, which is a good indicator of the effectiveness of the initiative. **Our new initiatives have generated unprecedented response from stakeholders like NGOs, ministries, research institutions** etc., and this in itself is an apt measure of the effectiveness of the new initiatives in environmental audit. In the case of the report on "Management of Waste in India", the findings were found relevant by many other ministries besides the Ministry of Environment and Forests. The responses of the secretaries of the ministries of Urban Development, New and Renewable Energy etc, are indicative of this. This initiative has also been circulated by the SAI India to other important international Supreme Audit Institutions.

7. Conclusion

All environmental issues involve large number of stakeholders like the rule makers, implementers, regulatory agencies, environment management agencies in the private/corporate sector, NGOs and the general public. **Right from the stage of conceptualising the critical issues, framing of objectives, sharing of findings, dissemination of findings, we have actively involved all the stakeholders and taken on board their concerns.** As a result of these efforts, citizens are now more aware of the critical environmental concerns, and what the government is doing to protect and conserve the environment. The initiative has thus enabled the citizen by providing more information on the performance of the government in conservation and protection of the environment which impacts the sustainability and quality of life on earth. This initiative has also empowered the government by offering constructive recommendations in improving the performance of critical environmental management programmes. The new initiatives taken by SAI India would also eventually lead to implementation of good practices prevalent internationally. The initiatives taken by SAI India would also serve to strengthen the accountability mechanisms laid down by the Constitution. This would have a long lasting impact in empowering the citizens whose lives are becoming more and more impacted by the degradation of the environment.

Innovative audit experience

IRAN

Environmental Audit of Caspian Sea

1. Background and Audit planning

a) The importance of the subject:

Due to the following reasons, the Supreme Audit Court of I. R. Iran chose the "Environmental Audit of Caspian Sea" as a pathological approach:

1. In Islam water has a special status. In Holy Koran Allah has emphasized that the life of all creatures is dependent on water and that Man has to think about it and be thankful to this blessing. One of the ways to be thankful about the blessing of Allah is the proper use of water and avoidance of polluting it.
2. From both the quantity and quality point of view, water is the most important part of ecosystem. Caspian Sea as the largest ecosystem contains almost 40% of the water existing in the worlds' lakes. Lack of connection between Caspian Sea and other lakes has made it a special ecological area. The unique characteristics of the Caspian Sea have created a situation where it has been seriously damaged by oil, industrial and chemical pollution as well as city and home sewages.

With the objective to preserve it from different pollutants and achieving the sustainable development of environment, the environmental audit of Caspian Sea is necessary.

b) Objectives:

1. Examining the enforceable and accepted conventions for the Caspian Sea.
2. Examining the existence of required standards and guidelines for the evaluation of the Caspian Sea water pollution.
3. Examining the share of each bordering country regarding the pollution of Caspian Sea.
4. Examining the sufficiency of the mutual actions by the Caspian Sea countries regarding the control of water pollution.

c) Criteria

1. Inclusiveness of the governing conventions regarding the Caspian Sea.
2. Ratification of the content of Tehran Convention by either the government or the Parliaments of the sea bordering countries in order to make it enforceable.
3. Compiling the related regulations regarding the implementation of the convention on the protection of Caspian Sea Environment (Tehran Convention)
4. Preparation and approval of conventions on the protection of Caspian Sea Environment (Tehran Convention)
5. Preparation of common index and standards governing "the quality of Caspian Sea water" by the bordering countries.

6. Preparation of common criteria and guidelines regarding the “evaluation of the pollution of Caspian Sea” by the bordering countries.
7. The share of pollution of Caspian Sea by the bordering countries based on the population per capita residing next to the Sea.
8. The sufficiency of the common actions of the Caspian Sea countries regarding the control of water pollution.
9. Preparation of criteria and guidelines for “evaluation of Caspian Sea pollution” by the Iran’s Department of Environment.
10. The sufficiency of the measures taken by the Iran’s Department of Environment regarding the control of water pollution in Caspian Sea.

d) Audit Scope:

Review of the measures and activities taken regarding the Caspian Sea pollution in the form of objectives and using the presented criteria since 2003 when the Tehran Convention was ratified.

2. Methodology:

Supreme Audit Institutions as the most important supervision organizations have the ability to identify problems regarding the systems, procedures, rules, regulations, etc and as the result reflect such problems to their respective governments and therefore help them to achieve their environmental objectives.

The Supreme Audit Court of I. R. of Iran in its country paper to the 14th meeting of INTOSAI WGEA, instead of dealing with a small problem in Caspian Sea, decided to consider the problem of the whole Caspian Sea in terms of:

- The pollutions made by the sea boring countries
- The common measures taken by the same countries in controlling the water pollution
- The challenges facing the environmental audit of Caspian Sea and finally
- present some recommendations for the improvement of the marine environment of the Caspian Sea based on the audit findings.

The SAC believes that if such measures are taken properly, the problem of Caspian Sea water pollution will be considerably reduced. For the preparation of this country paper, all necessary documents were received from Iran’s Department of Environment. The same organization is one of the signatory members of Tehran Convention which has been implementing common works and projects with other Caspian Sea countries including holding training workshops, compiling protocol drafts, compiling the Tehran Convention documents, studying the share of each sea border country regarding water pollution, etc.

3. Findings and recommendations

Based on the studies made:

3/1 considering the fact that the Caspian Sea is land locked, it is considered an international sea rather a lake belonging to the sea border countries. Therefore, it is excluded from the legal rights of the world seas. For this reason, international conventions such as London Convention, the 1982 law of the Seas Convention and other conventions could not be applied to the Caspian Sea.

3/2 The "convention about the protection of the environment of Caspian Sea" was formed on November 4th, 2003 and later was approved by either the government or the Parliaments of the bordering countries on 12 August 2006. The official copy of the same document handed over to the Government of I. R. of Iran is the only governing and enforceable convention on the Caspian Sea.

3/3 After the ratification of the Convention on "the protection of the environment of Caspian Sea" known as Tehran Convention, a legal framework accepted by the Caspian Sea countries as well as international organizations was created and as the result the regulations of the same convention became enforceable.

3/4 Based on Tehran Convention³, the approval of proper laws regarding the responsibility and damages incurred to the environment has been predicted but the study made in this regard shows that the Caspian Sea countries have taken no action in this regard. This lack of action by the same countries challenges the pollution preventive measures in the Caspian Sea and the enforceability of the same convention.

3/5 The realization of the commitments of Tehran Convention is possible through the related protocols. Accordingly, the preparation and approval of a few protocol in this regard has been predicted by the Caspian Sea bordering countries.⁴ Each of the same protocols, inspired by the objective of Tehran Convention, focuses on major goals such as prevention and reduction of water pollution and protection of the environment of Caspian Sea. Unfortunately, due to the multiple number of the same protocols and the different views of the 5 bordering countries, the same protocols have not been approved yet and consequently the above mentioned objectives have not been realized yet.

3/6 currently the draft of 4 protocols of the Tehran Convention have been prepared. The delay in compiling and approval of the same protocol has reduced the effectiveness of the measures taken by the bordering countries in prevention, reduction and control of pollution as well as the preserving the environment of Caspian Sea.

3/7 With regard to the fact the Tehran Convention can not be realized through its protocols, the mere approval of Tehran Convention is not sufficient for protection and restoration of the environment and combat against water pollution.

3/8 The Tehran Convention⁵ has focused on the cooperation of the signatory countries in developing standards, procedures and policies in reduction of water pollution, protection and restoration of the environment in Caspian Sea but the result of studies shows that since the approval of Tehran Convention, no standard or index regarding "the quality of sea environment" as well as "the Caspian Sea water quality" has been developed. Furthermore, there are no common guidelines for combating the water pollution in Caspian Sea.

3/9 Totally 2204380 tons of city, industrial and river pollution resulting from the special pollutants (including BOD, nitrogen, phosphate, petroleum and its products) is poured into Caspian Sea by the sea bordering countries. Out of the same amount, the share of water pollution is as follows: Russian Federation 1813900 tons (82/29%), Islamic republic of Iran 200810 tons (9/10%), Azerbaijan Republic 142800 tons (6/8%), Kazakhstan 33700 tons (1/53%) and Turkmenistan 13170 tons (0/6%).⁶

3/10 The amount of the per capita special pollutants (including BOD, nitrogen, phosphate, petroleum and its products) by the sea bordering countries is as in the following:

³ . Article 29 of Tehran Convention

⁴ . Article 24 of Tehran Convention

⁵ . Articles 6 and 18 of Tehran Convention

⁶ . This statistics is based on the Version State of the Environment Report (SOE)

Russian federation: 518/23 kilo (first rank), Azerbaijan Republic: 40/8 kilo (second rank) Islamic Republic of Iran: 28/6 (third rank). Due to the lack of sea coastline population in Kazakhstan and Turkmenistan the statistics regarding these two countries has not been mentioned.⁷

3/11 River currents are the major factor in making the Caspian Sea polluted. Generally speaking, out of the yearly pollutants which is 2204380 tons, the amount of 1913400 tons (86/80 % of the total pollutants) enter into the Caspian Sea from the rivers located in Russian Federation (80/45 %), Iran (2/86 %), Azerbaijan Republic (2/57 %) and Kazakhstan (0/91 %).

3/12 One of the most important pollutant of Caspian Sea is petroleum. Almost 4 % of the world oil reserve exists in Caspian Sea out of which Iran has no share in oil extraction and only shares the pollution of the same sea.

3/13 According to Tehran Convention⁸, The Caspian Sea counties have committed themselves, either individually or collectively, to take all necessary measures to prevent, reduce and control pollution and at the same time protect the Caspian Sea environment.

Studies show that the most common measures taken by the bordering countries are limited to holding meetings and training programs. In case s where other measures (developing plans and projects) have been taken by the Caspian Sea countries (including doing common research regarding the pollution of Caspian Sea, evaluating the sea waste etc.), such measures are not sufficient.

3/14 Studies show that during the past two years Iran's Department of Environment has developed some water pollution guidelines. It is developing some other guidelines and standards including the guidelines regarding emptying sewages, waste water poured into the Sea as well as compiling the index to evaluate the severity of the pollution of heavy and toxic elements of Caspian Sea.

3/15 The first step to combat sea pollution is to identify the pollution sources and the preparation of pollution map. Iran's Department of Environment has started the identification of pollutant sources/spots in provinces bordering the Caspian Sea but it has not taken any actions regarding the preparation of pollution map.

3/16 The subject of organizing the sea areas has been specified in laws in I. R. of Iran and such laws are being implemented at the moment.

3/17 The government of Islamic Republic of Iran is either implementing or studying home and city waste water filtration system in some of the cities bordering the Caspian Sea. Such plans can play a major role in reduction of Caspian Sea pollution.

3/18 The measures taken by Iran's Department of Environment regarding the combat against Caspian Sea pollution has been both proper and necessary but such actions have never been sufficient due to the severity of the pollution.

b) Recommendations:

1. In order to strengthen the enforceability of Tehran Convention and determining the responsibility and damages to the Caspian Sea environment, which arises out of lack of the possible violation of the content of the same convention, it is necessary to compile the regulations and by-laws related to Article 29 of Tehran Convention as a preventive measure in reducing the Caspian Sea pollution.

⁷ . the resource is SOE

⁸ . Article 4 of Tehran Convention

2. With regard to the fact that Tehran Convention is not sufficient and in order to realize the commitments of the Caspian Sea countries, it is recommended that the same countries accelerate their efforts in developing, approving and implementing the Convention protocols as well as compiling the related common standards and indexes regarding the “ quality of environment” and “the Caspian Sea water quality” through expert interaction.
3. It is necessary for the Caspian Sea countries to promote the effectiveness of their measures regarding the combat against “Caspian Sea pollutions” and at the same time develop the common standards and guidelines.
4. Considering the fact that the major factor in polluting the Caspian Sea is the “River currents”, it is recommended that Supreme Audit Institutions in the Caspian Sea countries conduct the common environmental audit in order to assist their respective countries in reducing pollution.
5. With regard to the fact that new oil fields are being developed in the Caspian Sea, which is serious threat to the environment, it is necessary for Caspian Sea countries to compile and approve the protocol on “preparation, combat and regional cooperation regarding the oil spill accidents and related technical guidelines”
6. Considering the fact that Iran has no share of oil extraction in Caspian Sea and due to the Sea steep, oil pollutions of some of the bordering countries arrives at Iran’s sea coast, it is recommended that SAIs of Caspian Sea countries conduct common environmental audits.
7. With regard to the fact that a major source of Caspian Sea pollution is the arrival of city and human sewages into rivers and coast waters, it is necessary to implement the comprehensive plan of "home and city waste water filtration system" in the Caspian Sea area.
8. With regard to the severity of the water pollution in Caspian Sea, the bordering countries should take more important common measures for protection of environment and combating the Caspian Sea pollution through interaction and cooperation with each other.
9. To take common actions by the Caspian Sea countries, sufficient fund is necessary. In order to complete common projects, it is essential for the same countries to increase their annual membership fees.
10. With regard to the fact that the first step to combat sea pollution is to identify the pollution sources/spots and the preparation of pollution map. Iran’s Department of Environment must prepare and update such maps. Furthermore, it is recommended that Caspian Sea countries to exchange information with each other regarding the pollution sources/spots in order to increase the transparency of their operations in this regard.

4. Impacts and results:

4/1 The audit results is submitted to Iran’s Department of Environment as one of the signatories of Tehran Convention. In addition, the SAC is planning to submit such results to SAIs in Caspian Sea region.

4/2 The environmental benefits of this paper will be obtained on the condition that enough attention is given to audit results and audit recommendations by Iran’s Department of Environment and the efforts of other Caspian Sea countries in implementing the same recommendations.

5. Challenges:

With regard to the fact that the criteria and indexes of performance evaluation of Caspian Sea countries is taken from protocols, regulations, standards, by-laws and other common guidelines, it is therefore necessary

to develop such important documents. Some of the major challenges could be overcome through cooperation and exchange with all Caspian Sea countries. These challenges include:

5/1 Lack of approval of protocol related to the protection of Caspian Sea environment as a criteria for evaluating the amount of commitment of the signatory countries to the same convention.

5/2 The Caspian Sea legal regime is not finalized yet and as the result there is no balance between the amount of pollution and the share of each country.

5/3 The Caspian Sea pollution index has not yet been developed by the bordering countries.

5/4 The proper guidelines and criteria for combating the Caspian Sea pollution by the bordering countries is non-existent.

5/5 The Caspian Sea countries have not yet developed the quality standards of the Sea environment.

5/6 The Caspian Sea countries have not yet developed the quality standards of the Sea water.

6. Lessons learned:

6/1 Through the pathological method applied in this paper we could not only identify problems but also conclude that in case all the governing conventions and protocols related to Caspian Sea are applied and implemented precisely and quickly, the pollution of Caspian Sea will be improved gradually.

6/2 Since the objective of environmental auditing is to ensure the application and implementation of the proper processes and policies in order to achieve the objectives of sustainable development, the Caspian Sea countries should give priority to compiling the proper processes, policies and guidelines.

6/3 Environmental auditing can provide the Caspian Sea countries the necessary opportunities to create an effective plan to protect the environment of the same Sea.

In the end, it is noteworthy to mention that the present paper was prepared based on the generally accepted types of environmental auditing. With regard to the fact that the Supreme Audit Court of I. R. of Iran has recently joined the INTOSAI Working Group on Environmental Auditing, it is ready to apply most of the guidelines developed by the same working group.

Innovative audit experience

THE NETHERLANDS

Audit on spatial planning

The Netherlands is a relatively small country with a large population. The spatial planning applications made by citizens, companies, organizations and public authorities are accordingly many and diverse and spatial planning is very important. Since 2010, the new government has announced many changes in national spatial policy. The Netherlands Court of Audit has conducted a short audit to see which areas in the Netherlands are influenced by national spatial policy and which instruments the Dutch government is using to achieve it. The government often uses a mix of the following tools: money, spatial planning instruments, legislation and regulation, and administrative influence. It also carries out its own spatial planning projects and programs. In the audit, the Court of Audit focused on the financial instruments and made a calculation of the money the government invests in spatial planning.

Overview of policies: a video

To provide an overview of the areas influenced by national spatial planning policy and the tools used to achieve it, the Court of Audit analyzed the geographical information available on many national policies. Some examples of Dutch national policies are national landscapes, greenports, the restructuring of industrial estates and the European Natura 2000 network. This geographical information was combined with information on the government's policy tools. This led to a video that shows a map of the Netherlands being filled in with spatial policy. By the end of the video, national spatial policy covers a great deal of the country and in many areas there is an accumulation of policy and funds. This can be seen in the figure in this article: the darker the area, the more spatial planning tools the government has used.



Overview of the money: an infographic

In the Netherlands, spatial policy is made by central government, provinces and municipalities. The government spends about €8 billion on spatial planning every year. The money is spent on the development and improvement of roads, railways, waterways, cities, nature areas and recreation areas. The Court of Audit made an infographic to provide basic information on the use of this €8 billion in 2010, which departments are involved and which investment schemes contribute to the realization of national spatial policy in the Netherlands.

Overview of projects: a geo-viewer

The greater part of the national budget for spatial planning (€5.1 billion) is spent through the national investment programme for infrastructure, spatial planning and transport (MIRT). This multiannual program consists of projects in which the government invests directly in spatial planning. The Court of Audit gathered geographical and financial information about every project in the MIRT program. The financial information included the available budget, the amount of money that was already contractually committed and the amount of money that was spent in 2010. The information was presented on a geo-viewer on the Court of

Audit's website. This allows parliament, other organizations and citizens to analyze the financial progress of each project.

New ways to publish audit results

In this audit, the Court of Audit experimented with an innovative way of publishing audit results. A website was developed to provide a visual tool to show audit results in a new and refreshing way. The Court of Audit used the website to show the video, the infographic and the geo-viewer. The video shows the different national spatial policies and the infographic shows national expenditure on spatial planning in 2010. The open source geo-viewer shows where the money goes. The audit only followed the money for direct national investments in the MIRT programme.

Lessons learnt

The main lesson learnt from this audit is that geographical and financial data cannot always be linked to each other. This is due to the data creators' different starting points and goals. A couple of projects, for instance, were mentioned in annual reports but could not be identified in the MIRT programme. This reduces the ability to follow the money from beginning to end. A second lesson learnt is something that most auditors will encounter in innovative projects: innovation requires extra time, a great deal of communication, and the involvement of many different internal departments: ICT, communications, management, external partners and audit departments.

Follow-up

In a follow-up to the audit of national spatial policy, the Court of Audit intends to select a couple of areas in the Netherlands and look at how national policy works on the ground. These case studies will provide more information on the effectiveness of the government's policy tools and instruments.

More information

The video, geo-viewer and infographic can be found at http://www.rekenkamer.nl/Actueel/Dossiers/R/Ruimtelijke_inrichting. This site is in Dutch but can be translated by entering the web address in <http://translate.google.com>. The geo-viewer the Court of Audit developed is open source so that it can be shared with international colleagues at other SAIs. For more information, please contact Matthias Fabriek (m.fabriek@rekenkamer.nl).

Cooperative environmental audits

BRAZIL

Audit of climate changes within the COMTEMA

On the eighth meeting of OLACSAI Special Technical Commission on the Environment (COMTEMA), held in April of 2009 in Buenos Aires/Argentina, it was decided to carry out an audit in cooperation to examine the compliance of regional governments with commitments related to the United Nations Framework Convention on Climate Change (UNFCCC). The project involved SAIs of 9 countries: Argentina, Brazil, Colombia, Costa Rica, El Salvador, Honduras, Panamá, Paraguay and Peru. The Brazilian Court of Audit coordinated the joint effort owing to its participation in the coordinated international audit on climate change developed within WGEA and conducted by the SAI of Canada.

To support the national audits, a framework audit approach was developed, similar to the one adopted in the WGEA coordinated international audit. The SAIs of Argentina, El Salvador and Paraguay also used the WGEA publication "Auditing the Government Response to Climate Change" to develop their audit criteria. Each SAI designed, carried out, and domestically reported national audits to respond to their country's climate change priorities and in accordance with their internal practices and standards. The topics covered governance of climate change efforts, elaboration and communication of Greenhouse gas inventories and elaboration and implementation of mitigation and adaptation policies.

The findings of the audit indicate that the region is still poorly prepared to face the challenges that climate change imposes. Government management is still incipient and, in general, effective measures were not implemented to mitigate the negative effects of climate change. In this regard, efforts have been focused on the promotion of clean development mechanism (CDM) projects, to the detriment of conservation actions of sinks, despite deforestation is a major source of emissions of greenhouse gases in the region. In turn, the promotion of adaptation to the consequences of climate change lacks concrete effective measures, despite the high regional vulnerability and incipient processes to identify risks in different geographical areas and socioeconomic sectors.

There is low support and dissemination of investigations on climate change in the region, a fact supported by the scarcity of resources available and by the difficulties in data collection and in the formulation of methodologies for estimating emissions and future scenarios. This situation is reflected in the quality of national communications and in the measures developed. There are also few efforts aiming to promote education, capacity building and awareness on the effects of climate change.

This picture shows the urgency of strengthening government action to implement the pending tasks related to the commitments assumed under the United Nations Framework Convention on Climate Change: presentation and updating of national communications, action on behalf of climate governance and targeted to promote mitigation of climate change as well as adaptation to their effects.

An interesting aspect to highlight in the coordinated audit of COMTEMA is related to the way of elaborating the joint report. The preparation of the document was divided among the seven SAI who joined the audit initially, with each one being responsible for specific parts of the text, jointly or alone. To a large extent, this decision was made considering the fact that the joint report would be written in Spanish, a language that is not mastered by the coordinating SAI. Thus, the responsibility for this task was shared with other participating SAI.

However, the appropriate measures to ensure the homogeneity of the final text were not adopted. The wording of various sections of the joint document was based on the analysis of the full reports of audits of each SAI. There was no use of forms for the synthetic recording of the main information of each individual

work, in order to facilitate a more directed reading. At the same time, discussions about the methodology of the joint audit did not sufficiently advance on how each SAI should write the section of the report under its responsibility, looking for a format that would ensure greater uniformity to the content of the report.

As a result, the different analytical perspectives of parts of the preliminary report proved to be quite evident. These differences reflected the distinct approaches of the audit teams of each SAI, which were also present at the final meeting to discuss the coordinated audit. Thus, even with the commitment of the participants, it was not possible to achieve a homogeneous and cohesive text, which can bring harm to the perception of the quality of the work.

These difficulties have not gone unnoticed by the participants of the audit. In discussing the opportunities for improvements in such work, the following measures were proposed to tackle the problem:

- Seek greater uniformity in the analysis of the information presented by each SAI for the final consolidation;
- Develop formats and schemes for the transmission of information from each SAI;
- Strengthen the role of the coordinating SAI in overseeing the accomplishment of defined formats for submission of information;
- Designate a SAI to control the quality of the international report.

It is therefore important, given the option of preparing a joint report in a distributed way, to make efforts to prevent the document to have an excessively heterogeneous composition, which tends to undermine the credibility and, consequently, the utility of the work. The coordinating SAI has to be responsible for taking most of the burden of this assignment, even as a trade-off for not being the sole responsible for preparing the final report of the joint audit.

Cooperative environmental audits

ECUADOR

Environmental management for the protection and conservation of natural resources in the Amazon Region

The Amazon Region is the largest continuous forest area of the planet, showing a rapid transformation of ecosystems and a marked environmental degradation, impulse by the economic-productive dynamic, that generates a pressure towards the intensive use of the natural resources of the region. This growing process of environmental degradation seems reflected in the population growth, the economical expansion activities and the infrastructure development; that modifies significantly the use of the ground in the region; causing the fragmentation and loss of ecosystems, deforestation, loss of diversity and the impacts on climate change. In this situation, corresponds a joint interaction of the Amazonian countries' governments, that enables face the challenges of the region, mainly to build a common environmental Amazon overview and define the role of the region in the development of our countries.

On July 3, 1978, eight Amazon countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela subscribed in Brasilia, the Amazon Cooperation Treaty (TCA, in Spanish), as a legal instrument of technical nature, looking to promote a harmonic development and integrated to the basin, as basis of the uplift of a regional economic complementation model that contemplates the improvement of life's quality of the inhabitants, the conservation and use of rational resources.

The proposal for the development of the audit of the Amazon Region was presented by the SAI of Colombia in the framework of the VII Meeting of the Technical Special Environmental Committee (COMTEMA, in Spanish) of the OLACEFS held in Buenos Aires, Argentina in April 23 and 24, 2009, being received in the line of work of the cooperation audits, as one of the activities of the Strategic Plan 2009-2011.

On May 15, 2009 in Isla Margarita, Venezuela, in the framework of the VI EUROSAI- OLACEFS Conference, *"the Memorandum of Understanding for the development of the Governing The Coordinated Environmental Audit of the Amazon Region, Coordinated Modality, for the Amazon Region"*.

Between the accepted agreements, in the Memorandum of Understanding are:

1. Elaboration of a Cooperation Audit, coordinated modality, on the Protection of Management and Conservation of the natural resources in the Amazon Region.
2. Development of the Audit will be made on basis of the terms of reference to be developed and defined jointly by the audit teams chose.
3. Establishment of a general coordination of the audit, by the SAI of Colombia

From September 15 to 17, 2009, in Cartagena, Colombia was held the Regional Seminar *"Audit in Cooperation in environmental and cultural issues for the Amazon Region"*. In this meeting, conditions of the TOR, of which tries the numeral 2 of the MoU were agreed.

In this context, the regional goal proposed was the evaluation of the management developed by the governments of the states of the Amazon Region around the achievement of the objectives and compromises established in the framework of the TCA, with the purpose to elaborate a report that contributes to the conservation and sustainable use of the natural and cultural resources of the Amazon Region.

The general goal was focused towards the evaluation of the management of the organisms and governmental institutions responsible of the conservation, management of the natural and cultural patrimony of the Amazon Region, guide by the search of a sustainable development and social cohesion.

The source of criteria that was considerate for the development of the audit was the TCA, from which, four transcendental topics were bear in mind such as Ecological and Economical Macro-zoning of the Amazon basin, cultural diversity and respect to the rights of the Indigenous Amazonian People and Amazon Natural Protected Zones; with an analysis period from January 1 to December 30, 2009.

According to the planning in the development of the audit, were held two work meetings of the groups of participant's auditors: the first meeting at the International Capacity Center of the Comptroller General Office of Ecuador, with the attendance of 13 delegates of the groups of audit from the five states participants to share the methodologies, the progress of each SAI, the establishment of a international report structure, the schedule of work and the distribution of the responsibilities of the work of each one of the teams in consolidation with the international report.

The second meeting with the attendance of 22 delegates of the audit's teams of four states, was held in Lima, Peru to review and accept the consolidation of the regional report, the assignment of responsibilities in each edition, impression, presentation and evaluation through the establishment of the best practices.

Between the best practices resulting of the audit, highlight:

- Creation of physical and technological spaces conducive to the exchange of information.
- The appointment of thematic coordinators generated the commitment and participation of all the SAIs in the audit.
- Conformation of multidisciplinary teams allows an integral overview of the regional problem and a higher development of the audit process.
- Accompanying entities that finance this kind of exercises, given the importance of this issue, in this case INWENT
- Capacity Building International of Germany welcomed the initiative to develop this audit, by the regional office for the Andean countries, financing important aspects in the execution of his work.

The scope of the audit is considerable then it was understood the selective evaluation of the major public institutions of each country with responsibility for implementing the TCA.

Concerning the relevant conclusions, we can quote:

- The Permanent National Commissions have not achieved institutions, nor joint efforts by diverse national entities or not these commissions in the scope of their respective Amazonian territories, to define strategies objectives, aims, indicators, responsible entities and to measure progress on meeting the commitments undertaken by the TCA, in a given time horizon.
- The tools of economic and ecological zoning were used for the mapping of the most appropriate forms of land use. It was not identified the use as a criteria for the resource allocation in public policy, nor has it been demonstrated the existence of mechanisms to promote change in land use, defined from an ecological and economic zoning of the Amazon Region in each country. In Brazil, Ecuador and Peru, showed recent initiatives to advance in consolidation of the processes of economic and ecological zoning in the region.
- The limit presence of public institutions of states in the Amazon region has been an obstacle for the control, monitoring and protection of indigenous territories. Nowadays, processes are being developed to insert mechanisms to ensure implementation of the rights of indigenous people. Among

the mechanisms used for controlling, monitoring and protection of indigenous territories, there are the processes of regularization and titling.

- The countries have not yet incorporated as part of its policy and institutional strategy, the inventories of renewable natural resources and have neither made efficient use of existing information, which allows having instruments that help to control and evaluate the existing resources in the Natural Protected Areas.
- The institutions responsible for monitoring and control of protected areas, do not have technical staff and technological tools necessary to address these tasks in proportion to the size of the areas to be protected, contributing to the development of human activities that increase pressure factors and pose a risk to their conservation.

These findings create challenges for the region, which are summarized below:

- Strengthen the management of the Permanent National Commissions by: The issuance of the respective regulations, formulating an action plan that articulates the efforts being made in the area of the Amazon Basin, and to define agreed strategic objectives, goals, among others, to measure progress towards meeting the commitments made in the TCA.
- The formulation of strategic plans and programs should match to those set by the Organization of the Amazon Cooperation Treaty – (OTCA, in Spanish) not being this limit for each of the Contracting Parties to continue implementing their projects.
- Resume or promote the work of economic and ecological zoning within the agenda of the Permanent National Commissions, integrating existing efforts in a common theoretical framework, aimed to the developing an ecological and economic zoning of each country of the Amazon Basin including the development of mechanisms for change, control, tracking and monitoring of land use.
- Strengthening the cultural diversity component of permanent national commissions of each country in order to perform follow up actions that in this area should implement various state agencies. Establish a permanent agenda to build systems of prevention and conflict management, promote the implementation of prior and pre-legislative consultation, a set of public policies, for precautionary ancestral knowledge to the Amazon region, according to the laws of intellectual property determining processes of accountability and citizen participation.
- Permanent national commissions should play a predominant and leadership role for governments to incorporate the component of ANP inside their "*government plans*" to enable them to raise strategic objectives and targets and indicators in the medium and long term, identifying entities responsible for this.
- Governments of the Amazon countries should formulate strategies for the implementation of mechanisms of coordination and decision making, for programs or projects that develop any initiative involving border protected natural areas, ensuring that commitments are met and the activities are coordinated in a flexible way, until the completion of projects to encourage the establishment of biological corridors and cultural, that facilitate the flow of species as well as the exchange and appreciation of traditional knowledge of local populations.
- It is recommended that each of the Amazonian countries strengthen the institutions responsible for controlling and monitoring, providing them with personal and technological tools necessary and sufficient to handle the ANP in an efficient manner, taking into account the large areas, management according to the social, economic conflicts and conditions of thereof.

- Governments of the Amazon countries should create and implement mechanisms for monitoring compliance with community management plans of the agreements signed in ecotourism projects and any activities to develop tourism in protected areas, the same that should form part of the monitoring and evaluation plan, and have verifiable indicators of progress.
- Promote the protection of natural resources based on the ITT Initiative (Yasuni National Park), which is presented as an alternative to delay the exploitation of biotic and a biotic resources, to conserve water resources, biodiversity and the search new energy matrix, looking with it, other forms of production-friendly with the environment, with the consent and active participation of the civilian population.

This cooperation audit even if is not binding, is an example of integrated response to a common border problem, which needs joint efforts, resulting in a momentous work, in which for the first time, the SAIs of the region stand, informing our governments and calling the attention of institutions and social actors linked to the Amazon region, through challenges, we hope, contribute to improving the sustainable management of ecosystems and our Amazon whose problems have no borders. Furthermore, it also seeks to share and disseminate the experience gained in applying a methodology developed within INTOSAI, whose results will benefit the future practice of SAIs.

Assessing the Amazon of our countries, from a holistic perspective, allowed our staff of environmental auditors to learn new methodologies and analytical procedures, therefore, we recommend continuing with this form of work, projected to other sites and other issues of countries in the region.

Through this audit has been conducted to recognize the importance of the region, its threats and weaknesses, but also the good of the inhabitants, the ancient knowledge and their resources. It is an underlying need to design tools to ensure compliance with the rights and duties of each and all the inhabitants of this planet; within which the environmental audit is the strategic element.

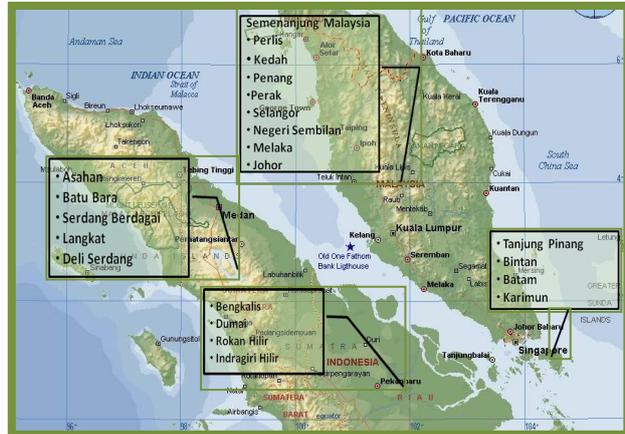
Cooperative environmental audits

INDONESIA/MALAYSIA

Lesson-learned of the implementation of parallel audit on mangrove management in the strait of Malacca between BPK RI and JAN Malaysia

Background and Audit Planning

Mangrove forest in the Strait of Malacca are mostly located in the administrative area in the regency of the Province of Sumatera Utara, Riau, and Kepulauan Riau (Indonesia) also in Peninsular Malaysia namely the state of Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan, Malacca, and Johore (Malaysia). The Straits of Malacca is dense waters where various ships passed by, so that it has a high potential of environment pollution such as pollution from solid and liquid wastes which result damage to the mangrove ecosystem as a coastal ecosystem which has significant role for the environment, social economy, biodiversity, and animal habitat. The Potential of Mangrove in the Strait of Malacca is as follows:



No.	Location	Total size (ha)
INDONESIA		
1.	Sumatra Utara	364,581.15
2.	Riau	261,285.33
3.	Kepulauan Riau	178,417.55
MALAYSIA		
1.	Perlis	13.00
2.	Kedah	8,118.00
3.	Penang	773.00
4.	Perak	43,502.00
5.	Selangor	19,547.00
6.	Negeri Sembilan	204.00
7.	Malacca	80.00
8.	Johore	20,533.00

The tsunami disaster in year 2004 which had wide impact has evoked the awareness and understanding for Indonesia and Malaysia of the significance of forests that grow in coastal areas, especially the mangrove forest. It is realized that besides previously mentioned function, a mangrove forest also serves to reduce the impact of tsunami through two ways, which are reduction the water speed due to the friction with the dense mangrove forest and reduction of water volume caused by the tsunami wave which reaches the shore because the water will be distributed to many channels in the mangrove ecosystem. The

mangrove forest damage level has a potential for loss of coastal ecosystem as a source of food and breeding of sea biota, the degradation of biodiversity, the increasing of intrusion of sea water and the abrasion of coastal and eventually can have impact of climate change.

BPK RI (SAI of Indonesia) and JAN Malaysia (SAI of Malaysia) have agreed to strengthen, improve, and develop a framework of collaboration and efficiency of two-way relationship between the BPK RI and JAN Malaysia in audit public sector. The selection of audit topic in the forestry sector has been made an agreement between the two SAI's which is implemented through parallel audit on Management of the Mangrove Forest in the Strait of Malacca. The collaboration between BPK RI and JAN Malaysia in this environment perspective audit is the second parallel audit. To deal with different audit approaches (audit scope, research questions, and methods), BPK RI and JAN Malaysia have created an audit design matrix which is flexible and do the communication intensively to ensure the better and obtainable result. Related to the need and authority of SAI in executing and reporting the audit result, separate examinations are conducted respectively by the BPK RI and JAN Malaysia teams. The parallel audits between BPK RI and JAN Malaysia are run in the following activity schedule.

Item	First Technical Meeting	Second Technical Meeting	Third Technical Meeting	Fourth Technical Meeting
Location	Kinabalu, Malaysia	Jogjakarta, Indonesia	Langkawi, Malaysia	Manado, Indonesia
Time	October 6-10, 2009	March 23 - 27, 2010	February 23 - 27, 2011	October 3 - 7, 2011
Objective	Determination of audit topic	Determination of audit location and Audit Design Matrix (ADM)	Determination of Parallel audit report outline	Finalization and signing of report
Output	Agreement on audit topic	ADM Agreement	Parallel Audit report outline	Parallel Audit Report on Management of Mangrove Forest in the Strait of Malacca

- Objective of audit:
 - Indonesia : to assess the effectiveness of the activities of rehabilitation, utilization, protection, and conservation of mangrove forest in recovering and increasing mangrove forest functions as a buffer of coastal ecosystem.
 - Malaysia : to assess whether the management of mangroves has been implemented efficiently and effectively in accordance to the relevant laws and regulations as well as achieved its stated objectives with consideration to environmental impacts.
- Scope of audit: Period 2005 – 2010 (Indonesia) and period 2008 – 2010 (Malaysia).
- Audit entity: The Ministry of Forestry, five regencies in the Province of Sumatera Utara, four regencies in the Province of Riau, and four regencies in the Province of Kepulauan Riau for BPK RI and eight states in Peninsular Malaysia, which are: Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan, Malacca, and Johore for JAN Malaysia.
- Audit Criteria: The BPK RI and JAN Malaysia use the provisions of law and other criteria according to their respective countries. Nevertheless, each SAI must ensure that the criteria to be used fit the Guidance Material for Auditing Forests: Guidance for Supreme Audit Institution.

Methodology

The methodology being used in this parallel audit are review of documents, analysis, data testing, interviews, questionnaires, observations, and site visit. This audit is also aided with implementation of Remote Sensing (RS), Geographical Information System (GIS) and aerial views in audit planning, obtaining audit evidences and presenting the audit findings in report. In the planning activity, the GIS technology is used to help determine audit samples, find rehabilitation locations and preliminary indication mangrove deforestation, illegal used of land, and to estimate the size of damage on the affected area. In obtaining audit evidences, GIS technology is used on site physical survey (ground checking) with the help of Global Positioning System (GPS) equipment.

Findings and Recommendations

- The result of audit related to the aspect of Policy and Regulations and also the execution of mangrove forest rehabilitation. The policy and the execution of mangrove forest rehabilitation still need improvement.
- In addition to the early mentioned audit findings, JAN Malaysia and BPK RI also revealed findings related to the impact to the environment, monitoring and law enforcement activities in managing the mangrove forest.

Based on the audit findings, BPK RI and JAN Malaysia proposed a recommendation to the Central and Local Government to make an improvement of policy and take the follow-up steps on the weaknesses in the rehabilitation, utilization, protection, and conservation activities of the mangrove forests.

Impact and Results

1. **BPK RI:** The Ministry of Forestry and the Regional Governments have submitted an action plan to follow-up the BPK's recommendation such as accelerating the president decree of national strategy on mangrove forest management.
2. **JAN Malaysia:** The Forest Department and other related agencies had taken measures to overcome the problems and issues raised such as encouraging active participation from the communities in the awareness campaign, forest rehabilitation program on the importance of the management and conservation of mangrove forest. The government has also increased the allocation for mangrove forest maintenance and monitoring and increases the number of staffs in handling vandalism and illegal activities at the mangrove forest.

Challenges and Barriers

A long discussion during the planning phase has been done in the course of gaining a better comprehension in the difference against mandate, law and regulations, procedures, organizational structure in the government and SAI, reporting schedule, and how to deal with the difference to ensure that the parallel audit stays executable. Existing potential obstacles are the difference in schedule and reporting procedure, a difference in audit period, etc. To deal with the possible challenges and obstacles, BPK RI and JAN Malaysia arrange technical meetings regularly to discuss audit design matrix, the period for executing the audit, and the report outline. BPK RI and JAN Malaysia use INTOSAI WGEA Guideline for Cooperation between SAIs: Tips and Examples for Cooperative Audits to minimize possibly issues during the audit process.

Lesson-Learned

1. **INTOSAI WGEA Guidance Material:** In running this parallel audit collaboration, BPK RI and JAN Malaysia use the INTOSAI WGEA Guideline for Cooperation between SAIs: Tips and examples for cooperative audits and Guidance Auditing Forests : Guidance for Supreme Audit Institution. A parallel audit will be easier and better focused in execution using the same guidance. Both of guidance will help in create parallel audit work plan and determine audit objective and methodology including in constructing the Audit Design Matrix (ADM) consist of topic, sub topic, objective, audit criteria and procedure, where both SAI will conduct the parallel audit based on the guidance material.
2. **Similar Audit Object:** JAN Malaysia and BPK RI conduct audit on management of mangrove along the Strait of Malacca which is concerned by both countries.
3. **Involvement of Experts:** As environmental audit is relatively new, experts' involvements are helpful in understanding technical issues. SAI Malaysia enlists professional and technical supports from local universities to assist in the conduct of the audit and to gain better understanding of the subject matter.
4. **Impact of the Audit:** This performance audit encourage the government to put more effort in recovering and increasing the mangrove forest function as a buffer of the coastal ecosystem, especially along the Strait of Malacca.

Information Sharing and Audit Methodology: In this parallel audit, a communication is established between the JAN Malaysia and BPK RI auditors. During the technical meetings, exchange of information and audit techniques are made including the implementation of the using of audit tools namely GIS, GPS, and aerial view in Forestry audit

Cooperative environmental audits

NORWAY/RUSSIA

Challenges and lessons learned in two parallel environmental audits

The Accounts Chamber of the Russian Federation and the Office of the Auditor General of Norway conducted an audit on management of the fish resources in the Barents Sea and the Norwegian Sea. The fruitful cooperation formed the basis for an audit on radiation safety and protection of the environment against pollution from radioactive sources in North-Western Russia. Both these audits have been followed up by new investigations concluded this year. This paper sums up the challenges and lessons learned from five years' close cooperation.

Background

Motivated mainly by the issue of illegal overfishing, the two supreme audit institutions conducted a broad parallel audit on the management and control of the shared fish stocks in 2006–2007. The objective of the investigation was to assess goal achievement, effectiveness and efficiency in implementing bilateral agreements targeted at the conservation and rational utilisation of the living marine resources.

The uncertainty of the estimates of efficiency using public funds to reduce the risk of accidents and pollution from nuclear installations in North-Western Russia motivated the two supreme audit institutions to continue the cooperation. During the period from 1995 to 2009, the Norwegian Parliament allocated more than NOK 1.4 billion to work on nuclear safety in North-Western Russia. The overriding goal for the Ministry of Foreign Affairs' nuclear safety collaboration with Russia is to reduce the risk of accidents and pollution from nuclear installations in North-Western Russia, and prevent radioactive, fissile material falling into the wrong hands. The purpose of the Office of the Auditor General's investigation has been to assess the Norwegian authorities' work on protecting the population and environment against radiation and pollution from radioactive sources in North-Western Russia. The purpose of the investigation of *The Accounts Chamber of the Russian Federation* was to control the use of funds donated by Norway for the removal of radioisotope thermoelectric generators from light beacons along the Kola Peninsula and for the dismantling of nuclear submarine nr. 609. Another audit goal was to evaluate whether the nature conservation legislation for nuclear and radiation safety was enforced during the implementation of the projects.

The audits were reported to the two parliaments in 2007 and 2010 respectively. The follow-up audits were reported in 2011.

Methodology

The fisheries audit was the first time the two Supreme Audit Institutions cooperated on audit work. The members of the audit teams had only limited knowledge of the other organization's audit approaches and methodology. There are also substantial differences between the Russian and the Norwegian political systems and societies, including differences in how the two nations organize their fisheries management. This may have impacted the auditors' view on how to design the audit. Moreover, the auditors did not speak a common language and had to communicate through interpreters and translators.

The audit was performed in parallel in the sense that common general audit questions and audit criteria were defined and the same outline used for the reports. The two national audit reports were however written separately and on the basis of independent audit operations.

An essential factor to the success was how the audit results were presented. In addition to and on the basis of the two independent reports, the SAIs wrote a document with common assessments and summaries of the national reports, a "Memorandum". The Memorandum pinpointed the most significant findings and

became somewhat of a symbol of the cooperation. It was signed by the Auditors General of the two countries at a joint board meeting.

The same approach was chosen for the audit of the radioactive waste.

In the second phase of both the audits, the SAIs wanted to strengthen the cooperation by doing some of the audit activities jointly and by sharing more audit data. The cooperation on the follow-up audits was defined in a binding strategic plan which laid down the common audit topics, audit questions and methodology. The strategic plans were signed by the Auditors General. In addition, the SAIs had agreed on yearly operative plans, which described the joint audit operations in detail.

Specifically, interviews with relevant government agencies in both countries were conducted by the two audit teams together on the basis of questions prepared in cooperation. Both groups participated equally in the interviews and also cooperated on the preparation of the interview reports, which were later to be verified by the respective agencies. An innovation in the common work was the structured observation of fishing vessel inspections at sea and at ports in both countries and the nuclear waste sites in Russia.

Challenges

At the outset, there was much room for misunderstandings and uncertainty. One party could for example suggest audit questions that initially seemed little relevant to the other party, and it was sometimes hard to understand why the other party showed special interest in certain issues.

The challenges were overcome first and foremost by giving the process time. Of special importance was to maintain communication both at the audit team and management level, aiming at understanding each other's audit perspectives and creating a common platform for the audit. Besides exchanging different draft documents, it was essential that the audit team members had several opportunities to meet and get to know each other. In this respect it is important that the audit teams are stable and highly competent with regard to the subject matter of the audit.

The parties did not always agree on everything, but the audit teams were able to create a solid foundation and a strong will to succeed.

It was also important that the top management of both organizations gave full support to the audits all the way through.

Lessons learned

In our experience, success criteria for audit cooperation are patience, open mindedness and curiosity about the country you are cooperating with. A major element in the audits has been reciprocal learning. The auditors have learned about each others' working methods and about the other nation.

To conduct parallel or joint audits with another country's Supreme Audit Institution often requires more time and resources than national audits and may at times seem more challenging. However, seeing that the benefits can be significant, we recommend that you give it a chance. The cooperation with another country adds a whole new dimension to the work. Management cooperation between countries that share living marine resources is an issue which may in many cases be suitable for parallel or joint audits. International agreements on the performance responsibilities and rights on the sustainable use of living marine resources and on ecological safety will in many cases be suitable criteria in parallel or joint audits.

Cooperative environmental audits

TANZANIA

Fisheries on Lake Victoria

BACKGROUND AND AUDIT PLANNING

The audit topic is about over fishing of Nile perch in Lake Victoria. Fishery in East Africa is one of the greatest resources, and therefore, need to be preserved, protected and managed efficiently or else its interference will lead to its extinction. This audit is motivated by fish stock decline in the lake. There has been an outcry of fishers complaining of low catches.

The topic was important because the decline in Nile perch fish has a significant impact on the economy and social life of the East African people. The lake Victoria Basin supports an estimated population of 30 million people of which 3 million depend directly on fisheries. It is the main source of protein. It provides a source of employment and livelihood to a substantial number of people.

The economy of the region is characterized by heavy dependence on the fisheries resources of Lake Victoria which accounts for over 25 % of the region's GDP.

AUDIT SCOPE

The audit covered ministries in each respective country responsible with fisheries and the audit wanted to find out how effectively they contributed to reduce the problem of decline of fish stock particularly Nile perch fish in Lake Victoria. Monitoring, control and surveillance were the subjects of the audit for the period 2007-2010. Some literature reviews on various documents/reports conducted prior to and post the scope period were examined. This included hydro acoustic surveys, frame surveys; financial records; monitoring reports, and catch survey reports by FMDST and IFMP. These became sources of evidence which were used to develop the observations and contributed to more solid conclusions.

AUDIT OBJECTIVES

The specific objective of the audit was to assess whether the ministry responsible for Fisheries effectively implemented the monitoring, control and surveillance system for combating over fishing, mitigating illegal, unreported and unregulated fishing (IUU). Other factors which do not have a direct impact on the stock levels like the one on removal of fish from the lake were also examined, these includes post harvest handling and environmental degradation.

AUDIT CRITERIA

- I. Partner states should have sufficient capacity to conduct regular patrols. Source: LVFO, IUU May 2004 section 3.3 (iii & v).
- II. All fishing vessels in Lake Victoria should be registered and licensed. Source: LVFO, IUU.May-2004 3.3. (i), (IV) and (VI).
- III. Partner states should regulate the amount of fish caught. Source: LVFO, FMP2, 2009-2014 of August 2008 section 9.5.
- IV. Partner states should ascertain total amount of fish caught and distribution of fishing effort in the Lake. Source: LVFO.FMP2-2009-2014 of August 2008 section 13.7 Activity 1 & 4. Result: 7.1.

- V. Partner states should use hydro acoustic survey reports to regulate fishing activities within the Lake.
Source: Directorate of fisheries and Research Institutes.

METHODOLOGY

We conducted the audit as a coordinated audit. The team jointly developed the audit scope, audit questions and audit criteria. Data was collected in each country and analysed individually. The data collection techniques among others included document review, interviews with the auditee and key stake holders such as Lake Victoria Basin Organisation, Lake Victoria Environmental Management Programme, Ministries responsible for fisheries and research institutes. . We also performed site physical observations at the Beach units as well as islands fishing grounds.

FINDINGS AND RECOMMENDATIONS

Lake is overfished

1. We observed that over the period 1990 to 2006, the catch of Nile perch has declined from a peak of just over 325,000 tones to 230,000 tones in 2007. The maximum sustainable set is 225,000 tones. This means that any quantities of fish catch beyond and above this threshold is an excess pressure on the Lake termed as over fishing. From the Maximum Sustainable Yield it appears that most catches over the period 1993 to 2007 were above this level and to account for the last three years i.e.2005-2007 the amount of over fished is 109,781 tones
2. there is no adequate control of fishing and fishers in the lake. one of the causes for the decline of Nile perch stock was the growing population of fishers and fishing vessels in the lake, this is associated with the rapid growth of population in the Lake Victoria basin.there is a tremendous increase of fishing efforts(Fishing gears and fishers), fishing gears increased as follows: in 2006 were 29,732; in 2008 were 30,206 and in 2010 were⁹ 26,983. number of fishers for the period from 2006 to 2008 the increase was 7%
3. We found that 48% of the fishing vessels were neither registered nor licensed. This default on the registration of fishing vessels would appear to have been caused by a number of reasons, some of them may include; inadequate management capacity in fisheries; market influences-illegal fish trade; migratory nature of fishers; presence of too many informal landing sites; absence of offices for ward fisheries officers; and the reluctance of fishers to get licenses and registrations of their vessels is exacerbated by long distances from the fishers' location to the registration fisheries office.

We observed that only 16% of the required patrols in a year were carried out. This level of operation sends the message that the criterion was not met as patrol operations were far below the average and thus not able to attain the intended impact as it was non effective this state was driven by the inadequate funding of the surveillance unit.

RECOMMENDATIONS

1. The Ministry of Fisheries and Local Authorities should establish fishing crafts licensing as a management tool to control fishing effort and access to the fishery and involve BMUs fully in licensing processes.

⁹ This here fishing gears are reduced in the lake due to decline of fish stock, many fishers decided to do another works

- II. The ministry should strive for effective mechanism that will reduce excessive fishing capacity to levels commensurate with the sustainable use of fisheries resources by controlling number of fishers, fishing efforts and fishing gears.
- III. The ministry should start financing hydro acoustic survey in order to strengthen the data base for fish stock and hence facilitate decision makers.
- IV. The ministry in collaboration with the local authorities should improve the management capacity by having offices for registration and licensing of fishing efforts within the landing sites areas to reduce the number of defaulters.

IMPACT AND RESULTS

The reaction from the auditee is yet to be realized in the sense that the audit reports are yet to be published. We do not know what would be their reaction.

CHALLENGES

- I. We had a problem of obtaining data for audit evidence.
- II. Also sometimes it was difficult to communicate with team members of the cooperative audit.
- III. Priorities among SAs in carrying out the cooperative audit.
- IV. Sincerely the problems were contained.

LESSONS LEARNED

The cooperative audit played the role of being a training ground because of sharing knowledge and skills among team members. We used the INTOSAI WGEA-Auditing Sustainable Fisheries Management and it was very helpful.

Environment and sustainability reporting

AUSTRALIA

Trends in Australian Public Sector environmental practice and reporting

This paper draws from previous Australian National Audit Office (ANAO) performance audit work and recent work towards the Green Office Fundamentals *Better Practice Guide*.

The story so far

- From 1999 onwards the requirements for environmental reporting have increased significantly with the introduction of the national *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and a range of policy requirements.
- In the Australian Government and state/territory jurisdictions there is an increasing focus on environmental performance data.
- There is currently an array individual reporting requirements and reporting in Annual Reports towards the EPBC Act varies widely in format and comprehensiveness [examples will be provided including better practice].
- To date there has been limited uptake of the Global Reporting Initiative and Sustainability Reports in the Australian Public Service. However, there is much broader uptake of these reporting formats in the private sector and in other state/territory jurisdictions.

Current constraints

- **Whole of government issues**
 - Australian Public Service environmental policies are currently fragmented and performance reporting has not been streamlined.
 - As a result there is duplication of information and agency data is not consistently comparable.
 - Reporting mechanisms are cumbersome and time consuming including manual data entry and questionnaire reporting formats.
- **Individual agencies**
 - Ad hoc approach to practice and reporting
 - Lack of internal management controls to collect, review and use environmental data.
 - Still challenges in collecting useful data

Future directions and opportunities

- **New policy and reporting requirements for Australian Government agencies**
 - Since 2010 a number of new requirements have been established, which have expanded the environmental sustainability framework of the Australian Public Service. These new requirements involve a range of other areas within the organisation and requires coordination of information to cover:
 - qualitative reporting of sustainable procurement;
 - property and assets information such as equipment ratios and occupied workpoints; and
 - energy consumption and targets for ICT equipment and data centres.
- **Voluntary reporting of greenhouse gas emissions**

- A small number of Commonwealth entities are required to report under the *National Greenhouse and Energy Reporting Act 2007*, but a growing number of agencies are voluntarily reporting emissions.
- The proposed carbon pricing policy has also brought Government performance and reporting into the spot light.
- **Databases and software**
 - Environmental data management systems with automated bill collection.
 - New consolidated database for Government reporting in development
- **Annual Reports** - More data and improved reporting and comparative analysis

Treatment of reporting in the ANAO Green Office Fundamentals BPG 2011

- BPG aims to assist all agencies achieve at least compliance and move towards better practice. It consolidates existing policy requirements and guidance material and as such, this guide is a focal point for environmental sustainability for the Australian Public Service, noting that the BPG is not mandatory and is considered voluntary guidance
- The BPG contains handy hints, tips and traps to aid agency environmental practitioners. It includes a checklist of important actionable items. It identifies ways for agencies to monitor their performance in a consistent matter.
- Reporting is given a high priority as it is one of the largest requirements. The BPG contains a reporting calendar in BPG, and includes suggested indicators for each chapter/ topic and tips for meeting reporting requirements.

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Environment and sustainability reporting

POLAND

The role of local administration in environment and sustainability reporting

In accordance with the principle of subsidiarity, main responsibility for and activities related to natural environment improvement lie with the lowest self-governmental level possible. In Poland, the lowest self-governmental level is represented by *communes* (Polish: *gminy*), and their total number stands at 2,479.

In 2011, the NIK completed an audit entitled "Environmental management at the local level". The audit covered activities undertaken in the previous three years, i.e. from 2008 to 2010, in 35 *communes* (including both large municipalities and small rural local authority units).

The objectives of the audit were to assess the planning and realisation of tasks related to environmental protection, and to assess activities aimed at introducing a comprehensive, standardised environmental management system to provide for sustainable development, which is an obligation set out in the Polish constitution.

An indispensable element of proper environmental management is to take actions based on the feedback on the results of activities undertaken so far, and on the state of and changes in the environment. That is why the audit also covered reports generated by local authority bodies, related to actions taken in the area of the environment, the infrastructure and the implementation of objectives set out in strategic documents.

In this presentation, some of the findings of this audit will be discussed, related to the very issue of reporting.

Local authority units in Poland are obliged to report and provide some specific data to the higher-level state administration, as set out in the legal acts related to both the environment and public statistics.

The environment and sustainability monitoring and reporting make a complex system in Poland.

I.

Every four years, the government of Poland develops a document entitled *State Ecological Policy*. The document sets out, on the basis of the present state of the environment, ecological priorities and objectives of the state; the type and schedule of pro-ecological measures, resources necessary to achieve objectives, including legal and economic mechanisms and financial resources.

In order to implement this state policy, local self-government bodies are obliged to generate, among others, such documents as *Environmental Protection Programme* and *Waste Management Plans*, and to report on them every two years. On the basis of these reports, the programmes are updated, if necessary, so that to have the objectives set by the state policy achieved to the maximum. Such reports should present the scope of the measures realised and their effects, as well as weaknesses that should be considered upon updating the *State Ecological Policy*.

The audit carried out by the NIK has revealed that, unfortunately, the system does not operate in the way it was assumed to. The majority of the audited entities did not monitor the realisation of the programmes they had adopted and did not develop required reports.

Out of the audited local authority units, only 32 percent developed a report on the realisation of the *Environmental Protection Programme* required by the law. Reports on the *Waste Management Plan* were developed by 68 percent of the audited entities, however almost half of those reports were submitted after the deadline set out in the legal regulations.

The analysis of reports on the implementation of the *Environmental Protection Programme* has shown that they frequently contained only fragmentary data, because they did not comprise information on the so called coordinated activities (performed by other entities, including government administration units). Reports often

presented only the actions that had been actually realised, so they did not allow for stating which tasks of the programme were realised in accordance with the schedule, which were delayed and which were abandoned. Moreover, some reports were vague and they did not present the extent to which the programme had been realised.

At this point, several questions arise. Why was it so? Why did local authority bodies neglect to perform their obligations? Where there any sanctions imposed on these bodies or their employees?

The most frequent excuse for not developing reports on *Environmental Protection Programmes* was the lack of funds for ordering experts to prepare such reports. According to the NIK, it should not be so. Reports should be generated by the audited entities themselves, within their routine activities, because their employees have the best knowledge on the tasks performed and on the implementation of the programme. Developing reports by the entities themselves should be a good practice, as it lies within their competence and is economically justified.

However, some entities failed to generate reports due to understaffing in departments of the environment, or simply due to an oversight or to missing the deadline set out in the legal regulations.

In some cases, it was simply impossible to produce a reliable report. The NIK's audit has shown that several *Programmes* did not define indicators for measuring the realisation of individual objectives, while indicators set in some other *Programmes* did not allow for assessing the realisation progress. *Environmental Protection Programmes*, which comprised both tasks of local authority units and tasks of other entities (e.g. managements of roads, local governors, regional managements for waters or national parks), or even tasks of private persons, such as owners of lands, did not specify how information on the realisation of individual tasks should be collected. So tasks set for external entities turned out to be wishful thinking, and reports generated, if any, were incomplete.

Binding legal regulations do not set out sanctions for not developing reports. It is only possible to apply disciplinary actions for employees who failed to meet their duties.

The lack of reporting did not, however, mean that self-governments were passive in the field of environmental protection. The NIK's audit has revealed that there were intense actions taken with regard to solving problems related to water and sewage management, maintenance and development of greenery, and waste management, including reduction of biodegradable waste transported to landfills. For investments in progress, the procedure for assessing the impact on the environment was implemented. But this presentation is not to discuss the activities undertaken and their regularity. The lack of regular reporting on these activities reduces opportunities to further plan and direct them, not only at the local level, but also at higher levels of the state organisation.

The NIK, in the management letters addressed to 32 audited entities, comprised comments on the functioning of the system for planning of environmental activities, and on receiving feedback, that is the system based on the following rule: a programme – activities – a report – a programme update. A list of audit recommendations has been developed. Representatives of local authorities have replied that reports on the implementation of the *Programme* are being produced, and that actions have been taken aimed at updating the *Environmental Protection Programme* or at adopting its update.

II.

The role of local self-governments in providing statistical data on environmental measures is another issue.

In Poland, statistical data on the state of the environment and on measures aimed at its protection is developed and published every year. This data mainly comes from measurements taken within the State Environmental Monitoring by services that control the state of the environment, namely regional inspectorates of environmental protection. Part of the data on the measures implemented comes from the information sent by entities responsible for their implementation, including local self-government bodies. The act on public statistics sets out that local authority units are obliged to report every year on the following: the number of inhabitants covered with the selective waste collection system, the total amount of municipal

waste collected selectively, the amount of dangerous waste, the number of old electronic devices collected, the amount of biodegradable waste collected and ways of their management, the number of cesspools, that is devices for collecting liquid waste in the place where it is generated, and the number of home sewage treatment devices for treating liquid waste.

During the audit discussed in this presentation it has been observed that 94 percent of the audited entities met their obligation to report on the issues that have been listed. Unfortunately, in 24 percent of the entities, reports contained errors or were incomplete. For instance, the amount of waste collected selectively was overstated, the amount of waste sent to landfills was understated, the amount of individual waste types, such as for example glass and plastic, was inaccurate, or there was no data on certain infrastructure elements.

How could it happen?

Our audit has revealed that it was due to the waste collection system operating in many local authority units, and due to failures on the part of waste collecting companies.

In the majority of the *communes*, waste collection lies with more than one company (from 2 up to 54 in big cities). According to the law, these companies should, by the 31st of March every year, present local authorities with information on the amounts and types of waste collected and transported to landfills in the previous year. The audit has shown that in over 50 percent of the audited local authority units not all companies provided this information. Usually, it was one or two companies that failed to do so, but in some cases as many as 82 percent, 77 percent or 55 percent of companies did not report to local authorities. Sometimes information was provided, but it was incomplete. As a consequence, local authority bodies did not have full knowledge on the amounts of waste collected on their territory, as a result of which their reports contained incomplete data.

In 12 audited entities, actions taken to discipline companies that had not provided information were limited to phone calls or reminders. Employees of some audited local authority bodies carried out checks in companies in order to receive information required, or took steps aimed at taking away their licences, which was the only legal sanction that could be imposed. This sanction was, however, rarely used, because local authority units had no alternative for collecting waste. New regulations that have been introduced this year allow for imposing financial fines on companies, which may lead to some improvements.

However, despite all the actions taken, some local authority bodies did not manage to, collect statistical data, and they did not have information on the amounts and types of waste before the deadline required by the law.

The audit has also shown that some of the audited entities did not have the records required by the law. For instance, in 10 percent of the audited entities, there were no records on the number of cesspools, and in 25 percent – the records were incomplete and out of date; in 24 percent of the entities there were no records on home sewage treatment devices; in 13 percent – there were no records on contracts for municipal waste collection, while in 32 percent – records contained incomplete or out of date information.

This was mainly due to the fact that in the majority of local authority units records were based on the data received from waste collecting companies which, as it has been already observed, did not meet their obligations properly. Consequently, the records were incomplete, which negatively affected the quality of reports generated by local authority units.

As a result of the audit, 225 recommendations have been produced, frequently related to the reports developed, the records made and activities of local authority bodies to discipline negligent companies. So far, 91 recommendations have been implemented, while others are in progress. We hope that the errors disclosed in reporting will be corrected soon.

To sum up, in order to assess whether the environment reporting system is efficient and whether the data it provides is reliable, we should analyse possibilities and regularity of generating information at the lowest levels of the organisation. The quality of the data obtained at the lowest level determines the situation in the region, and consequently – in the whole country. Errors made at the lowest level add up and they can result in generating an unreliable overall picture.

The examples of irregularities and minor irregularities discussed in this presentation could be probably observed in other country. I hope that our findings will inspire other SAIs to perform similar audits. Results of such audits, through the assessment and elimination of weaknesses, can contribute to both an improvement of the reporting system and obtaining environmental data.

As it is beyond doubt that proper environmental reporting is vital for all aspects of sustainable development. So we should do our best to make this data as comprehensive and reliable as possible.

Environmental data

CANADA

Environmental data for auditors: options and resources

Introduction

According to the 2009 Survey on Environmental Auditing conducted by the Working Group on Environmental Auditing (WGEA), supreme audit institutions (SAIs) are performing an increasing number of environmental audits, but often face significant challenges when developing and conducting these audits. Audit institutions reported that their most common obstacles are insufficient data on the state of the environment, and inadequate monitoring and reporting systems.

In response to these obstacles, the WGEA included a research project on environmental data in its work plan for 2011-13. The subcommittee responsible for this research project is being chaired by the US Government Accountability Office and the Office of the Auditor General of Canada. This paper summarizes some of the work completed so far to address the issues associated with insufficient data.

The key objectives for the overall project are to:

1. describe the main ways that auditors use environmental data and key considerations when using such data;
2. broadly identify key sources of environmental data available to SAIs; and
3. identify tools and methods SAIs may use when high quality environmental data are lacking, using case studies to illustrate the experiences of different audit organizations.

This paper provides some preliminary observations related to these objectives, and poses some questions for discussion.

Background

For the purposes of this project, we are defining environmental data as systematically collected qualitative or quantitative information about different components of the environment (e.g. air quality, water quality and quantity, natural resources, ecosystems) or human activities and sectors that affect the environment (e.g. agriculture, waste, and land development).

Government managers collect and use environmental data for several purposes, which include measuring the state of the environment, assessing compliance with environmental regulations, responding to emergencies, and evaluating the environmental effects of development projects. Auditors may also need environmental data for their own purposes, which include choosing audit topics, selecting audit samples, evaluating environmental program performance, determining how well environmental risks are managed, and assessing the significance of audit findings. We have focussed on three main ways that SAIs use environmental data: planning audits, conducting audits, and clarifying audit results.

If high-quality environmental data exists, it can provide several benefits to auditors, including:

- Selecting the audit topics that make the biggest difference in terms of protecting the environment and human health, and managing natural resources most effectively—thereby serving clients better.
- Designing and targeting samples better, allowing audits to be done more efficiently.
- Providing independent information to assess progress on commitments, such as the requirements to reduce emissions of greenhouse gases.

- Improving the understanding of the significance of the findings, by putting them in quantitative terms. This may mean placing less emphasis on some findings, and greater emphasis on others.
- Strengthening the case for action on specific recommendations. For example, environmental data could help clarify the possible costs and benefits of acting on a given recommendation.

Frequently however, SAIs may find that high quality environmental data is not available. In these cases, some alternatives may be available for the SAI to develop findings, conclusions, and recommendations.

Steps for Selecting and Using Environmental Data in Audits

For the purposes of this discussion, we have organized our research objectives into three steps that can help auditors to select and use environmental data in audits, and to identify options when data are lacking. The steps are summarized in the attached flowchart.

Step 1: Consider how environmental data could be used

Based largely on SAIs' past experiences, we have identified several potential uses of environmental data throughout the stages of an audit, from planning to reporting results. For example, New Zealand's Office of the Auditor General used available environmental data during the planning stage of an audit to choose which local authorities to use as case studies for assessing whether the local authorities effectively managed future demand for water services. Turkey's Court of Accounts used environmental data to clarify audit results by determining the percentage of solid waste dumped illegally compared to the amount sent to landfills; this augmented its findings on national implementation of waste management regulations.

Auditors can consider the possible benefits of using environmental data, in each of the stages of the audit. Auditors can also assess several key aspects about the use of environmental data, such as the capacity of their organization to obtain and analyze data.

Step 2: Determine whether the desired environmental data are available and of sufficient quality

We have identified sources of environmental data available at the national, regional, and international level, spanning governmental, academic, and non-governmental data depositories. These databases may provide information on a single resource, such as water or forests, or on multiple resources, and they may cover several geographic areas. For example, the United Nations' Environment Programme houses water data from over 3,000 monitoring locations worldwide. International organizations, such as the United Nations, provide definitions and data collection standards that may help SAIs in auditing issues that have broadly reaching impacts, such as climate change.

Auditors can determine which alternative data sources are most suitable for their needs, as identified in step 1. Once the auditor has identified potential data sources, the auditor can determine whether the identified data is sufficiently reliable, relevant, and accessible for the audit's purposes.

Step 3: If data are lacking, identify options to use

Using audit case studies as examples, we have identified several options that SAIs could pursue if the desired data are not available from the entity or another source.. If data that are closely related to the audit issue are available and suitable, then audit offices can use these data to develop findings. Examples of these kinds of related data include estimates to approximate unknown data, or less conventional sources of data, such as photographs depicting historical trends. For instance, the National Audit Office of Tanzania used photographic evidence and physical observations during an audit to qualitatively evaluate the government's response to flood emergencies.

If no related data exist, SAIs may develop their own data. For example, the Comptroller General of Paraguay created its own data set of physical observations in the location of concern to develop findings on water contamination from tanneries.

Audit institutions may also use the lack of adequate data as a central message of the audit. For example, in an audit of municipal waste management, the Royal Audit Authority of Bhutan used the municipalities' lack of data on solid waste as a key finding and recommended that maintaining such data would help the governments' waste management efforts.

Auditors can determine which option or suite of options is most suitable for their needs, as identified in step 1, taking into consideration their organization's capacity to pursue a particular alternative. Auditors will also want to carefully consider the reliability and relevance of the results from each option used, as they would when using environmental data from an audited entity.

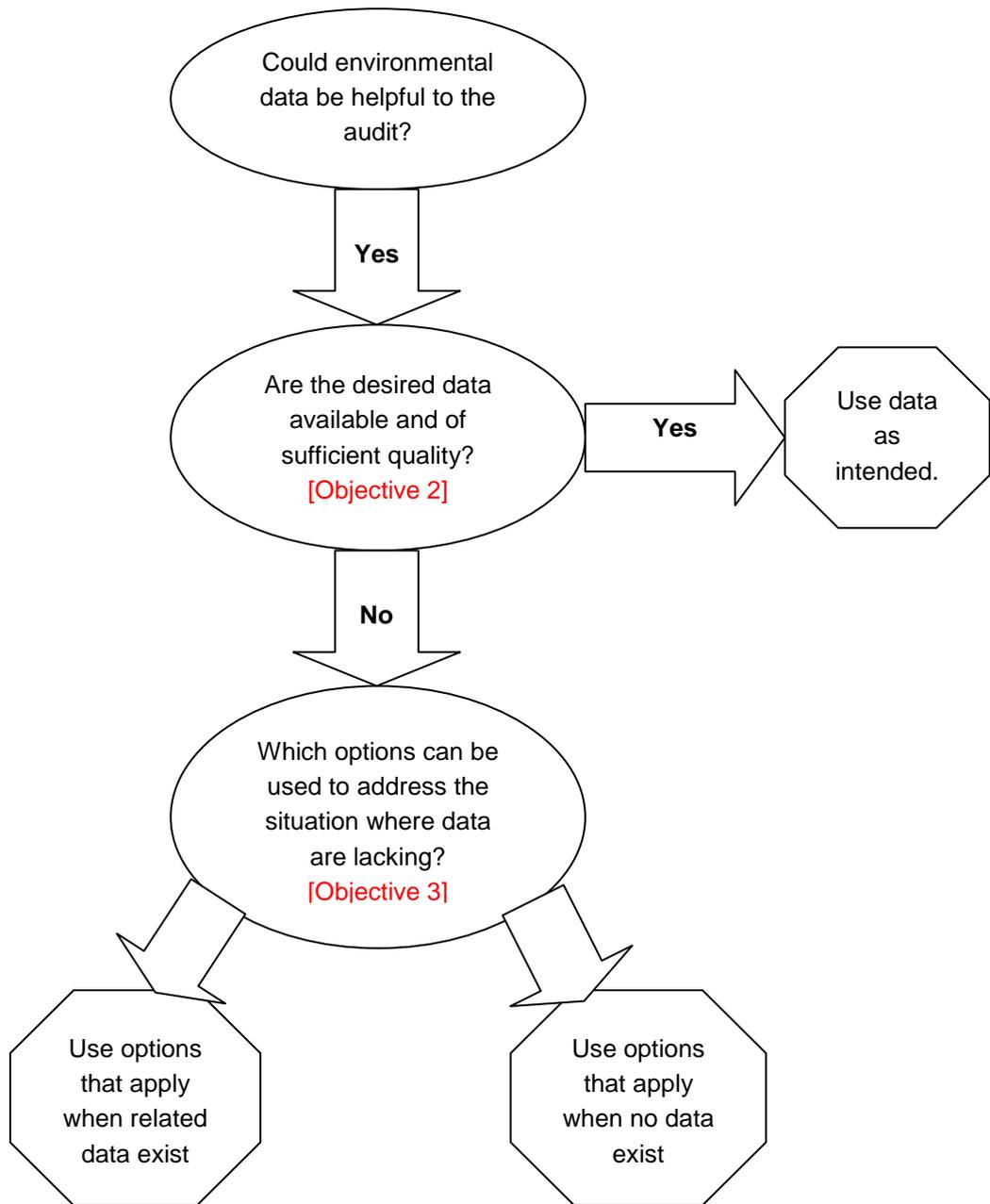
Questions for Discussion

Based on the steps outlined above, we propose the following questions for discussion with participants at the WGEA meeting in Buenos Aires. We welcome any specific examples from the experience of different SAIs:

- How do SAIs actually use environmental data when they plan and conduct their own audits? What have been the most important data needs? What topics do their audits cover and how are environmental data used to support audit findings and recommendations?
- Many of the potentially useful sources of data are now available on the Internet. What are the main sources available to SAIs when they look for environmental data? What alternatives can be used by SAIs when technical limitations make it difficult to use these sources?
- In many cases, the information SAIs may need is not available from any source, or the data may not be of adequate quality. What are the options for SAIs when they face these problems?
- Although not a central focus of the research project, we observed that how government managers and auditors obtain environmental data is evolving rapidly, with the development and increasing use of new technologies, such as geographic information systems and data from social media. What are the implications for SAIs, and how might SAIs incorporate these new technologies into their future audits?

This paper is intended to promote an in-depth discussion of these issues. As part of the overall research project, future work will draw on the input from other SAIs and is intended to provide some answers to these questions.

Steps for Selecting and Using Environmental Data in Audits



Environmental data

ESTONIA

The evaluation of the ecological status of transboundary waters and quality of monitoring data

The example of Estonian-Russian joint audit of Lake Peipsi, the biggest transboundary lake in Europe

The ecological status of transboundary waters is important issue in conservation of the water environment, as it depends much on good cooperation of neighbouring countries. For maintaining good ecological status of transboundary waters all neighbouring countries need to take actions and for achieving effective results the activities should be based on coordinated plan. First of all, the states need to have common understanding about the ecological status of water and reasons for it.

The evaluation of ecological status is based on environmental monitoring. It is crucial, that environmental monitoring in neighbouring countries produces the comparable and reliable data. Thus, the similar monitoring and analysis methodology, the same evaluation criteria and water quality elements should be used. Otherwise it is impossible to make comparable ecological evaluation for different parts of water body. These are the important issues to focus in conducting the environmental audit about the transboundary waters.

Helsinki Convention in protection of transboundary waters

The most essential legal instrument covering the monitoring and assessment of transboundary waters is the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, which was drawn up under the auspices of the Economic Commission of Europe, and adopted at Helsinki on 17 March 1992 (United Nations ECE Water Convention). Several bilateral and multilateral agreements between different European countries are based on the Convention. The Convention is intended to strengthen local, national and regional measures concerned with the protection and ecologically sustainable use of transboundary surface waters and groundwaters. All partners are particularly obligated to prevent, control and reduce the pollution of transboundary waters with hazardous substances and nutrients. Both riparian countries of Lake Peipsi – Estonian Republic and Russian Federation have ratified the convention. Under the Convention, the UN/ECE Working Group on Monitoring and Assessment has prepared several strategic guidelines for monitoring and assessment of transboundary groundwaters, rivers and lakes.

Lake Peipsi as the biggest transboundary lake in Europe

Lake Peipsi/Chudskoe is the fourth largest and the biggest transboundary lake in Europe which belongs both to the Republic of Estonia and the Russian Federation, who are responsible for the conservation and management of the lake. The catchment area is part of the Gulf of Finland basin and is connected to it via a rather short River Narva. The largest rivers are the Velikaya (catchment area 25,600 km²), the Emajõgi (9,745 km²), the Võhandu (1,423 km²), and the Zhelcha (1,220 km²). Altogether they make up about 80 % of the whole catchment area of Lake Peipsi and account for 80% of the total inflow into the lake.

The main ecological problem of Lake Peipsi is the eutrophication of surface waters due to the increased load of nutrients caused by human activities. Most phosphorous and nitrogen compounds are carried into the lake by two rivers. The Russian river Velikaya and the Estonian river Emajõgi account for approximately 80% of the total nitrogen load and almost 85% of the total phosphorus loads. The overall ecological condition



of Lake Peipsi has evaluated as bad to moderate. The ecological status of the southern part of the lake (Lake Pihkva) is in more critical condition.

For the conservation and management cooperation the Estonian-Russian Transboundary Water Commission was established in 1997 after the signing of an intergovernmental agreement on the protection and sustainable use of transboundary water bodies between the Republic of Estonia and the Russian Federation. The Commission is the main actor in managing Lake Peipsi.

Differences and shortcomings in water monitoring systems

The Estonian and Russian national monitoring systems were analysed and compared with the UN/ECE Guidelines during the international cooperation project between Estonia and Russia in 2003 (UNDP/GEF and TACIS projects). As a result of comparison it became evident that eight years ago the water monitoring programs in EU member states differed from the system used in Russia in many ways. Some of the examples as follows.

- The Water Framework Directive requires EU Member States to monitor benthic invertebrates, fish and phytoplankton communities, macrophytes and phytobenthos. Those important biological parameters are not included into Russian State Monitoring programme. The biological monitoring is potentially cheaper, since monitoring frequencies are much lower, but the benefits and results are difficult for many non-biologists to understand. Thus, biological monitoring data may be viewed as non-conclusive or unreliable.
- The comparison of the chemical analyse procedures in the Estonian and Russian laboratories participating in the monitoring of the Lake Peipsi/Chudskoe had demonstrated remarkable differences. Estonia had harmonized the methodologies with standards used in EU. The quality assurance and internal control is implemented in all laboratories, and they participate in several international intercalibrations. Unfortunately development in Russian laboratories was not so fast.
- The problematic issue in water quality monitoring were the differences in phosphorus analysis among the laboratories, participated in the analysis of water samples. Different sampling methodologies are used by different organizations, which present a problem both in terms of being able to compare data from different laboratories within Russia, and with being able to compare Russian and Estonian water quality data.
- There is a lack of collaboration between different organizations involved in water quality/ecological monitoring, so data is not stored within a single database or location. The collection, storage and use of environmental monitoring data is not regarded as a priority by those organizations which are not themselves actively involved in monitoring.

Estonian-Russian parallel audit about the ecological status of Lake Peipsi is on-going

The differences in monitoring and analysis methodology, data quality and handling could lead to the different ecological evaluation and different understanding of the ecological status of transboundary waters. Therefore the objective of the Estonian-Russian parallel audit is to clarify, whether the environmental monitoring in both countries is producing reliable data for adequate assessment of the ecological status of Lake Peipsi, main pollution sources are identified, both counties have agreed on the evaluation criteria of the water quality and monitoring program and monitoring data is available for both sides.

During the audit we analyse the international and national obligations concerning the monitoring of surface waters, international guidelines, monitoring programs, reports, budgets, monitoring methodology, data handling and activities of the Estonian-Russian Transboundary Water Commission. As the audit is on-going, we do not have the results and recommendations so far, however it is obvious, that main recommendations of the audit will be focused on the harmonisation of the monitoring systems.

ITALY

The case of Commissioners for the extraordinary waste emergency

A particularly significant case of performance audit conducted by the Court of Auditors is represented by the survey on "The management of the waste made by the Commissioners of the Government." The examination of this case allows to investigate the organizational and methodological choices that characterize the performance, the conclusions and the use of a tool that, as found in the previous paragraph, is equipped with a high level of complexity.

THE DEVELOPMENT OF THE SURVEY

The survey is scheduled programming by Resolution No. 1 / 2005 of the Court of Auditors, Section of central control over the management of State Administration, which provides that the activities of the management control of the waste is time to "analyze certain management commissioners, so as to allow examination of most important factors critical operational and financial. "

This is an expanded mandate which is not further detailed, allowing a broader approach to monitoring-evaluation: large space is left to the initiative, experience and professionalism of the auditor. The same object of research is defined in its exact terms only by his choices. In the case examined, they opted for an extension of the survey in all regions (Campania, Apulia, Calabria, Sicily and Lazio) affected by commissioner waste, instead of limiting the examination to the management of municipal solid waste (excluding special waste).

The survey was carried out by an auditor of the Court of Auditors who worked on it in the second half of 2005 and throughout 2006. The magistrate is assisted by 2 units of administrative staff.

THE TIMING OF THE SURVEY

There are two main sources of data from the survey has drawn:

- information and documentation obtained by contracting under investigation (primary sources). Requests were sent to the special commissioners, with a numbered list of what is required, indicating the time limit within which to provide the request and respond electronically, in order to facilitate the processing and storage. At the first request would be followed further, containing the reminder information is not received and invitation to provide additional explanations.
- Documents relating to the public or existing survey (secondary sources). This is documentation of the issue of which auditors have come into possession, either through acquisition of public record, either through specific requests (for example, addressed the major environmental organizations). The investigation has drawn to a large and qualified in previous documentation (proceedings of the Parliamentary Commission of Inquiry on integrated waste cycle, annual reports by the Agency for Environmental Protection and Technical Services and earlier pronouncements of the Court of Auditors).

The two types of sources of information were deliberately superimposed and compared during the investigation, providing information and enrichment at depth cues.

The outcome of the report opens with a concise representation of European and national legislation on waste, a classification of the integrated cycle of waste in Europe (based on Eurostat data specifically identified by the Court of Auditors) and some notes on the origin of commissioner of the waste management.¹⁰

¹⁰ The law establishing the civil protection provides for natural disasters, catastrophes or other extraordinary events at a derogatory ordinary skills prescribed by law and by the assumption of management of the emergency by the President of the Council of Ministers,

The report focuses on the management commissioner in every region of:

- a detailed reconstruction of the emergency legislation, and recall the main steps from the declaration of a state of emergency in March 2007.
- a thorough implementation of the emergency, or by the actions ordered by the commissioner Management;
- the commissioner's review of the organization (staff structure, acquired professional advice), the tenders for execution of works completed and services-economic management, both with respect to the balance between revenues and expenditures, is the type of spending.

The report is concluded by a final paragraph that summarizes the evaluation criteria. Overall, the final report consists of about 180 pages. The style of the document, divided into paragraphs, it is concise and sober. There are tabular representations 47 and 612 notes.

The contents of the report

The final report has within it a number of evaluative judgments on the subject of the survey. They can be summarized around the following points (taken from the concluding section of the final report):

- Institute or the commissioner. It questioned the character of precariousness and exceptional commissioner contesting the root of the institute the opportunity in the face of disappointing results. It says "The organizational structure of the waste has lost the original character of the precariousness and exceptional setting and it came as a complex organization Extraordinary and lasting, which is flanked to the ordinary (Final Report, p.164)" . Particular is the fact that the commissioner has been frequently responsibilities entrusted to the president of their own region or at the head of that administration in an ordinary way that should ensure the management of the matter. In this way, "The commissioner had no concern as to entrust the management of the waste to technical bodies best equipped to fully implement the rules in force on waste, but often attributed to the extraordinary powers of a body invested certain function (Final Report, p.164)." In general, the critics to the institute commissioner are concerned to two key points in particular:
 - The absence of democratic forms of confrontation with local realities, from which various disputes and ultimately resulting in delays (not only against the provisions, but also what is necessary for the ordinary procedures of commitment);
 - The widespread lack of enforcement of competition rules in entrusting contracts, which has exhibited in the phenomena of underworld leaks, causing a slowdown of orders due to the actions promoted by the ordinary courts.
- Planning. This element, essential for a complex and activities territorially articulated as waste management and determining a passing emergency, he saw, according to the report, the management commissioners to act slowly in approving the plans and change the content in most cases the same key (such as the number of WTE plants planned).
- The waste reduction and recycling. The extraordinary nature of management has led to the absence of campaigns and initiatives for waste reduction. Moreover, it not only documents how all the plans of the Commissioners have adopted a target percentage of the minimum collection (35%) required by law, the date of 2003, but as this objective is still far from being achieved. In this regard, it is noted as a percentage of the gap with the national average has even increased over the years been the subject of management commissioners.
- The construction of the plants. According to the report it is a totally unsatisfactory appearance, so much so that it says "so many years after the commissioner, are still, largely, unrealized (Final Report, p. 172)."
- The reasons are identified in the "substantial abdication of management prerogatives by the commissioner of planning and coordination" with the allocation to private operators in a series of fundamental choices, such as "where to locate the various sites and facilities which provide

with the possibility of using a Commissioner to delegate the implementation of interventions and the power to issue orders, notwithstanding the provisions in force).

temporary storage facilities, the choice whether or not to build incinerators or use of existing installations for incineration (Final Report, p. 172). "

- The organization of the structures. The organization of the commissioner was unable to fulfill the tasks entrusted large even after the frequent alternation of both the commissioners and staff. The Court finds the presence of abnormal operating costs, waste management and shortcomings in the timely and documented for individual commissioners reality. In Campania, for example, in the period 1997-2005, the expenditure for the functioning of the management of commissioners was 282 million euros, equal to 34.5% of the outstanding amount of resources allocated to the refuse in that region (856 million). The management of external mandates is occurred in the absence of advertising, competition and transparency.
- Supervision and controls on the activities commissioners. According to the Court "Patchy, with regard to management of the five commissioners-and still lacks teeth-was the work of supervision and control exercised, however, only since the past few years, the Department of Civil Protection and the Ministry of Environment (Final Report, p. 175). " It also notes the inconsistency of government regulations, made evident by the numerous extensions succedutosi, and the failure to establish the internal audit services (except for the region of Sicily).

The analysis of the methodology applied.

The examination of the characteristics used in the survey methodology follows the pattern below: For each type of methodology is found spread in the final report and the degree of processing methodology.

With regard to the size of the quality and effectiveness, the survey examines how widespread and significant processing with a degree of the achievement of management objectives set for the commissioners, showing attention to achieving the same long-term (second and indirect impacts order). This second aspect is facilitated by an extensive range of time considered by the survey. The examination is not limited to the objectives, but also considers the results, which are analysed through requests for information management to commissioners.

The kinds of survey, based exclusively on the use of remote communications (integrated with respect to hearing), while leaving room for improvement with the use of alternative recognition techniques, it's able to make arise the problematic situations. Record the presence of analyzing the impact of management commissioner, but with a level of initial processing.

Absent the verification of the quality-oriented methodologies and analysis-oriented parties (end users of management commissioners). Widespread but checking the status and results of internal controls, the degree of elaboration that it is not possible to rule for the reported failure of themselves in the management commissioners.

The size of the efficiency is taken into account in the survey. In particular, there is the presence of:

- diffuse analysis of data on the subject of the investigation also by comparison with other Italian regions and other European countries (benchmarking);
- diffuse comparisons of data sets refer to different years;
- limited to specific resources related indices;
- diffuse analysis of expenditure items.

As regards the degree of elaboration, while the construction of indices is still at an early stage of development, the comparison with meaningful benchmark with time series and items of expenditure is subject to significant processing. However, the chances of finding further enhance the data collected and processed.

As an example, the final report presents calculations that allow the comparison of operating costs of the management expenses for the commissioner, but the document does not explicitly focus on the proportion between the two dimensions. Similarly, despite deliberately collected data in a symmetrical manner in each management commissioner, is missing in the final stages a reading of synoptic data.

Absent the control methods of professional, focused on the specific skills necessary to solve the waste problem. The acquisition of reports and documents by agencies specialized in this area while going in this direction, it can not be assimilated to this dimension because it lacks the activation of a comparison on the technical aspects with the commissioner.

Strong attention to the procedural dimension of the work of the Commissioners, both in terms of equity, with the examination of the use of authoritative powers and management of critical cases, both in terms of examining the legality, with ' explicit identification and timely behaviors and practices to be challenged by the judicial or otherwise deprived of transparency. The degree of elaboration of these interventions is high and benefit from the extensive reference documentation gathered during the investigation (the list of references consulted is 45 pages and what the legislation cited in the report is 8 pages).

Overall, the methodological survey is very articulate, with a broad spectrum and a degree of elaboration in many cases considerably. Certainly it is a control activity capable of detecting elements of a different nature, including the reconstruction of temporal connections, resulting in a broad sense evaluation.

Examination of the methodologies used in the survey "The management of the waste made by the Commissioners of the Government."

Using survey and consequences

The final report was sent to the commissioner. Following a reminder, all administrations have sent a report to the Court containing the measures taken following the findings. The reports received are focused on giving excuses or explanations regarding the past behavior and give no evidence of how (and if) it has been modified following the report. The involvement of management in the early stages of investigation commissioners (32 submitting written) and trial (8 memories in the process of deliberation, in addition to interventions during the public session) authorize the work, however, to believe that the Court has produced in the administrations in a control input of knowledge and information.

The report was submitted to Parliament, the Presidency of the Council, the ministries, the Attorney General and the regional attorney of the Court of Auditors. Many considerations of the report have been taken up by the final report of the Parliamentary Commission of Inquiry into the cycle of waste and illegal activities connected with it the XV legislature. Some of the topics contained in the report in August 2007 have been the subject of an interpellation in the Chamber of Deputies. The contents of the report have also been included in the activities of some regional councils.

Following approval of the report, the Court ordered the General Accounting Office to file a report sull'incongruenza between the financial data derived from the documentation submitted in the investigation made by the commissioner and the data related to the same management acquired through the SYSTEM INTEGRATED RAGIONERIA GENERALE DELLO STATO-CORTE DEI CONTI.

The Court has also taken steps to embed the relationship over the Internet (published in the Court's website) and print. Very important consequences of these actions: the text was in fact taken in dozens of newspapers and magazines (including foreigners: an article by Le Monde was dedicated) giving rise to a significant and

prolonged interest (10 different articles in newspapers mentioning explicitly reports have appeared in the month of January 2008 to more than eight months after the publication of the report).

Extensive insights on the survey are also dedicated to weekly and monthly. That the report had a considerable spread and reached the attention of public opinion is borne out by the same change, requested and obtained by a private citizen, who, following a court ruling, deemed problematic by some statements the relationship itself.

Three guidelines can characterize the use of an evaluation report:

- knowledge, information and transparency;
- improvement and learning;
- warranty, awards-punishment.

As regards the first dimension, the survey has certainly contributed to informally elected bodies, governments and citizens on the management commissioners. It is not merely a result of knowledge: the strong attention of the media shows that the investigation has satisfied an important need for information and transparency and rooted otherwise destined to remain unfulfilled. There is an interest in this respect also the themes of the report by political bodies.

Conversely, the survey failed to affect the size of the improvement. The evaluations of the Court is not triggered and stimulated the increase of the quality of management decisions. The commissioners have not enabled management learning processes as a result of the investigation but it is vice versa prevailed defensive orientation, oriented to justify their behavior in relation to the requirements of the law, rather than to discuss critical management decisions made.

Limited, in line with the purpose of collaborative management control, its use in a key reward-punishment. However, this third dimension, while not materialized in practical consequences, hovers on the investigation and use of its results. The size of transparency in some way is replacement of the absence of responsibility profiles traditional reputation becomes the area on which the Court operates to penalize governments.

The text is drawn from the article "The performance Audit of the Italian Corte dei conti", written by Matteo Turri, researcher of the Department of Economics, Business and Statistics Science, of the University of Milan, and by Antonio Mezzera, Magistrate of the Corte dei conti.

The article has been published in Italian in the Review "Public Company: Theory and Management issues" Maggioli Editions.

Environmental financing

CZECH REPUBLIC

Funds earmarked for measures regarding the waste disposal

Aim of the audit:

The aim of the audit was to scrutinise the provision, drawing, and use of finances earmarked for the implementation of measures in the field of waste disposal.

Audit period:

2007 – 2010

Performance of the audit:

June 2010 - January 2011

Type of the audit:

Compliance

Audited bodies:

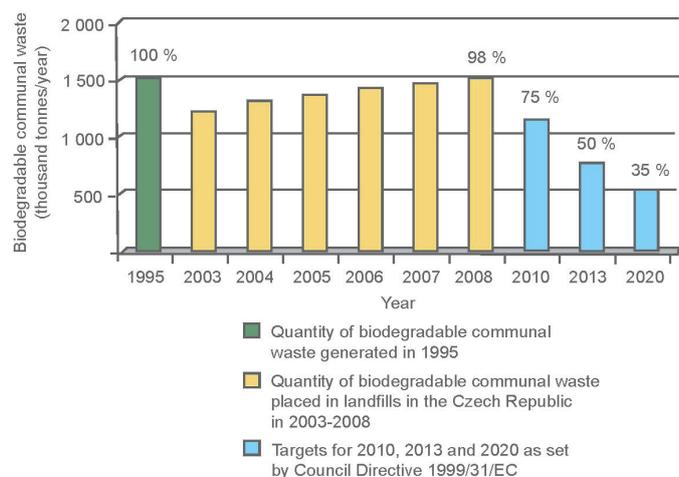
- Ministry of the Environment of the Czech Republic
- State Environmental Fund of the Czech Republic
- Selected beneficiaries of financial assistance

Methods used:

- analysis of documents;
- interviews;
- analysis of statistical data.

Audit criteria:

- Directive No. 98/2008 of the European Parliament and of the Council (EC) of 19 November 2008, on Waste and Repealing Certain Directives;
- Council Directive No. 1999/31/EC of 26 April 1999 on the Landfill of Waste;
- Act No. 185/2001 Coll., on Waste and Amendments of Some Other Acts;
- Act No. 137/2006 Coll., on Public Procurements;
- Act No. 218/2000 Coll., on Budgetary Rules and on Amendments of Some Related Acts (Budgetary Rules);
- Government resolution No. 197/2003, on the Waste Management Plan of the Czech Republic;
- Waste Management Plan of the Czech Republic (sets out waste management goals, principles, and measures for a ten-year period, drawn up in 2003).



Findings:

One of the most problematic goals of the *Waste Management Plan of the Czech Republic* is reducing the quantity of biodegradable communal waste placed in landfills. Since 2003, when Government Regulation No. 197/2003 came into force, a larger quantity of biodegradable communal waste has been placed in landfills than specified by Council Directive 1999/31/EC and this quantity is growing gradually. As a result, the Czech Republic is at risk of being penalised by the European Commission. Supporting construction of new communal waste incinerators is one important measure for implementing the said Directive (allowed by the Czech legislation since January 2010, while the Directive's requirement should have been fulfilled in 2010). Developments and the current state of affairs indicate that the target set by Council Directive 1999/31/EC for 2013 will also not be attained.

Other findings:

- In the years 2003 - 2007, the Ministry of the Environment and the State Environmental Fund spent a total of CZK 3,414.9 billion out of State finances and European Union funds. The benefits of such support in terms of improving the state of waste management or this support's influence on attainment of the targets of the *Waste Management Plan of the Czech Republic* were not assessed.
- There was not created a sufficient system of indicators to assess the benefits of support provided under the operational programme *Environment*. The actual use of facilities acquired under this programme to improve waste management was not monitored.
- The rules for beneficiaries support were often changed during the programme implementation and were confusing and unclear.



- The system put in place for the final assessment of projects and follow-up controls of projects financed out of the operational programme *Environment*; specifically the intervention area 4.1 – *Improvement of Waste Management* led to a situation where there is not any information about the operation and use of the built facilities.
- Although there have been significant changes in the European and national legislation on waste management, the *Waste Management Plan of the Czech Republic* has not been updated since 2003.

Supreme Audit Office, Czech Republic

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Fraud and corruption

INDIA

Fraud and corruption in environmental issues: experience of SAI India

1. Fraud and Corruption in environmental issues: Experience of SAI India

With increased public consciousness, the demand for public accountability of persons or entities managing environmental resources has become increasingly evident. Hence, there is a need for accountability processes to be in place and operating effectively. While no separate wing for fraud and corruption audit has been set up in SAI India, cases of fraud and corruption are detected by our audit teams, especially those carrying out compliance auditing on environmental issues. **Cases of fraud and corruption are often identified through compliance audits, which are designed to ensure that environmental laws, rules and regulations are observed.** In the field of environment, compliance audit objectives relate to compliance criteria established by laws, regulations, contract provisions, grant agreements and other requirements that could affect the acquisition, protection, and use of the entity's resources. It could also affect the quantity, quality, timeliness, and cost of services the entity produces and delivers. Cases of non-compliance could thus reflect fraudulent transactions, though not all cases of non-compliance are fraudulent. **SAI of India, through its auditing process, has identified a number of cases of non-compliance which could be fraud and corruption related issues in the field of environment.**

In the environmental sector, the areas susceptible to fraud and corruption in India are:

- (i) Afforestation activities:** Ministry of Environment and Forests (MoEF), through its various programmes, provides a lot of funds for undertaking afforestation activities. However, the audit experience had been that due to various reasons, fraud and corruption amongst them, such tree planting often takes place only on paper.
- (ii) Mining:** India is very rich in mineral resources like iron ore, coal, mica, chromium etc. Most of these mineral resources fall in thickly forested areas of the country. As such, clearances from the MoEF have to be taken by the mining agencies before mining activities can begin. However, many mining activities begin without any clearances or on basis of fraudulent permits and no penalty is imposed on such mining agencies.
- (iii) Sale of forest products:** Many forest products like timber and leaves of small plants which can be commercially utilized are removed illegally from the forests and sold. This leads to depletion of forest and biodiversity associated with such forests.
- (iv) Inspection and regulation by regulatory agencies:** Central and State level pollution control boards are mandated to inspect industries which emit harmful pollutants into the environment. However, such inspection and monitoring by pollution control authorities is lax and no penalty is imposed for violation of environmental laws.
- (v) Grant of project clearances:** Projects which do not meet environmental clearance criteria are cleared for commencement of operations in violation of existing laws and rules.

While there are a number of cases related to fraud and corruption in the environment sector in India, 2 cases are discussed below in detail.

2. Case study 1: Implementation of an afforestation programme

2.1 Background to audit

Ministry of Environment and Forests (MoEF) is the main ministry for the conservation and protection of environment in India. It disburses funds to various agencies for implementation of programmes relating to conservation of the country's natural resources including its lakes and rivers, its biodiversity, forests and wildlife, ensuring the welfare of animals, and the prevention and abatement of pollution.

In September 2001, the Planning Commission¹¹ had fixed the target of increasing the forest/ tree cover in India to 25 per cent of the geographical area of the country by the end of Tenth Five Year plan (2002-07) and 33 per cent by 2012. Further, it had also observed that availability of land and quality planting material were major gap areas for efforts in the area of afforestation. Based on these inputs from Planning Commission, **MoEF decided to restructure an existing programme for afforestation. The restructured programme was named “Greening India” scheme.**

2.2 Objectives of the programme and funding pattern

The broad objective of the programme was to provide funding assistance to voluntary agencies (which were private organizations) and forest development agencies (which were government agencies)¹² for planting of trees, setting up of nurseries for providing good quality planting material and awareness generation in the field of afforestation. Funds under these schemes were to be given to the voluntary agencies and forest development agencies in three installments. The first installment was to be released immediately after the sanction of the project. After the Utilisation Certificates¹³ and progress reports for the first installment were received, MoEF was required to carry out midterm evaluation of the project. Based on verified progress on the ground, MoEF was to release the second installment. The third installment was payable after receipt of Utilisation Certificates for the second installment and final evaluation report. **Thus, project completion was contingent on voluntary agencies and forest development agencies getting all the three installments and submitting Utilisation Certificates, projects reports and evaluation reports to MoEF.**

2.3 Summary of Audit findings

(a) Projects not completed

- **Out of 560 projects sanctioned to *Voluntary agencies*, 62.85 % of the voluntary agencies received only first installment while the rest two installments were not released as MoEF did not to receive necessary documents to prove that the voluntary agencies had actually spent the fund in activities relating to tree planting, setting up of nurseries and awareness generation.** The implementation of all of these projects was incomplete as voluntary agencies did not come back to MoEF for release of the second and third installments. All the 3 installments of grants were released only in 3.57 % of the total projects sanctioned to Voluntary Agencies.
- Out of 87 projects sanctioned to ***forest development agencies***, in 54% of the total projects sanctioned to them, only the first installment was released due to lack of proof of activities undertaken by them. In the rest of the projects, funds were not released due to lack of proof of activities undertaken.

Thus, only 3.57 % of the projects sanctioned to ***Voluntary Agencies*** were actually completed and only 23 per cent of the projects sanctioned to ***forest development agencies*** were completed. **There is high possibility of fraud amounting to 10 million USD as the voluntary agencies neither came back to MoEF for the next instalments after release of first installment nor did they furnish proof of the activities undertaken by them. MoEF also failed to ensure recovery of funds from these voluntary agencies and it did not initiate any action against the defaulting Voluntary agencies.** When the matter was reported to the government, it filed police reports against 7 voluntary agencies. It could not take any further action against many voluntary agencies as the address given by them was fictitious.

11 Main body for planning in India.

12 Non Government Organisations (NGOs), Registered Societies, Non-Profit Organisations, Cooperatives, Charitable Trusts etc. Only those agencies which had been registered at least for last five years and which had requisite experience in the field of environment/social sectors, were considered for financial assistance.

13 These are financial statements showing details of expenditure made by the agency.

(b) Non-achievement of objectives of tree-planting

No targets for tree planting were set by MoEF for 3 years under audit study. In 2 years, against the target, projects were sanctioned only to cover 26.65 % target. **The actual area to be covered under tree plantation considerably declined from the beginning of the project period.** Thus, the success of the new programme despite setting up of high-tech nurseries, was doubtful.

(c) Low achievement of objectives of setting up nurseries and awareness generation

- No satellite nurseries were set up though 464 nurseries were to be set up.
- Out of 28 states, in 7 states, high-tech nurseries were not sanctioned at all and in 11 states, only one high-tech nursery each was sanctioned. Thus, achievement in setting up nurseries was very poor.
- MoEF had targeted spending 4.5 million USD crore in 2005-06 to generate awareness, however, only 12 projects were sanctioned and 38 % of funds were expended. in 13 out of 28 states MoEF did not sanction any project for awareness generation. MoEF also did not receive any feedback from the forest departments regarding effectiveness of the awareness and training programmes taken up under the project.

(d) Poor monitoring

- Even though MoEF was required to monitor the project directly, it did not do so.
- A third party evaluation had revealed misappropriation of funds, but still MoEF did not monitor these projects.

(e) Conclusions of audit

Only 3.57 % of projects sanctioned to **Voluntary Agencies** and 23 % of projects sanctioned to **forest development agencies** could be completed and more than 93 % of projects did not achieve their targeted objectives. **The possibility of fraud amounting to 10 million USD is high as majority of voluntary agencies neither came back to MoEF for the next installment after release of first installment nor did they furnish progress reports. The programme ' Greening India' did not have the desired impact in absence of specific monitorable targets for tree planting, achievement of overall aim of afforestation suffered.** Thus, objectives of Greening India scheme remained largely unachieved and the long term objective of increasing tree cover in India was affected due to poor achievement of this programme.

2.4 Impact of audit

When the report was discussed with government, **the government filed investigation cases against 9 voluntary agencies.** This report was presented to Parliament in 2010 and the Public Accounts Committee picked it up for discussion. **Currently, it is being discussed by PAC and the government has been directed to report on the action taken by it for recovery of funds from rest of the voluntary agencies.**

3. Case Study 2: Calcutta leather Tanneries

In accordance with the Supreme Court's directives in 1987 to industries located in cities on the bank of river Ganga to stop discharging untreated effluents into the river, **the Calcutta Leather Complex (CLC) was conceived to abate pollution by the tanneries in East Kolkata.** The Feasibility Report was prepared by Central Leather Research Institute (CLRI) which identified the huge potential for CLC in processing, manufacturing and trading activities without any environment hazards. Based on the feasibility report, a tender was invited in December 1994 for development of the Leather Complex on Build Operate and Transfer (BOT) format. Global tendering process was not followed and the tender notice was published only in only 4 newspapers (including two local newspapers). As a result, responses of only 4 parties were

received. However, instead of re-tendering, the selection committee recommended acceptance of one party, without evaluating the technical and financial capability of the parties to carry out the work. **Scrutiny of records revealed that party selected was given undue financial favour amounting to more than 6 million USD.**

- As per SC direction, the CETP was to be constructed with its cost shared on 50:50 basis between GOI and State Government and as per MOU, the BOT party was to bear the share of the State Government. However, since the party failed to submit the DPR in time, it was prepared by another agency. Further, as the party was unable to mobilize its share of funding, the state government decided to construct two modules of the CETP costing 6 million USD at its own cost, thus lessening the financial burden of the party. Thus, awarding of contract to MLD without judging its techno-financial capability resulted in extra financial burden on Government exchequer and also delayed the implementation of CLC project.
- Land was given at a hugely discounted rate to the party and the low rate of rent fixed was contrary to government rules.
- Rehabilitation of people living around the area where the leather complex was to be done by the party. However, it was done by the government and spent huge government funds on rehabilitation which was not recovered from the party.
- A follow-up audit in 2010 showed that the leather complex is still not complete and is causing immense damage to the environment including pollution of ground water which carries huge risks to health of people living nearby.

6. Conclusion

Like any other sector in India and worldwide, the environmental sector in India too is affected by fraud and corruption in natural resources management, utilization of natural resources, inspection and monitoring etc. Though the SAI India does not carry out audit of fraud and corruption cases separately, many cases of fraud and corruption have been reported by SAI India in its audit reports. All these cases come to light during the normal course of auditing, especially compliance auditing. All of these cases are referred for comments to the Government and in case no action is forthcoming in these cases, these are printed in SAI India' audit reports. The Audit reports are discussed by the Public Accounts Committee where the executive is called for giving assistance and the SAI India advises the PAC. Based on these discussions, the PAC issues its recommendations, which the government has to take action on. The process is identical for cases of fraud and corruption in environmental issues too. For instance, the government has been directed by the PAC to take action against the NGOs suspected of misappropriating funds reported in Para 2.4 of this paper. **As such, fraud and corruption issues, especially those in the environment sector, are adequately identified by SAI India. To contribute further to improving accountability and fixing responsibility especially in the environment sector, SAI India plans to take forward the auditing process and highlight more cases of corruption and fraud in the coming years.**

Fraud and corruption

UKRAINE

International Co-ordinated Audit of the Chernobyl Shelter Fund: fraud and corruption risks

In planning and carrying out the audits, estimating the results and providing the conclusions we should take into consideration the risk of distortion of the report of the audit objects as the result of fraud or mistakes. In the first place, it is necessary to bring into accord the definitions of the fundamental terms between the participants, which mean to compound the glossary of definitions in order to carry out the international audits successfully.

As you know the definition “mistake” means an unintentional alteration of data and the definition “fraud” means the intentional act of one or few persons involved into management, or those in authority, employees or the third parties using the deception to obtain the illegal and unjust profit.

The corruption is the more general phenomenon than fraud and means that an official uses the given authority and rights with a mercenary motives which contradict the legislation in force and moral principles. Ukrainian legislation in force considers the corruption as an activity of persons involved in the execution of the State functions directed to illegal employment of given authorities to obtain the material benefits, services, privileges and other preferences.

The main risk group inclined to corruption includes people with power to distribute some resources, which don't belong to them. Such people are eager to distribute resources at their own discretion. Experience of the Accounting Chamber of Ukraine certifies that the most corrupted areas are:

- purchase of goods, work and services;
- use of subvention;
- building;
- research and development activities.

As you know, in 1986 in Ukraine the world-scale disaster happened at the Chernobyl Nuclear Power Plant. Radioactive contamination spread out over Europe and the continents after the explosion at the 4th power-generating unit.

Since that time, Ukraine has taken extensive measures dedicated to minimize the biggest radioactive disaster in the world. However some problems caused by the catastrophe have not yet been solved and moreover has aggravated. In particular, in 1986 the Shelter was built over the reactor. According to the experts' conclusions this shelter might have fulfilled its purpose during the period of 30 years till 2016. Thereby urgent necessity to build substantially new object appeared. Its purpose is reducing influence of the damaged reactor on the environment and protection it from natural factor influence.

In 1995 a Memorandum of Understanding between the Government of Ukraine and Governments of Group of Seven (G-7) members and the European Commission (EC) on closure of Chernobyl Nuclear Power Plant was signed in Ottawa, Canada.

Shelter Implementation Plan was developed in 1997 with the aim to implement Memorandum. It was developed jointly by the European Commission, Ukraine, the USA and groups of international experts. According to the Plan the “Shelter” should have covered the fourth power-generating unit.

The Chernobyl Shelter Fund was founded by the European Bank for Reconstruction and Development in 1997 with an aim to finance Shelter Implementation Plan.

The country-donors contribute to the Fund. As of the date of the Fund establishment, 22 countries made their contributions. Nowadays there are more than 30 Contributors and Donors in the Fund.

In spite of this the issue of confinement construction is still open now, 10 years after the Fund was founded. Taking into consideration that this problem has been solved with the help of international community, the Accounting Chamber of Ukraine initiated the International Coordinated Audit of the Chernobyl Shelter Fund in 2007.

The audit objective was to ascertain actual state of affairs regarding organizational and financial support Power Plant removal from service and transforming destroyed Power generating Unit 4 into an environmentally friendly system by implementation the Shelter Implementation Plan.

Based on audit findings of the U.S. Government Accountability Office, the German Federal Court of Audit, the Swiss Federal Audit Office and the Accounting Chamber of Ukraine relevant reports were made. The Supreme Audit Office of Poland, the Accounts Chamber of Russian Federation, the Supreme Audit Office of the Slovak Republic, the European Court of Auditors, the Netherlands Court of Audit provided information. Based on the above-mentioned documents the Accounting Chamber of Ukraine as coordinator made Joint Report. It was agreed upon and signed by all participants at VII EUROSAI Congress in Krakow, the Republic of Poland.

The main difficulties were to get the access to information. It was solved due to legal framework of SAIs in countries – members of Assembly of Contributors of Chernobyl Shelter Fund

Based on the results of the audit the auditors made a conclusion about problems in the area of management of the costs of the international technical assistance directed through the European Bank for Reconstruction and Development, effective and transparent use of both costs of the international technical assistance and costs of the State Budget of Ukraine allocated to overcoming Chernobyl disaster consequences.

The auditors from different countries admitted the following risks in the international technical assistance costs management:

First point

The delay in Shelter Implementation Plan fulfillment was more than seven years. The total cost of the Project was increased by USD 246 million to USD 505 million. According to the Project Management Unit assessment the adjusted budget of Shelter Implementation Plan including costs for new safety confinement construction makes more than USD 1,5 billion. Why did it happen? All auditors concluded that the failure to establish control criteria in the Project by the Assembly of Contributors caused the delay of visible progress of the Project and resulted in concentration of large administrative powers in the European Bank for Reconstruction and Development. At the same time the Bank, while spending the CSF resources, is in charge for providing the audit of such expenditures and as secretariat prepares the information on the Shelter Implementation Plan implementation's progress to the Assembly of Contributors.

Second point

Assembly's control was much too formal since the majority of its members didn't have complete information as to the Chernobyl Shelter Fund activities and use of costs. All SAIs participating in the International Coordinated Audit mentioned delayed and incomplete provision of such data to the Assembly of Contributors.

The information provided to the Fund Contributors was insufficient to check the effectiveness of mission performance by the Chernobyl Shelter Fund, in particular to ascertain the Contributors that the budget funds were used in an efficient and economic way.

The donors regularly complained about late distribution of documents for the Assembly meetings and requested that clear and up-to-date information materials were available in reasonable time-period before the Assembly meetings.

Third point

Project organizational environment was too difficult. Project organization under the Chernobyl Shelter Fund was one of the major problems for its implementation. Particularly, the frequent change of the persons on behalf of the Ukrainian Government and Chernobyl Nuclear Power Plant was the problem issue in the Project organization. The Chernobyl Nuclear Power Plant is an owner of the Object and is responsible for long-term nuclear waste disposal and for the Plant removal from service after international aid will be finished.

The most complicated organization relationship was cooperation of the Project Management Unit with the Chernobyl Nuclear Power Plant. Management problems defined risks of considerable cost increases. The auditors noticed in their conclusions that primary liability to prevent and expose the fraud was entrusted to the audit object management.

The management was obliged to create a control environment and support politics and procedures, which would promote and ensure the correct management.

Such obligation included establishment and support of control means relevant to aims of reports preparation for true and honest financial standings. Mentioned means of control reduced but did not eliminate risks of distortion.

Hence, SAI – audit participants with aim to keep the Chernobyl Shelter Object safe, maintain a smooth flow of its operations and provide the fulfillment of Shelter Implementation Plan formulated their proposals to the governments of the countries – donors of the Fund in order to fulfill their obligations to replenish the Chernobyl Shelter Fund to request from the Assembly of Contributors and the EBRD an Integrated SIP Implementation Report as the basis for effective Fund control and management.

In addition the following proposals of the Assembly of Contributors of the Chernobyl Shelter Fund were formulated:

- to establish definite control criteria for the Project that need to be reached before receiving additional financial obligations in the future;
- to facilitate accountability and transparency of the Project financing by European Bank for Reconstruction and Development;
- to hear the consultants, who calculated Project assessed value in 2003, to get their point of view as to critical gap between 2003 estimation and current price of the New Safe Confinement;
- to approve by the Assembly of Contributors the assessed value of the continuous international aid provision with the aim to increase the transparency and trust to it from the countries-donors side.

It should be noted, that auditors don't make a juridical decision as to fraud occurred, they aren't responsible for prevention of fraud and mistakes but periodical audits promote the reducing of such occurrences.

In particularly, the follow-up audit of the International Coordinated Audit of the Chernobyl Shelter Fund is on the permanent control by the Accounting Chamber of Ukraine.

Monitoring shows the positive changes in work execution and Fund filling occurred. But lately the tendency of new schedule fulfillment delay has appeared.

It demonstrates the necessity to envisage the responsibility for inobservance of the work schedule fulfillment. Otherwise as our colleagues from the USA said: "There is a risk not to finish this Project ever".

The example of International Co-ordinated Audit of the Chernobyl Shelter Fund shows the efficiency and necessity of conducting such audits with the aim to prevent fraud and corruption in use of international aid.

Land use and land management practices

CZECH REPUBLIC

Funds provided for the improvement of nature and landscape

Aim of the audit:

The aim of the audit was to scrutinize the provision, expenditure, and utilisation of funds earmarked for the nature and landscape improvement, including the system for assessing the anticipated programme results and those achieved.



Audit period

2006 – 2009

Performance of the audit:

May 2010 – January 2011

Type of the audit

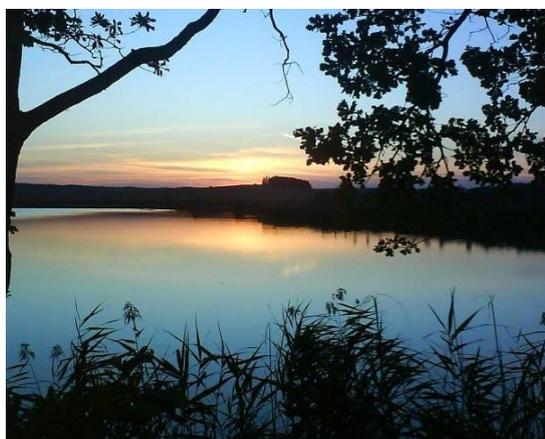
Compliance, performance

Audited bodies

- Ministry of the Environment of the Czech Republic
- State Environmental Fund of the Czech Republic
- Agency for Nature Conservation and Landscape Protection of the Czech Republic
- Selected beneficiaries of financial assistance

Methods used

- analysis of documents;
- interviews;
- analysis of statistical data.



Audit criteria

- Act No. 114/1992 Coll., on Nature Conservation and Landscape Protection;
- Act No. 218/2000 Coll., on Budgetary Rules and on Amendments of Some Related Acts (Budgetary Rules);
- State Programme of Nature Conservation and Landscape Protection of the Czech Republic;
- State Environmental Policy of the Czech Republic for 2004–2010;
- Report on the State of Czech Nature and Landscape for 2000;

- Programmes or partial programmes that focus on financing nature and landscape improvement measures.

Summary

The funds provided within all the audited programmes in the period under review totalled CZK 3,748,584 thousand.

The conceptual documents define the most significant nature and landscape issues. They assess the current status as being critical because:

- irreversible appropriation of land is taking place; and
- movement of animal species throughout the landscape is becoming limited.

The consequence of long-term unsustainable usage of the landscape is extinction of the habitat of many plant and animal species as well as a predominant degradation of the landscape's appearance and character.

Although the grant programmes cannot eliminate these shortcomings, they can be used to limit adverse consequences and remedy at least some of the damage done in the past.



Findings

- High proportions of funds were used for renewal and construction of water reservoirs at the expense of other measures. State organisations then fall short of realising the actions that are unattractive to other applicants, such as riverside revitalisation.
- The *Programme for the Revitalisation of River Systems* was not systematically evaluated from the material perspective (or in terms of its benefits).
- Some parts of the non-investment *Landscape Care Programme* lack specific goals and indicators and the benefit has never been evaluated.
- The target values of some of the operational programme *Environment* indicators had been set so low that these have already either been met or exceeded many times over. Therefore, they can not fully be used to evaluate the programme's success.

Supreme Audit Office, Czech Republic

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Environment issues associated with infrastructure

BRAZIL

Work performed by TCU on the environmental aspect of infrastructure works

This paper derives from the work of the TCU on the environmental licensing federal process for projects that produce significant impact on the environment. The licensing process is provided for in the Federal Constitution of Brazil and needs to be done for any project with significant impact on the environment and aims to mitigate or offset this impact. That is, all major infrastructure works are also defined by the conditions set by the environmental licensing, from its basic design to its operation.

Given the relevance of the subject, TCU decided to treat it from two approaches: the examination of the regularity of the environmental licensing process of infrastructure works and concessions and evaluation of the procedures involved in the process. For this purpose, different inspection instruments are used - while the examination of regularity is done by the audits that deal with the compliance with environmental legislation and standards, assessing whether the licensing procedures are achieving the expected results is done by performance audits.

It is important to highlight the complexity and sensitivity of the licensing process, which involves a high degree of subjectivity, a large number of variables with own specificities, and that focuses on projects of billions of dollars needed to improve the quality of life for much of the population . Therefore, innovation in the inspection of this process, derived from the planning of how the subject would be, resulting in a string of audits carried out in four years: three performance audits and two compliance audits.

Among the performance audits, the first gave an overview of the licensing process, focused on the operational difficulties arising from lack of adequate infrastructure for the proper care of the demands generated by the process. The second focused on how the final evaluation of the results of the licensing process is made, based on research done with the technicians and managers responsible for the process. The third, with the assistance of a specialized consultant, assessed the result obtained by the environmental licensing of two infrastructure works being completed (one road and one railroad) in order to demonstrate the possible benefits of the feedback obtained from a ex post systematic evaluation.

Of the compliance audits, the two were made in road works with particularly sensitive environmental licensing processes. Field checks verified if the environmental permit conditions were strictly followed and if there were impacts that had not addressed in environmental studies.

As previously reported, as a different methodology in the performance audits made, is the conducting of structured interviews with most technicians and managers responsible for the licensing process in order to determine and organize the main issues raised by the operators themselves. And proved to be of fundamental importance was the hiring of an expert to identify the benefits and flaws in the results obtained by the environmental licensing in infrastructure works already nearing completion.

Among these five audits, three are still being considered by the Court – both compliance audits and the one dealing with ex post evaluation. The main findings of the two audits already decided by the TCU are the following:

a) absence of structured and systematic capacity of the technicians responsible for issuing environmental licenses;

- b) lack of information sharing between federal and regional authorities responsible for environmental licensing, which makes, for example, that the mitigation measures for different works in the same ecosystem are not seized;
- c) the environmental impacts and risks of the licensed works are **not** systematically monitored and evaluated in all phases of licensing. The absence of this systematic control may compromise the effectiveness of the environmental licensing as a whole, since their main objective is to ensure the mitigation of negative impacts of the project and enhance the positive ones;
- d) lack of an assessment system, either quantitative or qualitative, of the environmental, social and / or economic benefits derived from the licensing process;
- e) lack of criteria, indicators and methodology to measure the benefits generated according to the activity of licensing. The lack of disclosure of such benefits prevents the environmental, social gains and / or savings from this process are known, which could be used as a way to reinforce the importance of licensing as an instrument that guarantees the preservation of environmental quality. Also hampers the control exercised by the TCU as there are no criteria or indicators that demonstrate the effectiveness of federal environmental licensing;

absence of specific standards or rules of procedures and technical criteria and methodology adopted in the federal environmental licensing process for each type of work making difficult the standardization and transparency of the licensing process;

The preliminary report of the audit that evaluated the ex post results of the licensing in two federal works, identified two relevant events, such as:

- a) excessive outsourcing of environmental management by the body responsible for the infrastructure work, making it difficult to incorporate in the new projects, the solutions adopted in dealing with problems;
- b) lack of consolidation of the environmental monitoring reports, which makes difficult a final conclusion on the quality of the work licensing;
- c) changes during the execution of the works were submitted late to the environmental agency;
- d) contracting, by the entrepreneur, of a company for monitoring the conditions of the environmental license significantly improves its management.

As a result of audit findings, the main deliberations of the TCU were to recommend:

- a) the creation of permanent training, capacity building and development programs for the technicians responsible for the licensing process;
 - b) the systematization, improvement and standardization of methods for sharing of technical data relating to environmental licensing, between the federal and regional bodies responsible for environmental licensing;
 - c) the elaboration of specific standards and rules for the procedures and technical criteria and methodology adopted in the federal licensing process, by types of work;
 - d) the creation of a specific coordination of environmental impact assessment in the structure of the body responsible for licensing, in order to carry out the monitoring and reporting the results of the institutional process of environmental impact assessment;
 - e) the establishment of systematic monitoring of environmental conditions to ensure the effectiveness of their compliance for the issuance of operating license;
 - f) the creation of a consolidated report for evaluation (ex post) of mitigated and unmitigated impacts, good practices observed and the environmental benefits of the licensing process, based on the environmental performance of the enterprise authorized by Ibama and the development of impact indicators and environmental risks and benefits for each type of work;
 - g) development of methodology for stipulations and classification of the conditions with regard to priority, relevance and risk, based on the goals and targets to be achieved in licensing, according to the type of work.
- While much of the deliberations of the TCU are still under implementation, important measures adopted by the federal agency responsible for licensing have been identified, such as:
- a) creation of a structured capacity building program for technicians responsible for licensing;
 - b) strengthening of the structure responsible for environmental licensing, with increased decentralization, allowing an activity closer to licensed projects;
 - c) creation of a committee of technical experts to develop standards and specific rules for the procedures and technical criteria and methodology adopted in the federal licensing process, by types of work;

- d) advances in information technology management, with possible improvements in the provision of information and management to be verified in the near future;
- e) creation of a committee to propose changes in the structure of the body, in order to adapt its human, financial and informational resources to the needs identified by the TCU for the ex post licensing evaluation.

Among the main challenges presented, are the constant changes in top management of the agency responsible for licensing, which makes it difficult to continue actions aimed at meeting the deliberations made by the TCU. The monitoring of these deliberations has shown excessive time for their implementation, making it necessary to extend the period of monitoring and reinforce the need for a better management pattern.

As learned from this TCU activity it is emphasized the need for continuity of inspection actions focused on complex and sensitive processes, like the environmental licensing of large projects, since their improvement is slow. And the progressive approach of the issue, from audits focused on an overview until achieving the field audits, where one can observe the actual result of a public policy.

Environment issues associated with infrastructure

ESTONIA

Auditing heating infrastructure: The state's actions in ensuring the sustainability of heating supply

Background and audit planning

District heating is used in 151 of the 226 local governments in Estonia, and it is estimated that 60 % of the country's population consumes district heating: heat, which is generated in boiler plants or power stations and distributed to consumers via heat networks. The advantages of properly-working district heating systems are less air pollution in residential areas and the opportunity to save energy if power and heat cogeneration technology is used. Due to a lack of investment over the years, the district heating systems are mostly deteriorating due to long time of utilization and have too much capacity for present-day consumption.



he pipeline heat loss is especially visible in the winter season. Source: toomas.trapido.org

According to good practice heat losses from an optimally-designed network in good working order should not exceed 10 percent. However, on average, 20 percent is lost in Estonian district heating system pipelines before the heat even reaches consumers. In the case of 18 percent of local municipalities, the loss is greater than 25 percent. As a result of poorly designed and managed infrastructure the residents have to pay for inefficiently produced and distributed heat; which is one reason why the heat price is high.

The objective of the audit was to assess whether the state has organised the activities in the heating supply sector (first and foremost district heating) so as to ensure secure, reliable, effective and justified heating supply with spread risks and conforming to environmental requirements and the needs of consumers.

The audit focused on the following main issues:

- Has the legal framework ensured sustainable development of district heating and energy security?
- Does the heat price approval ensure competitiveness, sustainability and security of energy supply?
- Does the state possess an action plan for the development of heat supply?

Methodology

The audit analysed the activities of the Ministry of the Economic Affairs and Communications in regulating the field of monopolistic district heating, identifying the need for investments and support and organising price formation and monitoring. The audit also analysed the activities of the Estonian Competition Authority in approving the price of district heating and organising monitoring, as well as the activities of the Environmental Investment Centre of the Ministry of Finance in assessing applications for support measures

and adopting financing decisions. The audit was focused on the years 2005-2009. An expert sample of district heating network areas was drawn up for analyses.

The following activities were carried out in order to answer the main questions of the audit:

- Analysis of the legislation of Estonia and European Union, documents related to the planning of energy sector of local governments included in the sample, incl. development plans for the energy and heat sector.
- An online survey including all local governments to gather information on the condition of district heating, local governments' role in ensuring heating supply, need for investments, existence of fuel reserves, etc. All 226 local governments responded to the survey.
- Analysis of results of surveys addressing the issues of heating conducted in the field of district heating by the Estonian Heat and Power Association (EPA), Ministry of Economic Affairs and Communications, Competition Authority and local governments.
- Comparison of district heating prices in sample areas and Nordic Countries (Finland, Sweden, Denmark and Norway). Comparison of district heating prices and prices for alternative electric heating as well as dependency of prices on changes in fuel price.
- Analysis of the development of terms and conditions for the EIC measure 'More widespread use of renewable energy sources for the production of energy', as well as assessment of applications.
- Analysis of documents of companies included in the sample relating to the approval of the price of heat in the Competition Authority and local governments.
- Interviews with officials from ministries and agencies, scientists, consultants and representatives of heating companies.

Major Findings and Recommendations

In the opinion of the National Audit Office, the Ministry of Economic Affairs and Communications has paid insufficient attention to the sustainability of the nation's heating supplies:

- The state and many local authorities lack a broad understanding of their heating supply situation (i.e. length and condition of heat networks), and in particular of district heating.
- Many consumers are forced to use district heating even where it is more expensive and less efficient than other alternatives (such as local boiler plants, heating pumps etc.).
- The manner in which prices are set has not been successful in ensuring a sustainable supply of heat for consumers in the future. Therefore it is not always guaranteed that the companies are investing in a way that will make production and distribution of district heating more efficient.
- It is not known how much money must be invested to renovate the district heating systems and whether district heating companies are willing and able to make such investment by themselves.
- The state has not developed principles on the basis of which state financial support could be given to the areas where district heating needs to be preserved but where currently it is in a poor condition.
- In the process of assessment of applications of The Environmental Investment Centre's 2009 support measure entitled 'More widespread use of renewable energy sources for the production of energy' very little attention was paid to the sustainability of district heating regions and projects. This might have led to the implementation of projects which are unable to support themselves in future.

Main recommendations to the Minister of Economy and communications:

- In order to ensure the stable development and sustainability of heating supply, develop, and submit to the Government of the Republic for approval, a national heating supply development plan and its implementation plan in 2011.
- Analyse the nature of the role of price approval in ensuring the sustainability of heating companies and the scope in which the Competition Authority has to assess the need and justifications for

investments during the approval process; develop and record instructions for investment assessment in the guidelines for the approval of the price of heat.

Main recommendations to the Director General of the Competition Authority:

- To ensure efficient generation of heat in a longer perspective assess the company's need for investment and its implementation, incl. require the heating company to draw up a long-term investment plan, highlighting potential efficiency achieved with investments and assessment of their impact on the price of heat.
- To ensure transparency of price approval process, equal treatment of companies and shorten the term of proceedings, develop implementation guidelines for price approval principles, procedure for their amendment as well as guidelines for ensuring quality of proceedings and decisions.

Main recommendations to the Minister of the Environment and the Minister of Economic Affairs and Communications:

When drawing up support measures for the heat supply market, consider the following:

- Ensure that the measure takes into account the characteristics of the heat supply market, e.g. its monopolistic nature, ownership issues and sustainability.
- Allocate financial support only to sustainable network areas and projects. To assess the projects' sustainability, ask the applicants to submit a cost-benefit analysis. To assess the sustainability of network areas, ask the applicants to submit proof for that.

Expected impacts

The audit was presented in March 2011. The ministries and authorities admitted most of the problems related with heating supply in Estonia. In their responses to the audit recommendations, The Minister of Economic Affairs and Communications, The Minister of The Environment and The Director General of the Estonian Competition Authority agreed with most of the recommendations that Estonian National Audit Office made. Estonian Competition Authority agreed with the audit recommendations, but did not admit most of the problems related with price regulation. However, the Authority has started to fix up their processes of price regulation.

Environment issues associated with infrastructure

EUROPEAN COURT OF AUDITORS

Special Report No 9/2010. Is EU structural measures spending on the supply of water for domestic consumption used to the best effect?

Background and audit planning

Water is one of the most important resources for social and economic development. Water supply for domestic consumption is essential for human health and well being.

The audit focused on the drinking water's quality and availability for which a high amount of funds were allocated (6.2 billion € for the period 2000-2006 and 8.1 billion € for the period 2007-2013 from Cohesion Fund and European Regional Development Fund).

It aimed to answering the following overall question "is EU structural measures spending for the supply of water for domestic consumption uses at best effect?". The main objective of the audit was to assess whether EU spending on water supply is used to best effect, by addressing whether:

- 1) the most appropriate solutions were adopted to meet the needs of the areas concerned;
- 2) the co-financed projects were successful in improving the water supply;
- 3) the objectives have been achieved at the lowest cost to the EU budget.

Methodology

The audit assessed directly the performance of the investments both in terms of outputs and results. The audit was based on a direct review of 29 projects — 11 approved by the Commission and 18 approved by the managing authorities in the Member States.

The methods of setting up audit objectives and criteria were based on the analysis of the applicable legal bases (Drinking Water Directive, Water Framework Directive, Nitrates Directive), research studies and reports, financial data and management procedures at Commission and Member States level. Project files were reviewed at all levels and meetings were held with representatives of various local authorities and public or mixed companies responsible for the design, implementation and management of the infrastructures related to the selected projects.

The Court was assisted by experts in water supply engineering.

Findings and recommendations

The Court found that, whilst structural measures spending has contributed to improving the supply of water for domestic use, better results could have been achieved at a lower cost. In particular:

- 1) forecasts of future water needs did not take into account downward trends in water demand nor all resources already available; moreover, focus was placed on exploiting new source without considering alternative solutions, such as reducing water losses and using other nearby resources; limited value was added by the Commission and the Member States' managing authorities' appraisal;
- 2) measurable improvements have been achieved in terms of increased available volume of water, extended coverage of public network, better water quality, higher network yield and service continuity ; however, some projects were not operational because of missing complementary infrastructure; monitoring of achievements was of variable quality ; where conditions were imposed

in grant decisions , attention was not always paid to whether those conditions had been complied with;

- 3) all projects have experienced cost increases and delays ; when measured by the two main efficiency parameters (capacity utilisation rate and non- invoiced water) , several projects were found to operate with limited efficiency; significant weaknesses were observed in the process for setting grants and insufficient consideration was paid by the Commission and the Member States' managing authorities to the ability of the projects to generate revenues.

ECA makes 3 sets of recommendations to the Commission and Member States for adopting better solutions (1), achievement of aims (2) and cost to the EU budget (3).

- 1) For adopting better solutions, (a) Improve their ex-ante analysis and forecasts of future needs by taking into account recent and accurate data and their inventory and review of all available water; (b) Pay greater attention to the alternative to the supply side solution.
- 2) To the achievement of aims, (a) Ensure from the planning stage, that the complementary infrastructure required for the entry into operation of the projects is available on time; (b)Set up better monitoring tools to assess project achievements.
- 3) As regards the costs, (a) pay more attention, during the planning phase, to factors which often cause delays, (b) Improve the quality of the ex ante analysis of the projects and take their results into account when determining the size of new infrastructures; (c) Systematically analyse the pros and contras of building infrastructure in stage, with the aim of making better use of the capacity built and develop it according to the evolution of needs.

Impact and results

One of the actions expected is a better implementation of the Water Framework Directive. A better use of the water available in order to avoid waste of the water

Challenges and barriers

Regarding the approach: the audit faced a lack of understanding from the management authorities of their responsibility for the projects results and in case of planned oversized or not used infrastructure.

Lessons learned

Positive experience, good cooperation with all the stakeholders (municipalities, users representatives, etc.) The team followed the Performance Audit manual of the Court which is based on the INTOSAI Auditing Standards and implementation guidelines.

In the notification's letter for the audit on the spot we underlined systematically the will to have a meeting with those stakeholders who are not beneficiaries from the grant but users.

Environment issues associated with infrastructure

IRAN

Supreme Audit Court, Islamic Republic of Iran Report on Assessment of Large Environmental Audit Projects

1. Background and Audit planning

a) The importance of the subject:

Due to the following reasons, the Supreme Audit Court of I. R. Iran chose the “Assessment of Large Environmental Audit Projects” ” as a pathological approach:

1. In the laws related to the National Development Plans, the Iranian Legislature (Islamic Consultative Assembly) has ratified some commitments that help the creation of desirable environment. One of such commitments is the “assessment of large environmental audit projects”. Therefore based on this law¹⁴, “all large production and service programs and projects must be evaluated environmentally at the stage of feasibility and finding the right location. The compliance with the assessment results by the executors of programs and projects is mandatory. The President’s Deputy of Strategic Planning and Control is responsible for Supervising this article.

2. With regard to the fact that sustainable development is the development without degradation and destruction of environment without deprivation of the future generation from natural resources, the proper implementation of the above mentioned law plays a significant role in realization of the national sustainable development.

b) Objectives:

1. Examining the assurance of environmental assessment of large projects and plans
2. Examining the assurance of correct procedures and policies adopted in implantation of large projects and plans.

c) Criteria

1. Obtaining permission for environmental assessment of large projects and plans
2. Timely environmental assessment of large projects and plans by environmental assessment working group of Department of Environment
3. The necessity to include capital assets plans in the annual budget bill based on the reports of the Department of Environment.
4. The preventive function of the measures taken by the Department of Environment in evaluating environmental projects

d) Audit Scope:

Examining large production and service plans and projects from the environmental assessment point of view through the proposed standards at national level in 2003 and 2009

¹⁴ . Article 105 of the Third Development Plan also mentioned in Article 71 of the Fourth Economic and Social Development of Islamic Republic of Iran

2. Methodology

Supreme Audit Institutions as the most important supervision organizations have the ability to identify problems regarding the systems, procedures, rules, regulations, etc and as the result reflect such problems to their respective governments and therefore help them to achieve their environmental objectives.

In order to help the government including the Department of Environment and the President's Deputy of Strategic Planning and Control, the Supreme Audit Court of I. R. of Iran (SAC) has made every effort to make a pathological study, through examining the governing facilities for the assessment of environmental projects and plans, to review the adopted procedures and policies in assessment of environmental projects. The SAC using the audit findings has proposed some recommendations for improvement of the situation of environmental assessment. The SAC believes that if the current procedures are formed and implemented properly, the problem of having no environmental assessment permission will be improved at national level.

3. Findings and recommendations

Findings:

Based on the studies made:

3/1 Production and service organizations both in private and public sector while implementing the law¹⁵, have sent their large projects and plans for environmental assessment and obtaining permission from the department of environment. Through the cooperation of the Department of Environment and National Management and Planning Organization out of 1100 production and service projects at national level only 199 projects have been initiated without environmental permission.

3/2 Almost 75 % of the total 199 projects has not been completed. Some of the projects could be improved from the environment point of view regarding the fact that 25% of the same projects have been completed.

3/3 Altogether in 28 provinces, some companies have implemented their projects without getting environmental approval from the Department of Environment among which 4 provinces have the most number of projects without environmental approval. Also the audit result could find no projects without environmental approval in two provinces.

3/4 the legal duty related to the environmental assessment of projects in the above mentioned 199 projects has been ignored by both legal persons and companies. These projects are related to tourism industry, cement industry, Ministry of Petroleum, Ministry of Energy, Ministry of Road etc.

3/5 Some of the government projects without environmental approval have been sent to the Department of Environment too late (after approval by the legislature and inclusion in the national budget). This happens while according to law¹⁶ all large production and service projects must be evaluated before implementation at the stage of feasibility study as well as location finding (before the inclusion of the project in the national budget bill and the approval of the Legislature).

3/6 According to regulations¹⁷, all executive organizations are required to submit the report of the environmental assessment of their projects to the three-person working group formed in the Department of Environment consisting of the representatives of the following organizations: Department of Environment, the President's Deputy of Strategic Planning and Control and the executive organization under environmental

¹⁵ . Article 105 of the Third Development Plan also mentioned in Article 71 of the Fourth Development Plan

¹⁶ . *ibid*

¹⁷ . Executive by-law related to Article 105 of the Third Development Plan also mentioned in Article 71 of the Fourth Development Plan

assessment. The same working group is responsible for the examination and approving the reports of environmental assessment of projects.

Considering the fact that tens of projects are implemented annually, the existence of only a three-member working group is not sufficient for the approval of environmental assessment reports. Furthermore, the Department of Environment as the main national care taker of the protection of environment has only one representative in the same working group and therefore the combination of the working group consisting of three people is one of the major problems in assessing projects environmentally.

3/7 one of the major problems in evaluating projects environmentally is that the such duty is done using a long period of time. At the time of audit, it was known that some of the projects presented by legal persons and companies to the above mentioned working group were waiting in long queues for assessment. This happens while according to law¹⁸, the Department of Environment is responsible for providing the practical way for implementing the project works in a way that such projects are not delayed and at the same time environmental concerns are also considered.

3/8 According to law,¹⁹ one of the most important duties of the Department of Environment is "protection from environmental pollution and degradation". Unfortunately, one of the major problems that threaten the executive organizations is that such organizations adopt reaction policies rather preventive ones. The delayed action of the Department of Environment in doing environmental assessments of some projects not only wastes financial resources but also hinders the implementation of projects and as the result the environment will be damaged.

Recommendations:

3/9 The Department of Environment must act more effectively in provinces where there are projects without environmental assessments.

3/10 It is recommended that through the proper interaction of the National Management and planning (which is responsible for preparing budget bill) and the Department of Environment (which is responsible for environmental assessment of projects), the current procedures for preparing budget bills is modified so that projects are originally approved environmentally by the Department of Environment and then they are included in the national budget bill for approval of the Islamic Consultative Assembly (Iranian Parliament).

3/11 One of the solution to the problem of " insufficiency of the three-member working group for assessing projects" which delays the issuance of environmental permissions is to hold independent working groups in Offices of Director General of the Department of Environment in different provinces and delegate necessary authorities to them which is possible through the modification of the regulations²⁰.

3/12 One of the solutions for the proper and timely implementation of environmental auditing is the "principle of prevention". The Department of Environment, in line with its major responsibility in "preventing from degradation of environment", can do the following measures: Disseminating useful and comprehensive information about environmental rules and regulations; holding training courses for the officials of government organizations; reviewing the projects under study; visiting the project works done by auditees; and finally giving advice to auditees during the implementation phase of project works.

¹⁸ . Note of Article 105 of the Fourth Social and Economic Development Plan

¹⁹ . Article 1 of Protection and Improvement of Environment Law

²⁰ . Executive by-law related to Article 105 of the Third Development Plan also mentioned in Article 71 of the Fourth Social & Economic Development Plan

3/13 It is recommended that in order to prevent the degradation of environment, an expert and pathological study is conducted to make the pollutant organizations compensates for the losses they make to the environment.

4. Impacts and results

4/1 The report of the current audit results were submitted to the Speaker of Parliament, President's Deputy for Strategic Planning & Control²¹ as well as Head of the Department of Environment.

4/2 The Islamic Consultative Assembly (Iranian Parliament) considered the audit findings of SAC. Accordingly, it assigned one of the technical parliamentary committees to evaluate the activities of the National Management and Planning Organization (responsible for preparation of national budget) regarding the environmental projects.²²

4/3 the measures taken by the Department of Environment in evaluating the-waiting-in queue projects has been updated.

4/4 With regard to the fact that the regulations on " evaluation of projects environmentally" has been approved by government, there is little guarantee for their implementation. At the moment, a bill is being approved in this regard by the government to be sent to Parliament for ratification.

5. Challenges

Some of the main challenges in this audit are as in the following:

5/1 Lack of a comprehensive data center regarding the evaluation of projects had caused some of projects are not included in the statistics of Department of Environment.

5/2 With regard to the fact that the National Management and Planning Organization was replaced with The President's Deputy of Strategic Planning and Control, during the replacement phase some of the duties of the previous organization was ignored. In addition, due to the fact that management change took place in the new organization, receiving information by auditors was a slow process.

5/3 Lack of acquaintance with the environmental laws and regulations or not paying enough attention to such laws by some of the officials in public organization created the situation where the environmental laws are ignored.

5/4 One of the main reasons for ignoring environmental laws and regulations by both real persons and companies is the lack of sufficient guarantee to implement such laws. It is natural that if the level of environmental degradation is not equal to the compensation made by such companies, in that case the environmental laws and regulations will be ignored.

The challenges 1, 2 were resolved but dealing with the third and fourth challenges mentioned above requires further cooperation and interaction with private and public organizations as well as with related authorities and also through training and creating the right culture.

6. Lessons learned

²¹ . The same organization is responsible for supervision on the proper implantation of the environmental assessment of projects

²² . The Committee on Article 90 of Constitution is one of technical parliamentary committees. Article 90 of the Iranian Constitution specifies that: "Whoever has a complaint concerning the work of the Assembly or the executive power, or the judicial power can forward his complaint in writing to the Assembly. The Assembly must investigate his complaint and give a satisfactory reply..."

6/1 through the pathological method applied in this paper we could not only identify problems but also conclude that in case all the capabilities governing the assessment of environmental projects are applied and implemented precisely and quickly, the situation of assessment of environmental projects by both the legal persons and companies will be improved considerably.

6/2 the improvement of consequences of environmental problems requires a long process and therefore prevention from some of the environmental problems are both easier and less costly. The environmental auditing can provide the opportunity for the government to prevent environmental catastrophes.

6/3 With regard to the fact that the objective of environmental auditing is to obtain assurance about adopting the proper and sufficient policies and implementation of such policies in order to achieve sustainable development, our main priority is to review and improve the policies , processes and procedures.

6/4 For many people the word security means social tranquility, peace and lack of social disorders while this concept has wider dimensions so that one of its elements has been called "the health of environment". As the result, lack of environmental security" creates more destructive consequences for human societies.

In the end, it is noteworthy to mention that the present paper was prepared based on the generally accepted types of environmental auditing. With regard to the fact that the Supreme Audit Court of I. R. of Iran has recently joined the INTOSAI Working Group on Environmental Auditing, it is ready to apply most of the guidelines developed by the same working group in its audits.

Environment issues associated with infrastructure

THAILAND

Bangkok Super Skywalk Projects: Preventive Environmental Audit

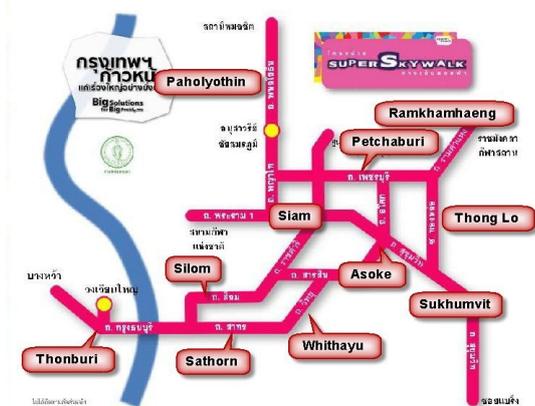
I Background

On February 2011 Bangkok Metropolitan Administration (BMA) announced its plan to spend the massive budget cost Bt 15.2 billion (USD506.67 million) on the Super Skywalk projects, a 50 kilometer elevated walkway. The project is part of the major infrastructure of “the Krungthep Gao-na” or “Progressive Bangkok” campaign with the intention to reduce environmental problems in metropolitan area such as flood, traffic jam, excessive garbage and security as well as to increase green areas in Bangkok. The Super Skywalk Projects is planned for completion in 2015. The first phase 16 km walkway is at the budget Bt 5.2 billion and the second phase is 32 km Bt 10 billion will be run parallel to most of the routes of BTS sky train.

According to BMA explanation, the Super Skywalk Project was derived from the needs of pedestrians on a long term basis. The objective of this mega project is to enhance transportation capability of the residents in crowded areas. Since it will be connected to other Bangkok Mass Transit Systems, the Bangkok Sky Train and Mass Rapid Transit or MRT subway, BMA expects to encourage the Bangkokian to use mass transit system instead of their vehicles. Consequently, the reduction of traffic and air pollution problems as well as the energy saving.

Soon after the project announcement, some stakeholders express many concerns that there is no environmental impact assessment; therefore the project might make up *visual pollution*. Similarly academic opinions stated that the large structure of the skywalk could worsen air pollution problems since it will block air circulation. Moreover, the environmentalists warned that unventilated condition might accumulate petrol smoke which is the particular cause of lung cancer. Not even mention to the Anti-Global Warming Association (AGWA) who questioned why the cost of construction is so high compare to other similar project. AGWA added that the cost of this project is Bt 300 million or USD 10 million per kilometer while the construction of an elevated walkway of the Sky Train project cost only Bt 58.82 million or USD 1.9 million per kilometer.

For these reasons, OAG selected the Super Skywalk Projects to review the worthwhile of huge budget and also to consider the future environmental impact.



The pictures show the image and the routes of the 50 km BMA Super Skywalk cost USD 506.67 million which planned to complete in 2015.

II Audit Scope

To review the BMA Super Skywalk Projects management plan in order to assess the feasibility of the project and environmental impact from the first day of declaration “*Progressive Bangkok*” campaign up to 10 August 2011.

III Audit Objectives

1. To evaluate the project preparation before initiating construction.
2. To provide audit recommendations for project improvement.

IV Methodologies

1. Document review and analyze
2. Interview BMA’s officers, academic experts and NGOs as well as the people.
3. Set up a meeting with related party
4. Observation

V Findings and Recommendations

The audit team put their efforts to verify the accuracy of project and analyzed the feasibility of the project as well as to assess environmental issues under academic views and opinions. Despite insufficient data of the feasibility study getting from the BMA, the team can point out the risk of project failure as follows;

1st Finding: Insufficient and imperfect information for decision making on the project investment

The audit found that there is no obligatory feasibility study and information to indicate the advantage taken or the opponents group. Moreover, Environmental Impact Assessment was conducted with the missing of information about the effect on unventilated air under the long routes of the Super Skywalk. According to OAG’s analysis, BMA conducted the opinion survey in order to support the project; therefore the survey did not cover all aspect that might affect to the environment surrounding construction areas as well as the cost and worthiness of the project. The opinion survey only asks whether the respondents are happy to have the Super Skywalk project.

Recommendations;

1. BMA should review the projects under adequate information especially actual benefit and indirect cost that may rise from environmental impact.
2. BMA should include the questions concern environmental issues in the opinion survey.
3. BMA should get the public involve in the project by organizing public hearing for all stakeholders such as the supporters, the opponents as well as academic views.

2nd Finding: The complication of getting public opinion

After the first audit report was sent, BMA responded to OAG recommendations by improving public opinion survey and set up public hearing. However, according to OAG’s monitoring, it is found that several channels to receive public opinion are too complicate. For example, public opinion box is provided only at BMA City Hall. In addition, the opinion survey form is provided in a pdf file in BMA website, anyone who wants to respond the survey need to print it out, fill in the opinion then send back to BMA by post. Such process is too complicate and cost to respondents. Hence, there is less response from the Bangkokian.

OAG notified BMA about the abovementioned findings and provided the recommendations as follows;

Recommendations;

1. BMA should provide more public opinion boxes in remote areas that people easy to access.
2. BMA should improve BMA website for facilitating the people to be more comfortable in giving their opinion.
3. BMA should review the transparency of the project especially the process of getting public opinion support the project implementation.

VI BMA responds to audit recommendations

BMA decides to cancel the second phase of the Super Skywalk project cost Bt 10 billion (USD 334 million).

VII Impact and results

Since the audit is raise from scandal issue and social criticism, OAG expects the impact and results of this audit as follows;

1. The result of the audit can prevent lose in national budget as BMA needs to put more concern in the efficiency of spending.
2. The audit result in the concerning of environmental protection as environmental aspect is taken into consideration before launching any government project especially mega project that may affect a large number of people.
3. OAG would extend its plan for conducting environmental audit on the proactive basis which considering the significant of sustainable development.

VIII Challenges and barriers

The challenge occurred in the examination phase of the Super Skywalk project audit. The main barrier is the limitation of audit times since the audit team has to notify concern findings before BMA starts the first phase of the project, otherwise the findings will be useless. In the mean time, the audit team has to ensure the reliable of audit evidence to close any possibility to challenge over audit report.

IX. Lesson learned

1. The audit can prevent the damage before initiating the project.
2. The environmental audit can be preventive audit especially when OAG keep its ears open wide to public criticism.
3. Preventive audit can also raise the consciousness of environmental impact from ambiguous project
4. The opinion of academic experts and environmentalists can ensure the clarity of environmental impact and the creditability of audit result.

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Wildlife conservation and tourism

COSTA RICA

Environmental, economic and social effects of the payment for environmental services program

Importance of the topic

Since the early 40's, the growth of livestock in Costa Rica destroyed more than half of the country's native forests. The strategy implemented by the Government to preserve and recover the forest in the country was focused on the protected areas, such as national parks, wildlife refuges, biological reserves and forest reserves; as well as the Payment for Environmental Services Program (PSA). Even though forests in Costa Rica have been in strong recovery by the year 2010, the government agencies that manage the program have not quantified the effects of the program. In fact, they don't assess the effects of the Program comprehensively, which is important to report the achievements to citizens, foreign donors and investors. International banks are asking for results but also for effects and impacts of programs they financed.

Audit planning

The audit focused the economic, social and environmental effects of the PSA program. The audit scope encompassed the effects of the PSA program since its inception in 1997 until 2010. It also evaluated the management practices applied to achieve the objectives of the PSA program. It assessed the performance of the National Forestry Financing Fund (FONAFIFO) and the National System of Conservation Areas (SINAC), both of which are agencies related to the Ministry of Environment, Energy and Telecommunications. These Government Agencies are responsible for the PSA management. The performance and mechanisms implemented by 2010 were also examined.

It was necessary to developed audit criteria for assessing the program's environmental, economic and social effects, given that the Government had not set such indicators. The following were used as audit criteria:

Indicator	Definition
Environmental condition	
1. Level of forest fragmentation	A phenomenon caused by increasing human intervention on natural landscapes, and the reduction of connectivity among habitats of different species, which alters the biota and ecological interactions, and may lead to loss of biodiversity. If the forest has less fragmentation, better conditions are expected to exist for the fulfilment of the ecological functions of the forest and thereby for the flow of the environmental services of ecosystems.
2. Quality of water	The water composition as it is affected by the concentration of toxic substances or either produced by natural processes. Water quality is an important factor for aquatic species. It can be affected by changes in temperature or sedimentation caused by the removal of cover. This will become an indirect indicator of change in forest coverage.
3. Levels of regulation of water flow	The way in which the presence of forest provide certain levels or amounts of water in the watershed; water used by the ecosystems in the watershed and used by different users such as hydroelectric plants, and industrial or agricultural activities.

Indicator	Definition
4. Levels of protection of water	Water is essential for the development not only of economic and social activities, but also for the health of ecosystems. The presence of forest helps to protect water. The more preserved the forest is, higher levels of water protection are expected.
5. Ecological connectivity	The connectivity of similar ecosystems in a landscape fragmented by biological corridors. Ecological connectivity is essential for genetic material to maintain biodiversity. Having compact and large blocks of forest cover favours the processes of ecological connectivity, helping to maintain biodiversity. The concept of ecological connectivity is complementary to that of level of forest fragmentation. A further fragmentation means less connectivity.
6. Level of protection of biodiversity	Biodiversity refers to the number of populations of organisms and species. It includes the diversity of durable interactions among species and their immediate environment or biotope and the ecosystem in which organisms live. In the ecosystem, living organisms are part of a whole interacting with each other but also with air, water and soil around them. The growth and presence of forest promotes healthy biodiversity and higher levels of biodiversity protection. That's why we look for the maintenance of forest cover, trying to reduce the fragmentation of ecosystems and improving the conditions of ecological connectivity.
7. Level of carbon fixation	Increasing concentrations of carbon in the atmosphere contribute to climate change, which has promoted a growing interest in the role of forests in the absorption and fixation of atmospheric carbon. Forest and forest plantations promote carbon sinks. The better preserved are the forest and the more reforestation is increased, the conditions for carbon sinks will improve.
8. Net incremental contribution for forest cover	The forest offers landscape for recreation and enjoyment in the tourism sector. Ecotourism is one of the main economic activities in Costa Rica. That's why it seeks to maintain and improve the forest cover, trying to increase it over time.
9. Level of protection beyond the protected areas	Conservation actions that occur outside of protected areas, which increase the benefit of public areas.
Economic conditions	
1. Level of security of water availability	As the PSA program is aimed to protect forest and to ensure the availability of forest cover, it guarantees water security for industrial and agricultural purposes.
2. Contribution to gross domestic product (GDP)	The PSA program supports important economic activities. The benefits of environmental services allow the country to increase the level of conservation and, thereafter, a series of activities such as ecotourism, wood from reforested plantations, hydroelectric energy, among others.
3. Level of employment by economic sectors such as ecotourism, timber, energy, etc.	Forest contributes with opportunities to increase economic activities that depend indirectly on forest. The economic activities of Costa Rica highly depend on forests; that is the case of ecotourism, forestry and energy, for example. The development of these activities represents employment opportunities for people around the country.

Indicator	Definition
4. Direct employment	The PSA program management and projects require human resources, which means direct employment.
5. Savings in the cost of investment in hydropower	The extent to which there is forest cover in the basin makes it possible to avoid sedimentation; consequently there will be savings in the cost of production of hydropower.
Social condition	
1. Level of security of water supply to the population	As the PSA program is aimed at forest protection mainly by ensuring the availability of forest cover, it would be guaranteeing the level of security of water supply to the aqueducts for human consumption.
2. Number of organizations working on issues related to PSA program	The PSA program has brought about the emergence of organizations working to make accessible the mechanism of PSA. This has involved the strengthening of social capital in Costa Rica with social benefits for the trust, collaboration and mutual cooperation to move towards a more equitable development.
3. Number of people participating in social organizations	Number of people involved in social organizations under the PSA program. Number of beneficiaries associated with organizations that promote the PSA program.
4. Classification of PSA contracts by land size (property, farm).	How much the size of farm is taken into account in decision making to give the benefit. It is intended to include small farms to a certain level. It helps to understand the social contribution that the PSA provide to the citizens in terms of opportunities to small and medium producers.
5. Socio-cultural level	By participating in the PSA program, beneficiaries have had to learn how to enroll their farms in the public registry, conservation practices, among others. This indicator seeks to measure the indirect contribution of PSA to the beneficiaries.
6. Number of studies and research on PSA	The number of studies and research about the PSA program increase the accumulation of knowledge about the topic, which promotes further analysis and research, as well as decision making.

Expert Consultation Methodology

The audit used the Performance Audit Methodology according with the INTOSAI standards. The methodology consisted in two parts: Effects analysis and Management analysis. Effects analysis involved the development of indicators (audit criteria), as well as quantified and weighted them by the Expert Consultation Methodology. Twenty eight experts from public and private sectors were consulted on the baseline and the current status of each indicator, as well as to the weight of the indicators. This procedure was applied in connection with the environmental, economic and social conditions, which were also weighted. Finally, they worked to integrate the results. The experts were hydrogeologists, biologists, sociologists, foresters, environmental economists, chemical engineers, among others. Management analysis involved the administrative process: planning, organizational structure, programs and projects' implementation, evaluation and follow up.

New audit practices were implemented such as communicating the audit's objective, scope and criteria to the auditees during the planning phase, both orally and in writing. The report was structured by finding, presenting the corresponding recommendations immediately after each finding, to assess whether the report is more understandable for the auditees.

Findings and recommendations

The PSA program has had positive effects by the level of 16,63% from a comprehensive perspective (environmental, economic and social). The annual increment is 1,2% which is considered a moderate increment. The greatest contribution is due to the economic factor, followed by the social and the environmental factors, in that order. A benefit of more than 16,63% was not achieved due to management deficiencies. Costa Rica has no clear policy on environmental services; on the contrary, the criteria to prioritize the allocation of the benefit are ineffective. The effects of PSA program may be enhanced.

It is recommended to the National Council of Conservation Areas to issue policies and strengthen and prioritize criteria based on natural resource sustainability. The Ministry of Environment, Energy and Telecommunications is required to regulate and monitor medium and long term planning implemented by the Government Agencies. On the other hand, SINAC and FONAFIFO should establish a joint methodology and procedures for monitoring and evaluating the PSA program, aimed at generating the results to ensure compliance of the conservation objectives for which it was created, as well as setting the payment rates according to the opportunity cost associated to land use.

Conclusions

Environmental services have a significant importance for the citizens of Costa Rica. The Government must effectively ensure the constitutional right of citizens to have a healthy and ecologically balanced environment. The Government has been working to increase the level of forest cover by means of the protected areas and the PSA program, and consequently the environmental services. The performance environmental audit carried out by the Office of the Comptroller General of Costa Rica demonstrated to the Government Agencies that it is possible to comprehensively evaluate the PSA program's effects, as well as to improve its management. International stakeholders, investors and citizens would be better informed about the economic, social and environmental effects and make it possible for the Government to be accountable on the subject. Improvements in the performance environmental audit would allow the Office of the Comptroller General a better communication with the auditees. This helps management understand the importance of implementing the recommendations.

Wildlife conservation and tourism

ETHIOPIA

Wildlife conservation, development and tourism

Acronym

CBD:	Convention on Biodiversity
CITIES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
EWCA:	Ethiopian Wildlife Conservation Authority
OFAG:	Office of the Federal Auditor General
SNNPR:	Southern Nation, Nationality and Peoples Regional State
UNESCO:	United Nation Education, Scientific and Cultural Organisation
UNFCCC:	United Nation Framework Convention on Climate Chan

Chapter 1

Introduction

1. Ethiopia is endowed with several valuable and endemic wildlife. Among them there are various endemic animals and birds. Various research sources indicate that there are 2786 species of wildlife of which 203 are endemic species, and more than 7000 higher plant species of which 10-12% of them are endemic to the country. However, the country has not realized the potential economic benefits from this sector.
2. The main threats to the country's wildlife result from improper land use, which include habitat destruction due to illegal agricultural encroachment, rapid population growth, illegal settlement and poaching.
3. The Federal Government of Ethiopia has attached due attention in terms of formulating a wildlife development and protection strategy in June 2009.

Historical Background

4. The first official law regarding conservation of wildlife in Ethiopia was issued during the reign of Emperor Menilik II, the prohibitions to hunting of baby elephants and all elephants including baby elephants having ivory the weight of which is less than 17 kg. Since an adult elephant's Ivory weight 20-45 kg on the average, baby elephants were protected.
5. The next Wildlife Conservation Proclamation was issued in 1944, after which, the Ministry of Agriculture issued a regulation on the same year to implement the proclamations. In 1964, the delegation from the United Nations Education, Scientific and Cultural Organisation (UNESCO), advised the Government of Ethiopia to establish an independent institution that entrusted with conservation and development of the country's wildlife. Based on the proclamation the Awash National Park (1968) and The Semien Mountains National park (1969) were established.
6. The Ethiopian Wildlife Conservation Authority was established in 1970. In 1980 it was restructured and as Forestry and Wildlife Development Authority. In 1989 Ethiopia signed the Convention on International Trade in Endangered Species of Wild Fauna and Flora, (CITES). The duties and responsibility of the Forestry and Wildlife Authority was transferred to the Ministry of Natural Resources Development and Environmental Protection in 1993. After a year, it was restructured as the Wildlife Conservation Authority. In 1998 its duties and responsibilities were transferred to Biodiversity Conservation and Research Institute. After a year it was reinstated as Wildlife Conservation Authority.

7. In 2004, it was merged with the Ministry of Agriculture and established as a department. Then the proclamation on wildlife development and conservation was issued in 2007, and to implement this proclamation the Ethiopian Wildlife Development and Conservation Authority, EWCA was established as an autonomous public agency of the federal government by the proclamation /Act 575/2008.

Ethiopian Wildlife Conservation Authority

Objectives

8. The objectives of the Authority shall be to ensure the development, conservation, and sustainable utilization of the country's wildlife resource.

Powers and Duties

9. The Authority shall have the powers and duties to:
 - 1/ Prepare and submit to the Ministry draft policies and laws relating to the development, conservation and utilization of wildlife resources; and follow up the implementation of the same upon approval by the government;
 - 2/ Develop and administer wildlife conservation areas established under it and control illegal activities committed in the areas;
 - 3/ Issue hunting permits to foreign tourists;
 - 4/ Issue permit for the establishment of hotels, campsites, lodges and other services in wildlife conservation areas;
 - 5/ Issue permits and health certificates to export and import any wildlife or wildlife products;
 - 6/ Control the utilization of wildlife products to ensure its compliance with the objectives of the permit, and make impact assessments on the product;
 - 7/ Ensure that wildlife conservation areas are established in accordance with international standards with a view to facilitating their registration by the World Conservation Union, and follow up their administration accordingly;
 - 8/ Establish international relations with all bodies having the potential of providing technical and other assistance for wildlife conservation;
 - 9/ Ensure the implementation of treaties to which Ethiopia is a party; compile and submit periodical reports to the concerned international institutions;
10. The Authority administrates 11 National Parks (Semien Mountains National Park, Bale Mountains National Park, Awash National Park, Nech Sar National Park, Omo National Park, Abijata-Shala Lakes National Park, Gambela National Park, Alatish National Park, Kafeta-Shiraro National Park, Geraye National Park and Yangu-Dirassa National Park (under custody administration from the Afar Regional State)) and 2 Sanctuaries (Senkelle Swayen Heartbeest Sanctuary and Babile Elephant Sanctuary).
11. In general, there are 20 National parks of which nine are administrated by Regional Governments, 3 Wildlife sanctuaries one of which is administrated by Oromia Regional Governments. There are also 17 control hunting areas.

Audit Objectives

12. The objective of the audit was to verify whether the process and implementation of the country's wildlife conservation and development activities were helping effectively to maintain the country wildlife resources in a sustainable manner or not. To test the audit objective the following three audit issues were identified:
 - Availability of Park management systems and their effective implementation
 - The utilisation of wildlife resources to attract tourists and
 - The availability and sharing of wildlife related information among stakeholders;

Scope and Methodology

13. The audit was conducted based on the Ethiopian performance auditing standards and the mandate given to the Office of the Federal Auditor General, OFAG, by proclamation 669/2009. Data were collected from different relevant documents in the EWCA head quarter and four National parks and two wildlife sanctuaries under the Authority; Survey questionnaires were sent to the remaining seven National Parks. Field visits were conducted to the four National parks and two wildlife sanctuaries administrated by the Authority. Information was also collected from Oromia Regional State Forestry and Wildlife Enterprise and from the Southern Nations, Nationals and Peoples Region (SNNPR) Culture and Tourism Bureau, which are responsible for wildlife management and administration in their respective regions. Interviews were conducted to the officials of the Authority and to the wardens of the visited National parks.

Chapter 2

Multilateral environmental agreements to which Ethiopia is a party/ signatory

14. There are many international agreements along its national law in which Ethiopia became a party/ signatory regarding environmental protection including wildlife.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora Signed – 3 March 1973 Entered into force – 1 July 1975 Ratified – 4 July 1989
 - Convention on Biological Diversity (CBD) 22 May 1992 29 December 1993 31 May 1994 (Proclamation 98/1994)
 - Cartagena Protocol on Biosafety to the Convention on Biological Diversity January 2000 September 2003 Signed – 24 May 2000 and Ratified – 22 Sept 2003 (Proclamation 362/2003)
 - UN Framework Convention on Climate Change (UNFCCC) 1992 March 1994 31 May 1994
 - Convention to Combat Desertification 1994 26 December 1996 Ratified – 1997 (Proclamation 80/1997)
 - International Treaty on Plant Genetic Resources for Food and Agriculture November 2001 June 2004 Ratified – 2003
 - Vienna Convention for the Protection of the Ozone Layer March 1985 Became a party on January 1996
 - Montreal Protocol on Ozone Depleting Substances September 1987 1 January 1989 Became a party on January 1996
 - Kyoto Protocol to the UNFCCC December 1997 16 February 2005 21 February 2005
 - Stockholm Convention on Persistent Organic Substances May 2002 17 May 2004 Signed – 17 May 2002, Ratified – 2 July 2002 (Proclamation 279/2002)
 - Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade 10 September 1998 Ratified – 2 July 2002 Proclamation 278/2002
 - Basel Convention on the Transboundary Movement of Hazardous Wastes and Their Disposal 1989 1992 Ratified – 31 February 2000 Proclamation 192/2000
 - Basel Ban Amendment 22 September 1995 Ratified – 3 July 2003 Proclamation 356/ 2003
 - Protocol on Liability and Compensation for Damages Resulting from Transboundary Movements of Hazardous Wastes and Their Disposal 10 December 2000 Ratified – 3 July 2003 Proclamation 357/ 2007
 - Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa 30 January 1991 22 April 1998 Acceded – 2002 Proclamation 355/2003.

Chapter 3

Main Findings

Demarcation and Gazetting of Wildlife Protected Areas

15. The type, number and distribution of wildlife in the country should be studied. And based on the study different conservation areas (National Parks, Sanctuaries and controlled hunting areas) should be established accordingly. For all protected areas, their boundaries should be clearly demarcated and a legal entity status established, and this should be gazetted.
16. In 2010, an inventory was conducted in and around Gambela National Park in the western part of the country. EWCA had a plan to prepare a proposal for funding a project to conduct inventory of the country's wildlife, but that proposal has not been prepared. There were 11 National Parks and two wildlife sanctuaries under the Authority (see Annex). But during the audit, among the 11 National parks and the two wildlife sanctuaries under the Authority, only three National parks, namely, Simien Mountains (proclamation 59/1969), Awash (Proclamation 54/1968), and Alatesh National Parks (Amhara State proclamation 38/2005) had been legally established and their borders were demarcated. And the demarcation of two national parks (Gambela and Bale Mountains) and two sanctuaries (the Senkelle Swayne's heartbeest and the Babile Elephant Sanctuaries) were finalised, and the gazetting of these conservation areas is in process. The rest of the Wildlife protection areas were not demarcated and not gazetted. During the audit it was found that, even from those gazetted and demarcated protected areas, the expansion of nearby Awash Town towards Awash National Park green area is threatening the habitat of the wild life.
17. The Authority's officials responded that, based on the next five year strategic plan (2011-2016), the remaining protected areas will be demarcated and gazetted during the same period. But it was found that the stated strategic plan does not include any provision for demarcation and gazetting. Adequate justification has not been forwarded by EWCA officials for the absence of inventory of wildlife as well as legalization of the parks. No reason was also given why the proposed document was not prepared.
18. So the absence of recent baseline data of wildlife in the country, made it difficult to deliver important policy decisions for sustainable wildlife conservation programs. Moreover, the absence of official boundaries and legal status, created favourable situations to illegal activities in the protected areas and for the destruction of the habitat of the wildlife.

Preparation and Implementations of Protected Areas/ Park Management plans

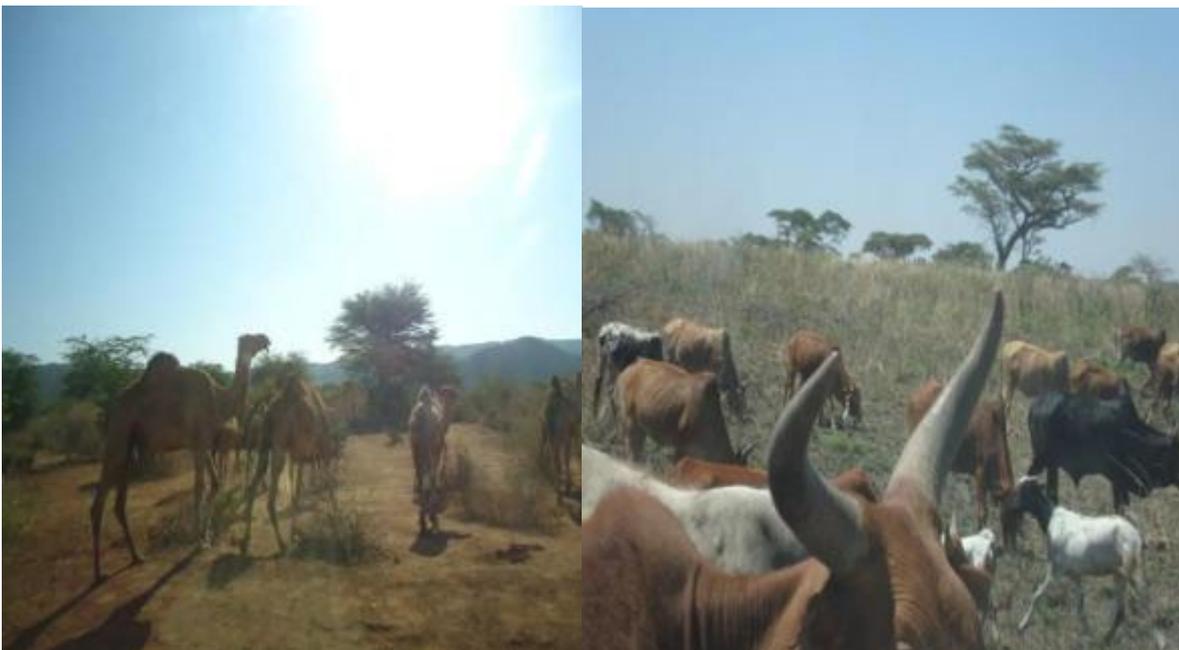
19. A protected area management plan should be prepared for all protected areas and implemented accordingly. During the preparation of the plan, the local community living around the protected areas should participate.
20. Park Management Plans were prepared for three National Parks, namely, Simien Mountains, Bale Mountains and Awash National Parks and draft park management plans were finalised for Alatesh National Park and Babile Elephant Sanctuary. But the park management plan of the Bale Mountains National park is no more in use. For the rest park management plans were not prepared.
21. When asked the Authority's officials responded that, it was premature to prepare the plans as it was only three years since the Authority has been re-established, and also found it difficult to produce the park management plan for the rest of the protected areas because of the absence of legal demarcation of their border. For the Bale Mountains National Park, they said that the implementation of the park management plan was suspended because of the ongoing redemarcation of the park.
22. Therefore, the absence of park management plan makes difficult to design and implement sustainable resource management of the protected areas.

Illegal Activities within the wildlife Protected Areas

23. Protected areas must be free from all activities that disturb the wildlife and their habitats.
24. During the Audit it was found that illegal activities that endangered the wildlife and their environment in the six National parks (Omo, Abijata-Shala Lakes, Awash, Gambela, Nech Sar and Bale Mountains) and two wildlife sanctuaries (Babile elephant Sanctuary and Senkelle Swayne's Heartbeest Sanctuary) were observed. Illegal settlements (both permanent and seasonal), farming, grazing, deforestation and poaching activities were the main illegal activities that we observed during the field audit visit. See the following table for details.

Table 1 : Illegal Activities in Protected Areas

Protected Areas	Illegal Activities			
	Settlements	Farming	Grazing	Poaching (2008-2011)
Omo National Park	500 households		45 hectare	25
Abijata-Shala Lakes	51,828 people and 4 elementary school	322 hectare	160 hectare	2
Senkelle Swayen's Heartbeest Sanctuary	86 Households		500 hectare	2
Awash National Park	Unknown amounts of households of seasonal settlers		48,000 hectare	49
Bale Mountains National Park	4 village of household	unknown	unknown	13
Babile Elephant Sanctuary	Unknown amounts of households of seasonal settlers	Unknown area	Unknown area	22
Gambela National Park	Unknown	unknown	unknown	1131
Nech Sar National Park	300 households (each with an average of 100 cattle)	Unknown area)	Unknown area	illegal fishing



Camels inside the Babile elephant sanctuary. Cattle in Abijata-Shala lakes National Park

25. When asked about these conditions the Authority's officials responded that though it is difficult to verify or reject the data collected from the protected areas, but it is obvious that illegal activities are going on inside all protected areas. And the main causes are the high rate of population increase around the protected areas which demand more farm and grazing land, the absence of park management plan and clear border demarcation and legal status. Regarding poaching, there are many reasons such as hunting for food consumption, to protect their cattle and sheep from carnivorous (Lions and Leopards) and their crop from destruction (mainly from elephant). There is also lack of awareness among local officials about the benefit of wildlife and the protected area to the community.
26. Therefore, because of these illegal activities the habitat of the wildlife is not only destroyed but also makes the wildlife conservation program difficult and complicated.

Environmental impact assessment studies for development activities in and around wildlife protected areas

27. Environmental Impact Assessment studies must be conducted before any development activities are authorised in and around the wildlife protected areas. The protected areas and even the Authority should also be consulted and their views taken in to consideration, when the assessment is conducted.



One of the four elementary schools built inside Abijata-Shala Lakes National Park

28. But during the audit, investment licences and plot of land were granted for Flora Echo-power project near Babile Elephant Sanctuary, Mushroom-Algae production firm near Lake Shala and the expansion of Soda Ash Factory Adjacent to Lake Abijata in and around Abijata- Shala Lakes National Park, without conducting Environmental impact assessment studies and without consultation of the Authority.
29. According to the respective officials of the Authority, most of the activities were undertaken before the authority was re-established, and at the time the protected areas were under regional National States control.
30. Thus, the absence of environmental impact assessment studies cause the disturbance and destruction of wildlife habitat and the echo-system.

Protection and conservation of Endemic and Endangered Wildlife

31. Wildlife that are endemic to the countries and those categorised as endangered must get special attention to conserve them and protect them from extinction.
32. During the audit, we found out that to protect and conserve endemic and endangered wildlifes in the country, Ethiopian Red Fox Conservation project were established in the Bale Mountains National Park, A Senkelle Swayne’s Heartbeest Sanctuary and Babile Elephant sanctuary were established. There is also a Conservation programme for Walia Ibex in Simien Mountains National Park. But there were no conservation programs for the rest endemic and endangered species.
33. When the Authority’s officials were asked about this condition, they responded that based on IUCN criteria, from the endemic and endangered species the conditions of Walia Ibex, Red Fox, Wild Ass, and Grave Zebra were studied at different times. And there is a plan to study some of the endangered species such as Lion, Cheetah, and Wolf in the coming years. The study conducted for endemic and endangered species in the country was insignificant compared to the number of endemic and endangered species in the country.
34. Thus, without a comprehensive study, it is difficult to identify the conditions and status of endemic species in the country.

Early warning system to prevent epidemics and other diseases on wildlife Protected Areas

35. Early warning system should be established to protect the wildlife from any epidemic or other diseases that threaten their survival.
36. Our audit revealed that there are only two veterinary doctors in the head office of the Authority and one in Awash National Park. And there were no any Veterinary clinic under the Authority or any of the protected areas. And there were no veterinary doctors or technicians in the remaining 12 wildlife protected areas at the time of audit. In addition, there are many cattle grazing together with the wildlife. Because of this, wild animals were dead due to disease transmitted from the cattle. However, we have been informed that, to minimize the risk of epidemics from the cattle, the National Parks use the nearest District Veterinary clinic as well as technicians, to vaccinate the cattle. There is no evidence of memorandum of understanding between the Authority and relevant agricultural bureaus to use the veterinary clinics and technicians of the latter.
37. Regarding the early warning system and prevention of epidemics and other diseases in the wildlife protected areas, the Authority's officials responded that there was an operational manual for early warning system for epidemics and other diseases, but the main problem was the presence of large number of cattle grazing inside the protected areas.

Existence of ecological monitoring activities in wildlife protected areas

38. Ecological monitoring activities should be conducted in protected areas to trace the change in the natural habitat of wildlife and accordingly, appropriate measures must be taken based on the monitoring report.
39. During the Audit, it was observed that in Abijata-Shala Lakes National park the water level in Lake Abijata, which was the main destination of Migratory birds from Europe, is diminishing. The fish population in the lake also is rapidly diminishing. The Soda-Ash factory which was built in 1984, adjacent to the Lake Abijata, uses main raw materials from the lake water by pumping the water to the factory's compound. But the volume of the water in the lakes decreases dramatically and moves more than three kilo meter from the factory main pump. So the factory built additional pumps and pipelines to pump the water deep inside the lake. There are also many irrigation farms in the upper streams of and tributaries of river Bulbula, which is the main water supplier of the lake. The Ostrich population in the park was also diminishing because of the environment was not conducive. Due to this, more than 600 spoiled Ostrich eggs were kept in the store of the park.



Water pumps and pipeline from Lake Abijata for Soda Ash factory

40. In Nech Sar National Park it was observed that a large area was destroyed by fire. But it was understood that no measure was taken.



A land destroyed by fire in Nech Sara National Park

Availability of infrastructure for tourists to and inside the wildlife protected areas

41. Roads, lodges, and tourist service centres and sightseeing/Watch towers among other infrastructures should be available in protected areas. This will facilitate a conducive environment for tourists to enjoy their stay in the protected areas and it also facilitates the proper guarding and supervision of the wildlife and their habitat from illegal activities.

42. During the Audit, there were roads built in all protected areas but are not properly maintained and as a result it is difficult to operate even for four wheel drive. A lodge service is available on four of the protected areas (Bale Mountains, Awash, Omo, and Simien Mountain National Parks); In Abijata-Shala Lakes National Park there was a lodge construction near Lake Shala, but the construction was suspended and remained unfinished due to disagreement with the previous park administrator (Oromia Region).

Availability of different sign posts to facilitate tourist movements to and inside the protected areas

43. There should be different sign posts that guide visitors to the protected areas, and also show as to what kind of Attraction is available in which direction including camp sites and watch towers.
44. During field visits we found out that there were
- In Abijata-Shala Lakes National Park, the gates to the parks are on the main roads and there were billboards which indicate the gates to the park. But within the park, except explanation and directions given by the park staffs, there were no sign posts which indicate the available tourist attraction areas, camp sites and watch-towers and other areas of interest for visit.
 - The Senkelle Swayne's Heartbeest Sanctuary is 10 km off the main road, and there were signs that indicate the directions of the sanctuary almost every 1 km and in all junctions, but there was no sign on the gate and inside the sanctuary. The ticket and information office was 1Km inside not near the gate.
 - There were also no gates, ticket offices and signs explaining the territory of the protected areas in Gambela National Park and Babile Elephant Sanctuary.
 - There were signs on the gates and within the Awash, Nech Sar and Bale Mountains National Parks.

Consumptive utilization of wildlife resources/ Hunting activities

45. In order to utilize wildlife for consumptive/ hunting purpose hunting areas and wildlife that are eligible for hunting should be identified. Hunting quota should be also identified in order not to endanger the population of the permitted number of wildlife in the country. And the hunting activity should be conducted according to the quota set by the Authority.
46. List of wildlife that are legally permitted for hunting purpose were clearly stated by regulation 163/2009. Based on this proclamation, 18 controlled hunting areas were established and franchised to different organizations or individuals. We have also known that an inventory of these animals in these controlled hunting areas has been conducted every two years, and based on the inventory the quota will be decided.
47. But we found out that the total number of that particular wildlife in the country was not taken into consideration.

Movement of wildlife and their products

48. A system should be established to control and monitor the custody and movement of wildlife and their products. The system should include how to return the wildlife to their habitat, storage and proper disposal of products of wildlife.
49. During the audit it was observed that many wildlife were under the custody of individuals, hotels, business entities and government and non government organisations without the permission or approval of the Authority or regional wildlife agencies. Temporary shelter was made for the three Lesser Kudus in the head quarter of the Babile elephant sanctuary, which is outside the park in Babile town. It was found in the authority store that there were a total number of 29,899 items of 320 different wildlife products captured.



Some of wildlife products captured

50. These items include 5288 kilo grams of ivory and jewellerys made of ivory. There were also many taxidermy made from the skin of Leopard, and Cheetah. But these items were not disposed for long period of time, some of them for more than twenty years.

Community participation on wildlife conservation Activities

51. All conservation programs in protected areas must include the participation of the local communities. And the communities should develop a sense of belongingness and making them beneficiaries from the protected areas.
52. During the audit it was observed that: In Nech Sar National Park, fisher men who were fishing illegally in Lake Chamo were organised in different associations such as, fisher men's association, Lake Chamo boat renters associations for tourists, tourist guiders associations, firewood suppliers associations. These five associations employed more than 500 workers. In Abijata- Shala Lakes National park women were organised to collect salt from Lake Abijata and sell it as animal food to local communities. The national park also built one elementary school for the community in front of the park main gate.



Shops of the two associations in Bale Mountains National Park

53. In Bale Mountains National parks six associations: Tourist guiders, Horse renters, Loaders, Cookers, fierwood suppliers and traditional handcraft makers and sellers were organised within the communities and provide service to the tourists. In Awash National Park the park arranged a shop in the main gate for the local communities to sell their traditional and cultural goods. Also they perform their traditional dances for tourists in the Awash Lodge on week-ends. In Semien Mountains National Parks there were also six associations that are engaged in different activities to provide service to the tourists.

Awareness campaign about wildlife conservation and development to the public

- 54. Awareness campaign regarding the conservation and development of wildlife must be given to the public using different type of media.
- 55. The country's wildlife resource and existing protected areas are advertised and documentary films and dramas are conducted on the national television and different radio stations including FM radio stations. Different billboards, posters and leaflets were also distributed to the wider public. All protected area staffs are also engaged in the awareness campaign in their respective local communities including lectures/ presentations in the meetings of peasant associations. The Authority has also established its own website.
- 56. Elders of the local Oromo communities around the Senkelle Swayne's heartbeest Sanctuary, declared the Swaine Heartbeests as part of the community and anyone who hunts and kills them is charged as murderer of a community member. This has contributed to the increase in the number of the Swayne heartbeest population. However, the impact of the awareness campaign was not assessed.

Chapter 4

Conclusion

- 57. Based on the conditions observed in the various parks, it can be concluded that:
 - There was no up to date baseline data regarding the country's wildlife resources at the national level;

- Most of the protected areas were not demarcated and not gazetted;
- Park Management Plans were not prepared for the 7 wildlife protected areas, and two of them were in the draft level;
- Many illegal activities were conducted inside the wildlife protected areas;
- Development activities permits were granted around the protected areas without conducting a sound environmental Impact assessment;
- The conditions and status of the country's endemic and endangered species were not studied;
- Early warning system developed to protect and prevent epidemic and other diseases were not properly implemented;
- Ecological monitoring activities were weak and measures were not taken on the observed changes in the wildlife habitat;
- The infrastructures mainly roads in protected areas were not sufficient to serve tourists and were poorly maintained;
- In some protected areas there were no different sign posts, tourist centres and ticket offices near the gates;
- No detail inventory of wildlife were conducted before quota were decided for hunting /consumptive/ purposes;
- Wildlife products which were captured from illegal traffickers were not disposed;
- There is a trend to benefit the local communities around wildlife protected areas;
- Impact assessments were not conducted for the awareness campaign conducted.

58. Thus, though the Authority engages in various wildlife conservation programs, the absence of demarcation and gazetting of the protected areas, without park management plan and their implementation it will make it difficult for the Authority to fulfil its objectives. Therefore, the recommendations which we believe, those will improve the general wildlife conservation program are stated in the next section.

Chapter 5

Recommendation

59. Based on the findings and conclusions we recommend that:

- The Authority should develop a system to establish a baseline data at the national level in order to facilitate all policy making decisions regarding wildlife conservation programs;
- The process of demarcation and gazetting of those protected areas must be conducted as soon as possible, and this should be conducted with the consultation of the local communities around the protected areas;
- An up to date park management plan should be prepared for all protected areas and should be implemented accordingly;
- With the consultation of the respected regional state governments, local communities and other federal bodies all illegal settlers and other illegal activities must be prohibited and the habitats of wildlife must be clear from human interference;
- The Authority should establish a system whereby bodies that approve environmental impact assessment studies in order to insure that any development activities near the protected areas will not affect the wildlife and their habitat;
- The Authority should identify the status of all endemic and endangered species, and report to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) of those species that are and endangered and find a way to protect these species from extinction;
- A memorandum of understanding must be signed with regional and district agricultural officers to prevent and protect epidemics and other diseases which affect the wildlife. The Authority must implement its own operational manual which was developed for early warning system;

- Ecological monitoring activities must be conducted in a timely manner in all wildlife protected areas and the response measures must be taken according to the findings;
- To facilitate an enjoyable environment for tourist and make their stay satisfying all the necessary infrastructures must be developed and properly maintained; sign posts also must be in place where ever necessary within and outside the wildlife protected areas;
- A national quota system should be developed for consumptive purposes (sport hunting). And this should be based on the national wildlife resource availability of that species;
- An Integrated system should be established to prevent the illegal movement of wildlife and their product in the country. Those wildlife products which were held by the Authority must be disposed of based on the international agreements.
- Assessment of the impact of the awareness campaign must be conducted continuously.

60. In general in order to effectively conserve and develop and utilise the country's wild life resources, all wildlife related information and data should be maintained properly and this information should be exchanged on a timely manner. To establish a well organised system the Authority should coordinate all federal and regional stakeholders which work around wildlife conservation and development programs.
61. Finally, OFAG, would like to thank the Ethiopian Wildlife Conservation Authority, federal and regional government institutions and Non Governmental Organisations and their employees, for their cooperation in providing data for the audit.

Annex

Protected areas Under Ethiopian Wildlife Conservation Authority

National Parks

1. Awash National Park

It is found in Afar and Oromia regions 215 km east of the Capital, Addis Ababa. It was established in 1966 and covers an estimated area of 756 square kilometres.

Key Species: Beisa Oryx, Lesser Kudu, Waterbuck, Soememerring's Gazzell, Hamadryas and Anubis Baboon.

Unique physical feature: Water fall, Hotsprings, Fentale crater, Doumplam forest.

2. Simien Mountains National Park

Located in Amhara region 800 km north west of the capital. It was established in 1966, covering an area of 412 sq. km. It also recognised as world heritage site.

Key species: Walia Ibex, Ethiopian wolf, Gelada Baboon.

Unique feature: Mount Ras Dashen, Ethiopia's highest peak, 4543 meter above sea level

3. Omo National Park

Found in the Southern Nation, Nationality and Peoples Region (SNNPR), 867 km South of Addis Ababa. It was established in 1967 and covers 3566 sq km.

Key species: Common Eland Buffalo, Elephant, cheetah, Lion, Giraffe, Topi, Brazza's Monkey.

Unique physical features: Omo and Mui Rivers

4. Bale Mountains National Park

It is found in Oromia Regional State 400 km South East of Addis Ababa. It was established in 1970 and covers 2200 sq km.

Key species: Mountain Nyala, Menilik Bushbuck, Ethiopian Wolf, Bohor Reedbuck, Bale Monkey.

Unique physical feature: Mount Batu, Mount Dimtu, Harena Forest and Sanate Plateau.

5. Abijata – Shala Lakes National Park

Found in Oromia Regional State 220 km south of the capital. It was established in 1970 and covers an area of 887 sq km.

Key features: White Pelican, Greater and Lesser Flamingoes, African Fish Eagle

Unique Physical feature: Lake Abijata, Lake Shala (The deepest lake in Africa), Lake Chitu, Hotspring bubbling around Lake Shala.

6. Nech Sar National Park

Found in the SNNPR, 502 km south of the capital, Addis Ababa. It was established in 1974 and covers an area of 514 sq km.

Key features: Burchell's Zebra, Greater and Lesser Kudus, Swayne's Heartbeest, Grant's gazelle, Nile crocodile

Unique physical feature: Lake Abaya, Lake Chamo, Nech Sar Plain, Rift valley Escarpment, Nearby 40 springs

7. **Gambela National Park**

Found in the Gambela region 777 Km west of Addis Ababa. It was established in 1974 and used to cover an area of 5061 sq.km (recently the area was redemarcated).

Key species: White Eared Kob, Nile Lechewe, Buffalo, elephant, Roan Antelope

Unique physical feature: Largest wet land in the country, four big rivers (Omo, Gillo, Alwero and Akobo)

8. **Yangudi- Rasa National Park**

Found in Afar region 430 km North East of the Capital. It was established in 1977 and covers an area of 4731 sq.km.

Key species: Sommerring's and Doracas Gazelles

Unique physical feature: Awash River, Mount Yangudi

9. **Alatish National Park**

Found in Amhara regional State and 1025 km away North West of the capital. It was established in 2005 and covers an area of 2666 sq km.

Key species: Elephant, greater and Lesser Kudus, Red Headed Agama

Unique physical feature: Dinder/Hayma and Gelegu rivers, Sudan - Guinea Savana Biome.

10. **Geraille National Park**

Found in Somali Regional State and 890 km east of the Capital. It was established in 2006 and covers an area of 3858 sq km.

Key species: Elephant, Greater Kudu, Lesser Kudu

Unique physical feature: Arid low land

11. **Kafta Shiraro National Park**

Found in Tigray region and 1015 km north of Addis Ababa. It was established in 2007 and covers an area of 5000 sq km.

Key species: Greater Kudu, Elephant

Unique physical feature: Arid low land

Wildlife Sanctuaries

1. **Senkele Swayne's Heartbeest Sanctuary**

Found in Oromia and Southern Nation Nationalities and Peoples Regions 300 km south of the capital, Addis Ababa. It was established in 1972 and covers 54 sq. km.

Key species: Swayne's Heartbeest, Bohor, reed-buck, Orbi, Greater Kudu

Unique physical feature: Spectacular view on the Lalima/ Borena hills

2. **Babile Elephant Sanctuary**

Found in Oromia and Somali Regions 557 km east of Addis Ababa. It was established in 1970 and used to covers 6982 sq km (prior to the recent redemarcation).

Key species: Elephant (*Loxodonta Africana*)

Unique feature: Gobeles and Erer Valleys, Jurassic limestone rocky appearances.

ARGENTINA

Auditing key water issues

I.-Background

The World Meteorological Organization (WMO) carried out in 1997 a comprehensive assessment of water resources in the world (WMO, 857) in which it states that a great part of the world water resources are not apt for human consumption since 97,5% is saltwater, with only 2,5% freshwater, most of which is in the form of ice in Antarctica and Greenland. Only a small portion of freshwater from rivers, lakes and shallow aquifers is readily available for easy exploitation. By 2025, water-stressed regions will include two thirds of human population. The scarcer the water resources, the higher the risk of conflict. The document calls for urgent action to avoid water-related regional crisis, which would eventually cause a larger crisis later during the XXI century.

Taking this into account, auditing water issues has been an ongoing concern of the Department of Environmental Control (DEC) of Auditoría General de la Nación. Since 2000, DEC has undertaken numerous performance audits on three main aspects of this natural resource: protection, sustainable management and sanitation infrastructure and services.

With the launch of national law 25.688 –Regime for the environmental management of water resources (sanctioned November 2002), minimum requirements of water preservation, exploitation and rational use have been established. The law also defines water resources as those that are part of natural or artificial water bodies and aquifers and other subterranean sources along with the atmospheric reservoir. It also gives a precise definition of a water basin and states that water basins constitute an indivisible environmental unit for water resource management. Institutions for basin management have the mission of advising the national authority in water issues and of cooperating in sustainable environmental management of basins. The geographic scope of each basin institution may apply higher or lower level management divisions of the basin, while preserving environmental coherence and functionality.

II.- Environmental audits performed by the Department of Environmental Control

Water resource protection

Institution audited	Topic	Year
Los Glaciares National Park	Glacier monitoring	2001
Secretariat of environment and sustainable development	Water pollution from industrial sources	2006
Sub Secretariat Of Water Resources Guaraní Aquifer	General management plan	2007
Secretariat of Interior Security- Patagonian region	Land and water uses	2008
Secretariat of Interior Security- Mesopotamian region	Land and water uses	2009
Ministry of Exterior Relations - Directorate of Antarctica	Waste management and tourism management	2009
Secretariat of Environment and Sustainable Development	Implementation of RAMSAR Convention	2010
Secretariat of Environment and Sustainable Development- Industrial Conversion Program	Performance of the program in the Salí – Dulce watershed	2011
Argentine Naval Prefecture	Pollution prevention in ports	2011

Watershed management

Institution audited	Topic	Year
Committee of The Matanza- Riachuelo Basin	Legal framework	2001
Committee of The Matanza- Riachuelo Basin	Performance of the Integral Management Plan	2006
Matanza- Riachuelo Basin Authority ACUMAR	Performance of the Environmental Plan	2010
Regional Commission of the Bermejo River COREBE	Performance of the Management Plan	2010
Pilcomayo River Basin- Integral Management Project	Performance of the Master Plan	2011
Federal Plan for Flood Control - "La Picasa" Lagoon	Flood control measures	2007
Federal Plan for Flood Control	Follow-up	2011

Sanitation services and infrastructure

Institution audited	Topic	Year
Sub-Secretariat of Water Resources	Plans and programs on hydraulic infrastructure	2001
Regulatory Body for Sanitation Facilities and Services ETOSS	Environmental management	2002
Regulatory Body for Sanitation Facilities and Services ETOSS	Effluent treatment	2003
Regulatory Body for Sanitation Facilities and Services ETOSS	Treatment plants for drinking water	2006
National Body for Water Infrastructure and Sanitation ENOHSA	Infrastructure for water provision	2010

III.- Relevance of water issues audited

Argentina, with an area of 2.812.590 km² and a latitudinal range of about 3700 km, is characterized by a great variety of climate types and ecosystems. The country displays high geographic diversity, ranging from an extensive coastal area in the east, characterized by high marine biodiversity, to the Andean mountain range in the west, which harbors permanent glaciers and contains the headwaters of many watersheds extending through the "arid diagonal" that crosses the country from NW to SE. In the central-east region of the country, we find large temperate plains, that constitute the humid core of the Chaco, Pampas and Mesopotamian regions. These humid regions display high hydrological indexes and a well defined and broad drainage network and, hence, concentrate most part of agricultural activities.

In the NW and central-western region of the country, productive activities occur in mountain valleys along the Andes. These areas are dependent from the Andean drainage system.

In the Patagonia region, a narrow belt –about 100 km in with- ranging along the eastern slopes of the Andes, from 36° S to 50° S, contains humid high biodiverse forests, with tree species with high conservation value. In the southern region, irrigation agriculture is extended in valleys located in arid and semiarid ecosystems; while in the abundant plateaus with poorly developed drainage systems, the predominant economic activity is livestock raising (mainly sheep).

Climate diversity of Argentina, ranging from warm subtropical temperatures in the north to humid could in southernmost Patagonia show correlations and coincidences con water distributional patterns, which in turn are reflected in ecoregional diversity. The high variability in ecoregions, modeled by the availability of water

resources has determined, in part, population distributional patterns along the history of the country, influencing the location of major urban centers and other land use patterns.

Reciprocally, the differential occupancy patterns seen in Argentina ecoregions (andean, Puna, Yungas forest, Chaco and Pampas, among others) are closely associated to land use policy implemented along decades, with impacts on natural resources and especially on watersheds.

IV.- Major audit findings

As a result of the environmental audits performed, we found that the knowledge base on water issues has increased together with the institutional commitment to the rational use and conservation of water resources. Several legal instruments have been developed and applied, such as the requirement to perform environmental impact assessments, and remediation and restoration of sites affected by environmental degradation.

The government has increased the budget for sanitation infrastructure and services, coinciding with the demand from local communities and non-governmental organizations. Alongside with institutional improvements, a growing awareness of the public on the significance of the rational use and preservation of water resources for livelihoods has been observed.

In spite of the increasing concern of government agencies involved in water management, there is still a poor development of water policies and institutional coordination. The government should improve performance monitoring and evaluation systems and enhance the environmental supervision of sanitation services and infrastructure and remediation measures implemented.

V.- Conclusion

Considered as a whole, land use patterns in Argentina are closely linked to freshwater availability. In Patagonia, economic activities concentrate in the upper areas of river basins that cut across the region and around the lakes that integrate these fluvial systems.

In the humid central region of the country, agricultural activities are highly developed and concentrated, with significant impacts on surface water distribution and water quality.

Given that water resources are key strategic resources for economic, social and cultural development of present and future generations, protection and sustainable management of freshwater sources is an urgent need that has to be enhanced by the national government in accordance with provincial governments, by improving legal and institutional frameworks and optimizing management practices.

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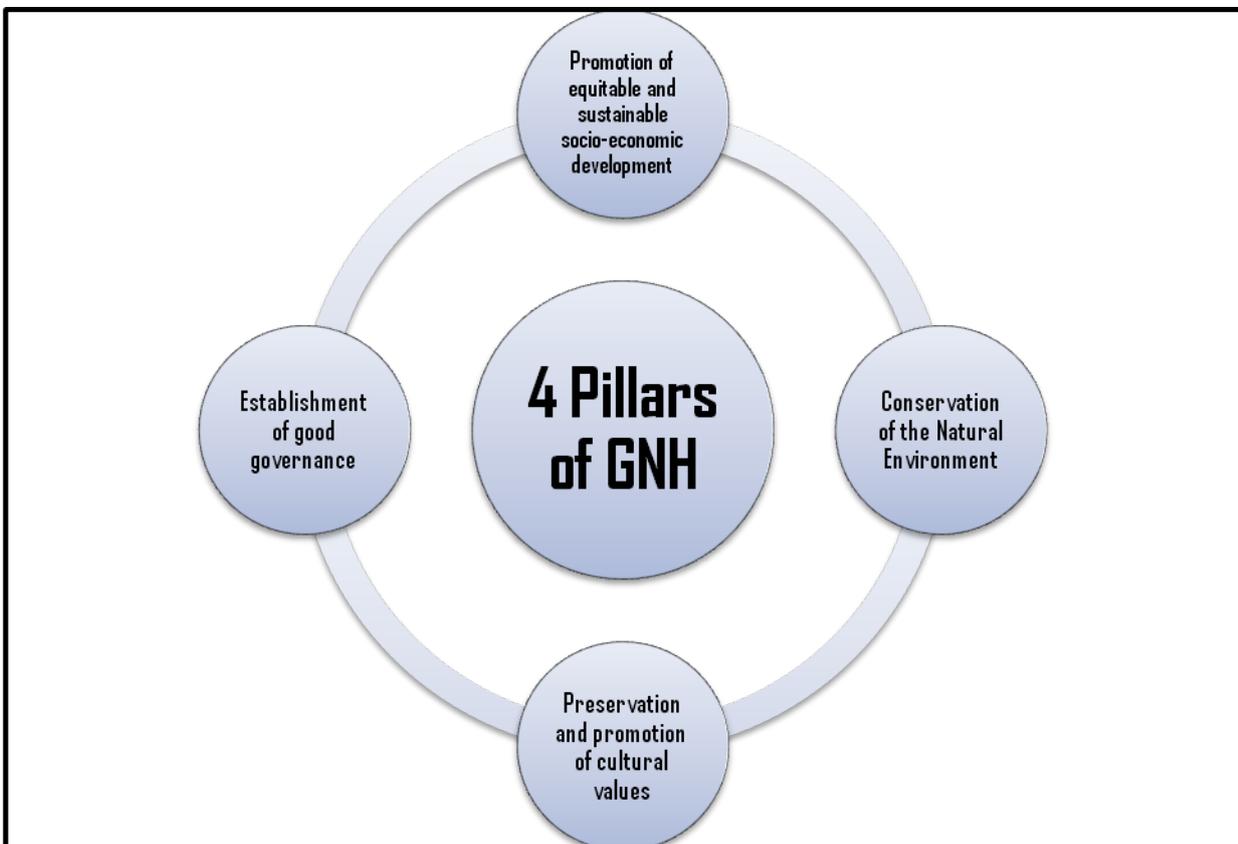
BHUTAN

Conference paper on 'Water'

Introduction

Bhutan is blessed with extremely rich environmental heritage and has committed to preserving the pristine environment for the present and the future of this nation. This has been possible largely due to far-sighted leadership, traditional values, and way of life that reveres nature, small population and strong political commitment. However, the fact remains that, maintaining the balance between economic development and preservation of environment is a challenge faced by all nations. It has become imperative to assess and update our environmental conditions and trends for monitoring our environmental performance and for informed and timely responses to environmental challenges.

Conservation of environment is one of the four pillars supporting the concept of Bhutan's Development Philosophy, Gross National Happiness (GNH). The GNH concept was first coined by His Majesty King Jigme Singye Wangchuck, the Forth King of Bhutan recognizing that development cannot be pursued on the premise of economic growth alone but has to take place in conjunction with the emotional and spiritual well being of the people. *Bhutan 2020*, the country's vision document to maximize GNH, emphasizes that "development must be pursued within the limits of environmental sustainability and carried out without impairing the biological productivity and diversity of the natural environment."



Bhutan like all other member states of the United Nations, adopted the United Nation Millennium Declaration and is strongly committed to achieving environmental sustainability; one of the Millennium Development Goals. The importance of environmental conservation in Bhutan's case cannot be exaggerated given the fact that we have a nature dependent economy and a fragile mountain ecosystem requiring environmental stability.

Bhutan's will and commitment to preserve the environment has been engraved in the Constitution of the Kingdom making it a constitutional requirement to maintain at least 60 percent of the total area under forest cover for all times to come.

'The Government shall ensure that, in order to conserve the country's natural resources and to prevent degradation of the ecosystem, a minimum of sixty percent of Bhutan's total land shall be maintained under forest cover for all time.'

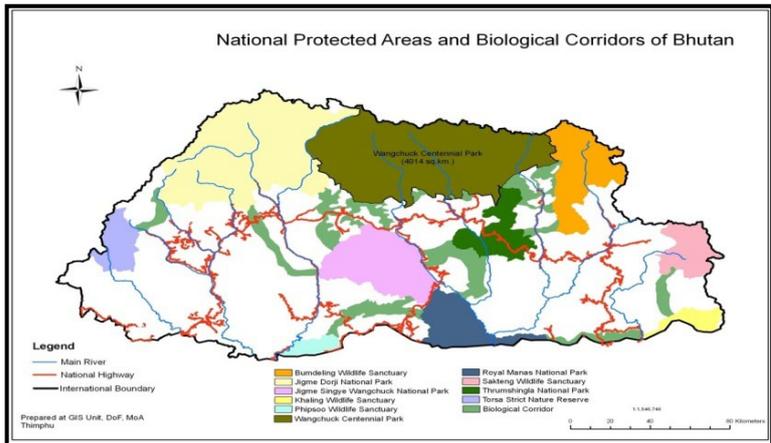
Article 5.3 of the Constitution of the Kingdom of Bhutan

Constitutionally, the ownership of natural resources of the Kingdom is also vested in the State.

'The rights over mineral resources, rivers, lakes and forest shall vest in the State and are the properties of the State, which shall be regulated by law'.

Article 1.12 of the Constitution of the Kingdom of Bhutan

Bhutan currently has more than 72.5%²³ (including 8.1% scrub forest) of its land area as forest cover and 51.32%²⁴ are protected areas and biological corridors. As of 2003, 84% of the population had access to safe water supply and 92.6% of the population had access to improved sanitation²⁵. The quality of air in the country is, to a large extent, still pristine. The main causes of air pollution are identified as emissions from vehicles, industries and domestic activities. Recorded data on respirable particulate matter (PM₁₀) in most part of the country is significantly lower than standards set by the WHO and



EU directives. Exceptions can be a few industrial towns and commercial hubs in the southern part of the Kingdom. The Kingdom's biodiversity is outstanding with more than 5,603 species of vascular plants, 667 species of birds and 200 species of mammals²⁶. 14 species of birds and 26 species of mammals are featured in the World Conservation Union's Red List of



²³ Statistical Year Book of Bhutan 2010

²⁴ 10 protected areas (16,396.43 sq. km), and Biological Corridors (3,307.14 sq. km).

²⁵ Bhutan Environment Outlook 2008

²⁶ IV national report to the Convention on Biological Diversity, Bhutan

Threatened Species. The rich biodiversity of Bhutan includes more than 140 species of butterflies²⁷, 28 of which are endemic to the Eastern Himalayas, and as many as 750 plant species endemic to the Eastern Himalayas.

In the International environment arena, the King and the people of Bhutan were awarded the Champion of Earth (UNEP) in 2004 and the J Paul Getty Award in 2006. As a matter of fact, the Kingdom can be dubbed as a conservation jewel of the Eastern Himalayas, a region designated as one of the ten biodiversity hotspots in the world and also ranked in the top 10% of countries with the highest species richness per unit area in the world²⁸. Bhutan is signatory to 12 Multilateral Environmental Agreements including the UNFCCC.

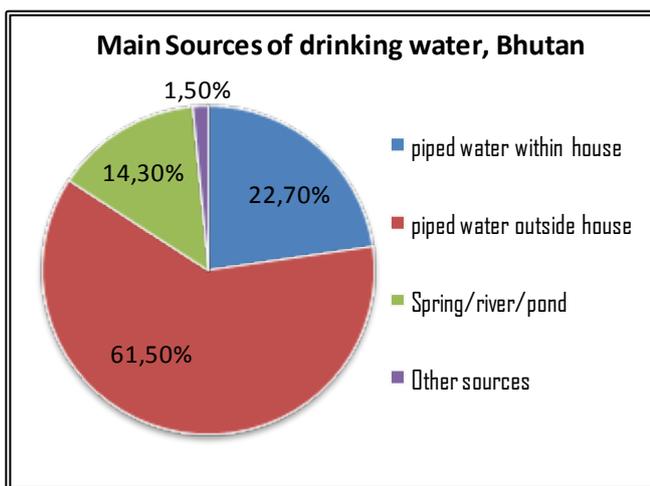
Water

Water security is one of the biggest challenges facing humanity considering the scarcity of water resources worldwide. Only about 2.5% of the world’s water is freshwater and the 1% of freshwater available for human use is unevenly distributed relative to the world’s population. It is also estimated that more than 70% of the world’s population is without access to clean water, and an estimated 25,000 people die each day as a result of poor water management. Scarcity of water has also led to many international conflicts and currently there are more than 2000 treaties between countries that relate to water rights. Globally, it is estimated that 1.1 billion people still lack access to safe drinking water, and 2.4 billion people lack access to improved sanitation. Further, experts estimate that, by 2025 two-third of the world’s population may be living under water stress. The exponential growth in populations and economies has had the greatest impact on the availability and quality of the freshwater resources.

Bhutan, with a forest cover of 72.5%, fortunately, is endowed with rich water resources due to a fair spatial distribution of precipitation on a mountainous topography. The mountainous topography, with altitude varying from 100 meters to over 7500 meters above sea level, drained by four major rivers with their numerous tributaries has endowed Bhutan with tremendous water resources. The per capita water availability of Bhutan is among the highest in the world with per capita mean annual flow estimated at 100,000m³. In terms of quality, the natural water can be characterized as highly oxygenated; slightly alkaline with low conductivity and no recorded salinities with sediment content in the river generally low. Water users in Bhutan draw water from three distinctly different sources groups: namely, the main stem rivers; tributary streams and rivers; and sub-surface water. The demand for water is for hydropower generation, municipal use, rural domestic use, irrigation, industrial use, and livestock rearing and production.

Until now, there was no law formulated on water save for a policy document called the Bhutan Water Policy, 2003. The Water Act of Bhutan, 2011, was endorsed by the 7th session of Parliament in July 2011. However, many provisions related to water issues exist in

some Acts such as the Land Act 2007, The National Environment Protection Act 2007, Forest and Nature Conservation Act 1995, Mines and Minerals Act 1995, Water and Sanitation Rules 1995, Environment Assessment Act 2000, Municipal Act 1999 and others.



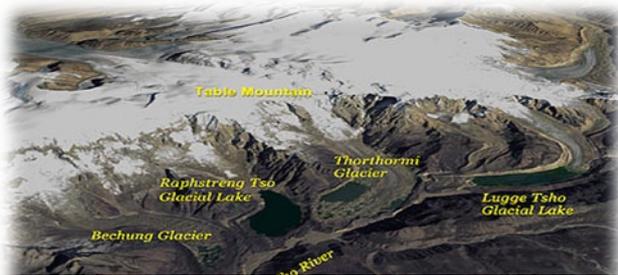
²⁷ *Butterflies of Bhutan, 2007*

²⁸ www.cbd.int

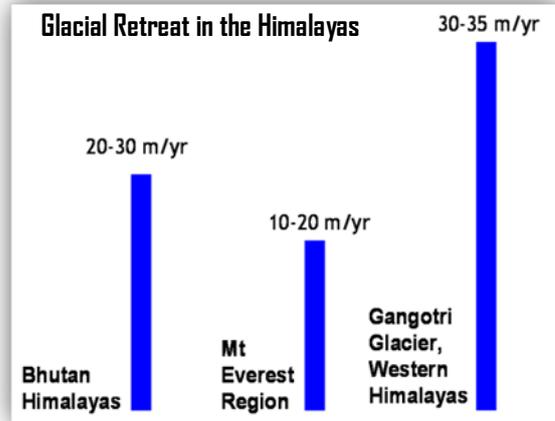
Water and Climate change in Bhutan

Climate change will be responsible for major changes on the state of the natural environment in Bhutan. As much as Bhutan is proud of having minimal or no pollution of water bodies, the undeniable fact that water resources and climate change are intricately linked, poses the biggest threat, especially in the case of Bhutan considering most of the rivers are glacial fed.

A major source of water in Bhutan is glaciers and glacial lakes. The Bhutan Himalayas is believed to have some 677 glaciers and 2,674 glacial lakes. It is global knowledge that global warming directly impacts glaciers and glacial lakes and recent reports have shown that these glaciers are retreating at an alarming



Glacial lakes above the Pho Chu River



rate. According to studies, some glaciers in Bhutan were retreating by 20-30 meters annually.



GLOF of 1994 in Punakha

Retreating glaciers contribute hugely to water availability in the short run, but in the longer-run it could mean reduced flow in our rivers. This fact will be disastrous for the hydro-centric economy of Bhutan where episodes of intense monsoon rains resulting in flashfloods and landslides are already being experienced. In recent times, three Glacial Lake Outburst Floods (GLOFs) have taken place, the most recent in 1994. Of the 2,794 lakes known to occur in Bhutan, 25 have been identified as potentially dangerous glacial lakes. GLOF occurrences not only come with huge social, economical and environmental costs but most often have trans-boundary consequences considering that all of Bhutan's river system ultimately drains into the Brahmaputra River in northern India.

Of late, Bhutan has been victim to unusual weather patterns, such as short and dry winters, prolonged droughts in the summer, landslides, flash floods, windstorms and GLOFs. The effects of climate change are very clear and visible in Bhutan.

Other Pressures on Water

In the past, Bhutan was able to maintain a relatively intact state of environment through sound policies, laws and religious sentiments of the people. Then, conservation was undemanding with a small population size, an agrarian society and rugged topography. However, with rapid socio-economic development, things are starting to change of late.



The consequences of growing and modernizing population with demanding development needs and changing lifestyle has taken its toll in the form of environmental challenges such as pollution, land degradation, solid waste generation, sewage generation et cetera.

Population growth poses a serious challenge in the sustainable management of water given the low carrying capacity of the fragile mountainous ecosystem. The population density in 2005 was 16 people per km² and the population of Bhutan 'which was 634,982 in 2005 is projected to grow to around 887,000 in 2030, an increase of 40% within the next 25 years'²⁹. However, the matter of concern is the fact that habitable area in Bhutan is harshly limited by rugged and lofty terrain, snow, rocky areas and forest. The population density soars to nearly 200 people per km² when arable land and land with human settlements are taken as the denominator.

Urbanization is another challenge closely associated with pollution of water. The high density of people and wasteful consumption pattern of urban settlements pose high vulnerability to water course within and that run through. Bhutan's urban population by area of residence has been estimated at 30.9%³⁰ and more than half of the urban population is concentrated in just two cities- *Thimphu and Phuntsholing*. Rural-urban migration has picked up rapid pace in recent times, with inadequate development infrastructure and facilities in the rural areas. According to the census in 2005, net life-time rural-urban migration has been estimated at 91,778 implying that nearly 47% of the 2005 urban population has migrated from rural areas.

Solid waste generation can become a major contributor to water pollution if leaching of waste ingredients into ground water table and surface carriage into water courses are not managed and monitored efficiently. With rapid urbanization, and low level of awareness among the Bhutanese public, solid waste disposal and management is not only emerging as a major environmental problem but also with serious consequences to human and livestock health. Apart from the municipal solid waste, there are also growing concern over health care waste and industrial solid waste.



In Bhutan, domestic sewage plays a major role in water pollution, especially in places where there are no proper sewage management facilities. Poor management of vehicle effluents generated by automobile workshops is another growing concern for places with large numbers of motor vehicles. However, data on domestic sewage and industrial effluents are very limited currently. Pesticides and herbicides are also seen as potential sources of water pollution although; the use is moderate and regulated in Bhutan.

Government Mitigation Measures (plans and activities)

Acknowledging the impact of climate change on environment, the government of Bhutan has put up several plans and activities and continues to make headways in the field of environmental conservation. Significant strategies include incorporation of environmental conservation in the Constitution, accession to several MEA, development of strong legislation, devolution of environmental governance and implementation of environmental codes of practices. Some of the mitigation measures initiated by the Government are as follows:

1. Artificial lowering of potentially dangerous Glacier lakes
2. Improving water sources and sanitation



²⁹ Population projections of Bhutan 2005-2030, NSB

³⁰ Population and Housing Census, 2005, NSB

3. Implementation of regulations on Chemical pesticides and disposal of obsolete pesticides
4. Implementation of Industrial Discharge Standards
5. Drafting of Solid Waste Management Act
6. Reforestation³¹
7. Establishment and Management of Protected areas
8. Introduction of Weather Forecasting System
9. Landslide Management and Flood prevention schemes in critical areas
10. Installation of Early Warning System
11. Flood protection of Downstream Industrial and Agricultural Areas
12. GLOF Hazard Zoning
13. Institutional Arrangement for Coordination of Water Resources Management
14. Initiation of a project on PET(Polyethylene Terephthalate) bottle management system



Currently, most of the environmental problems, related to water, in Bhutan can be associated with high population density, urbanization and industrialization which are regional problems. There are few environmental problems related to water that are more extensive in terms of geographic spread with global significance. For instance, well preserved watersheds in Bhutan will also benefit many downstream communities in neighboring India and Bangladesh. Nevertheless, as much as Bhutan continues to outstand in conservation of environment over the decades, like most developing countries, there is lack of information for effective planning, development and management of water resources; relative clarity does not exist between resource control and investment decisions. And while Bhutan has done well with relatively insignificant damage done to its environment, conservation has become increasingly challenging as we open up to meet new development needs of the ever growing population and rapid urbanization.

Role of SAI, Bhutan – Roval Audit Authority (RAA)

The Royal Audit Authority, the Supreme Audit Institution of the Kingdom of Bhutan, is a constitutional body, delinked from the bureaucracy, headed by an Auditor General appointed by the King of Bhutan from a list of eminent persons recommended jointly by the Prime Minister, the Chief Justice of Bhutan, the Speaker, the Chairperson of the National Council and the Leader of the Opposition Party. The RAA derives its mandates from article 25 of the Constitution of the Kingdom of Bhutan and the Audit Act of Bhutan 2006. The RAA carries out its constitutional and legal mandate by conducting performance, financial and other types of audits, including environmental audit since 2007, issuing reports, following up on issued reports, and establishing institutional linkages with Parliament, Public Accounts Committee and other agencies. The RAA also creates awareness on auditing and accountability issues amongst stakeholders.

'There shall be a Royal Audit Authority to audit and report on the economy, efficiency, and effectiveness in the use of public resources.'

Article 25.1 of the Constitution of the Kingdom of Bhutan

'Carry out financial, propriety, compliance, special audits and any other form of audits that the Auditor General may consider significant and necessary'

Section 38 (a) of the Audit Act 2006

³¹ 21,759 hectares up to 2005

Environment Audit is picking fast pace and is increasingly being accepted by the Government and other agencies as a prerequisite to meet our constitutional goal to conserve environment. While environment audit in Bhutan is earnestly at its emergent stage, stakeholders now understand the role of the RAA as a constitutional authority to oversee the efforts of the Government and concerned agencies to conserve environment.

The establishment of an environmental audit section in 2007 is one of the initiatives undertaken, by the current Auditor General, to fulfill the constitutional mandate of the democratic era. Since then, the Royal Audit Authority has audited and reported, on a wide range of environment related issues and topics, to the parliament of the Kingdom of Bhutan. The following are some of the environmental issues audited and reported by the RAA:

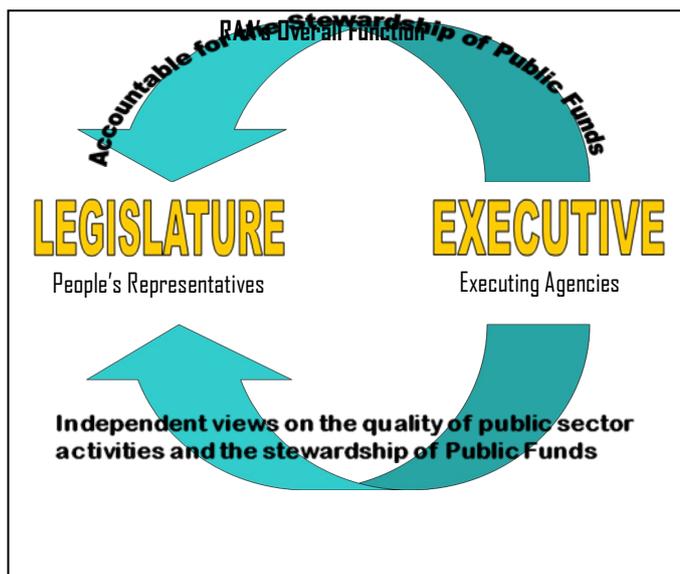
- Audit on Waste Management (2007-08),
- Audit on Medical Waste Management (2007-08),
- Audit on National Park Management (2007-08),
- Audit of Industries on environmental compliance (2008-09),
- Audit of Multilateral Environmental Agreements on its compliances, (2009-10),and
- Audit of Drinking Water Supply and Sanitation (2009-10)

The RAA is yet to conduct comprehensive follow-up of these reports. However, a desk review on the audit of Waste management had been carried out and following are some of the noteworthy and immediate compliances made to the recommendations offered:

- Speedy formulation of Waste Management Acts in the Kingdom
- Initiation of Water Act
- Cleaning of a storm water drain in the border town of *Phuntsholing* which was earlier used as a waste dumping site
- Increasing the intake capacity of *Thimphu*(*Capital of Bhutan*) landfill site
- Visible compliance to Occupational Health and Safety measures for workers in industries and waste workers of two audited municipalities
- Better segregation of municipal and medical wastes in audited municipalities and hospitals
- Employment of environmental inspectors in *Thimphu* city.

Through these reports, the RAA not only cautioned the policy makers of environmental setbacks, but were also able to inform the people of Bhutan on general health of our environment. Every effort was made to distribute copies of these reports to as many stakeholders as possible for wider publicity; some of our reports were also of immense interest to the media.

The Royal Audit Authority's overall function is not only to transmit independent views on the quality of public sector activities and the stewardship of Public Funds but also to Audit and Report without fear, favor and prejudice on the economy, efficiency and effectiveness in the use of public resources.



Our Vision

'A premier audit institution that promotes value for money in government operations and contributes towards good governance'

Our Mission

‘To audit without fear, favor or prejudice on the prudent and effective use of public resources and report to the Parliament and Stakeholders for enhancing transparency and accountability in the

Constraints and Challenges

Even with a comprehensive mandate to audit and report on the ‘economy, efficiency and effectiveness’ on the use of public resources, the RAA faces many constraints and challenges, especially while carrying out environmental audit. However, the limitations are more of external nature than of the RAA as an institution. Some of the constraints and challenges worth discussing in this context are briefly mentioned hereunder:

1. Lack of legislation to regulate water pollution

Until now, there was only a policy document on water called the Bhutan Water Policy, 2003, and as such there were no legal frameworks to institute measures to regulate water pollution and water management. The absence of such legislation makes it very difficult to audit and report due to lack of benchmarks and standards. However, many legislations and policies related to environmental issues are in the process of formulation.

2. Lack of Important policies and legislation

Although legislations governing water are in the process of formulation with many measures taken already in the past, with major environmental challenges being imminent, the RAA understands the need for more legislation in other environmental fields as well, for example, sewer management policies and legislation, air pollution laws, et cetera. The fact that environmental problems are all interconnected cannot be disregarded.

3. Lack of Institutional support

Although, the National Environment Commission of Bhutan is mandated as the central coordinating agency for matters related to water resources management at the national level, currently, multiple agencies and institutions are involved in water management. While it would seem logical to involve multiple agencies, lack of proper coordination and synchronization of information, also due to acute lack of human resources and financial resources, results in conflicting rules and regulations on water management.

4. No Comprehensive river water baseline surveys

There is no comprehensive data for river water baseline surveys conducted at the present moment. The present data available on water quality are for those rivers in the western region of the country only.

5. Inadequate Waste water/sewage treatment facilities

Only *Thimphu* (Capital) and *Phuntsholing* are outfitted with waste water/sewage treatment facilities and Waste water/effluent discharge standards are also not present at the moment. Although, currently, Bhutan can safely be regarded as having no water pollution, we cannot rule out the fact that we are developing very rapidly. This absence of waste water treatment facilities across the nation may create serious cumulative water pollution problems in the future. The RAA is unable to provide recommendations for collective work with other agencies in absence of such facilities and organizational bodies.

6. Water quality standard not developed

Water quality standards for domestic use have not yet been developed. Preliminary recommended drinking water quality standards exist on interim basis. The Water and Sanitation Rule, 1995, only

spells out modalities for excess to safe and reliable water supply. These inadequacies are a result of lack of equipment and manpower and also inadequate supervision and monitoring by implementing agencies.

7. Inadequate waste management

The Solid Waste Management rules and Regulations 2007 have been adopted recently, but the need for a solid waste management act has become imperative. Solid waste segregation is virtually non-existent in Bhutan and existing landfills are managed like garbage dump sites with no regular measures to control pollutant emission, leaching and scavenging. There are only about 12 urban centers with some form of solid waste management system, which are still underdeveloped basically limited to waste collection and disposal in landfills. Only *Thimphu* (Capital) and *Phuntsholing* has a minimum system of managing wastes scientifically.

8. Non-availability of information

One of the major setbacks faced by RAA can be attributed to non-availability of information or outdated information. Environmental audit issues occur across many sectors and organizations and often hindrance are caused by outdated data, difficulty to obtain information, or lack of information.

9. Public Awareness and Education

There is acute communication gap between the policy makers and citizenry in general regarding environmental issues. It is seen that many of the initiatives and policies are implemented without much consultation with the local government which results in very low level of awareness within the public.

10. Lack of professional competency in the RAA

Unlike many other Supreme Audit Institutions, especially SAI, India, where professionals are recruited from varied educational background into the Audit Department, the RAA had been recruiting professionals with finance and economics educational background. Though it is said that environmentalist are not required to audit environment, auditors are seen to need certain education and training in environmental issues in order to offer professional opinion and recommendations.

Conclusion

The concept of environmental audit is of late being considered more from the perspectives of governance and economics rather than the earlier perception confined only to the elements of environment. Many now understand the role of SAI Bhutan as a constitutional authority to oversee the efforts of the Government and other related agencies. Considering the cross-sectoral nature of environmental issues, an integrated approach using extensive policy dialogue might stand useful. These approaches should incorporate environmental considerations at an early stage in development planning programmes and projects. The long-term economic and social development of any country requires effective and efficient management and use of its natural resources. Management of water as a resource is not only vital but has become imperative given the major demands created by accelerated urbanization, industrialization and agricultural development; more so in the case of Bhutan given its hydro centric economy.

However, as much as identifying challenges are important, the need to manage them is more vital. RAA has taken many steps towards becoming an institution committed and understanding not only the need for conservation of environment but also to bridge the connection between environment conservation and good Governance. With rapid socio-economic development the way forward is to look at tools and measures to fulfill our vision as 'a premier audit institution that promotes value for money in Government operations and contributes towards good governance.' Capacity building in the form of trainings, seminar and workshops are seen as viable initiatives to enhance the knowledge of environmental auditors. Further, the procurement of

important auditing tools and information systems, like the GIS & GPS applications, are proposals in the pipeline to build the capacity of RAA.

As evident, water related environmental issues are trans-boundary in nature and therefore require resolute efforts from leaders of different countries and regions. This is seen as an area where the Supreme Audit Institutions could and should play a fundamental role in pointing out common problems and bringing common solutions for the respective government to make informed decisions. This is an area where conducting of Joint or parallel audit has become necessary for the general benefit of all the stakeholders involved. Many SAIs, especially in the European region, have taken this step forward by initiating joint or parallel audit and SAI-Bhutan would like to work towards such audit enabling Governments and relevant agencies to work and act in alliance.

IRAQ

Water Pollution in Iraq

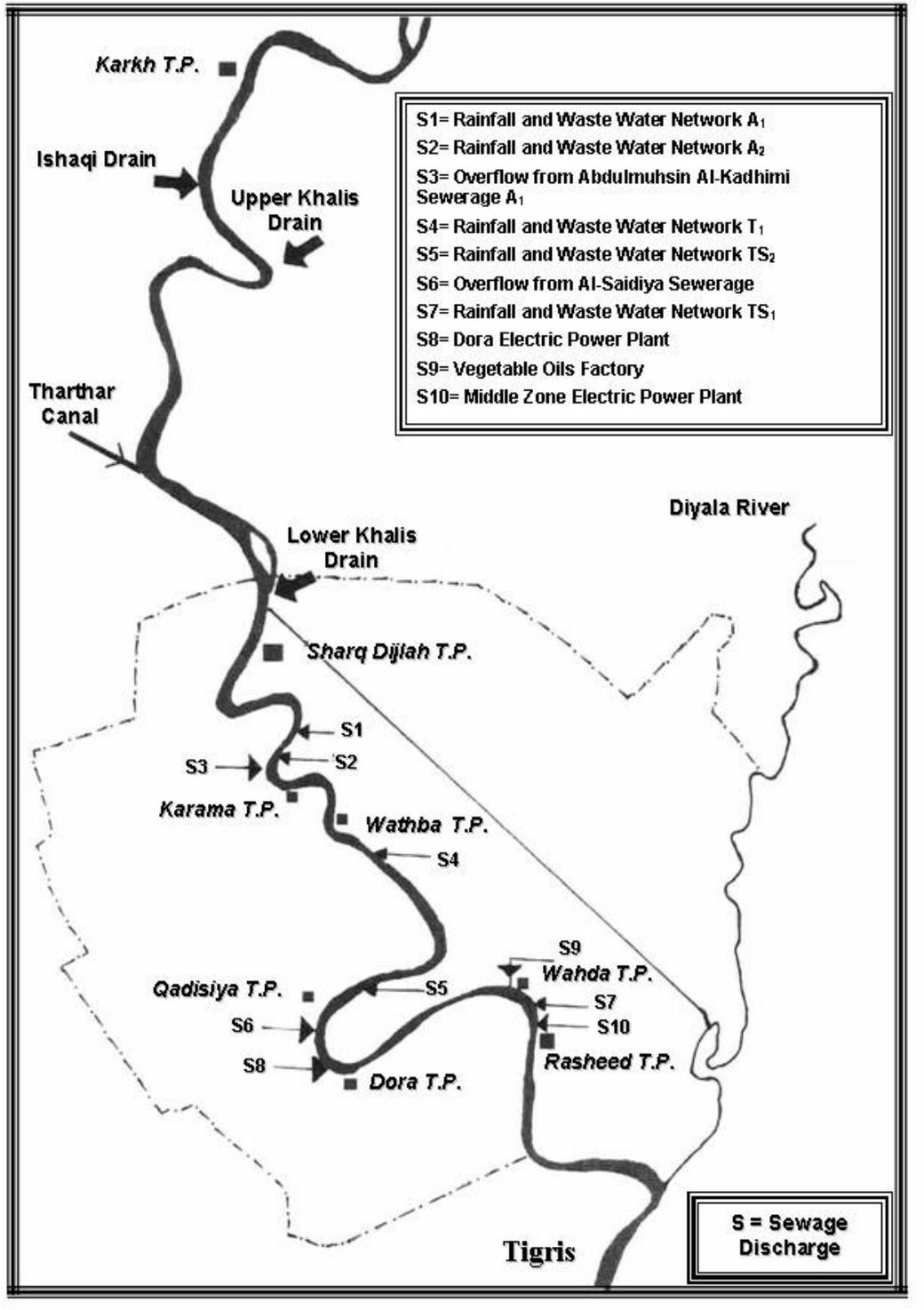
The reason of choosing this subject to audit by us is the importance of water which is the basic elements of life due to its various uses, including (drinking water, household uses, watering plants, tourism and other uses). Therefore, the Baghdad Water Department was chosen as a subject to audit and as a case study because it is the provider of drinking water and raw water in Baghdad. The audit objectives and its standards were to test the water quality, and the quantity is provided in order to demonstrate the extent of its conformity with environmental determinants and adequacy to cover Baghdad population.

- Compliance audit approach was adopted to indicate the extent of auditee commitment with the prevailing standards and specifications for supply of safe drinking water.
- The important findings and recommendations were reached when conduct the specialized audit are:
 1. There is a decrease in the amount of supplied pure water of 2008 estimates at 850000m³/day where the supplied quantity is 2400000m³/day, and the actual need is 3250000m³/day.
 2. The most water purification projects were old which affected negatively on the actual and designed capacity and led to the decrease of the quantity of supplied pure water.
 3. There are no preventive procedures against the transgressors on the pure water net to reduce the amount of lost water as well as negative effects result by random use of water.
 4. The high proportion of wasted pure water that reached to (40%, 35%, 30%) of total supplied quantities of 2006, 2007, 2008 respectively.
 5. The raw water pumping stations and nets are old and inefficient which led to use of pure water in the areas that used the raw water such as watering gardens, parks, and others.
 6. Contrary to the instructions of Iraqi standards specifications no. 417 about the drinking water the following tests (organic substances, toxic substances, concentration of radioactive) were not conducted.
 7. Increased rates of iron, aluminum, salt and sulfate comparing to the standard rate and according to standard specification for (2006, 2007, and 2008).
 8. In contrary with environmental instructions and determinants that stated that any water treatment project should be a way from pollution resources (3) km from the back and (1) km from the front of the project. We observe that there are different environmental pollution resources such as sewage and electricity stations with distance less than specified according to environmental determinants and as defined in attached chart.
 9. There are pollutions in the produced water because of the defect in staining and filtering processes as well as electricity fluctuation.
 10. Tigris water is polluted because and sewage water and industrial wastes are thrown directly to the river without any treatment. The water level is decreasing. The out lets are not cleaned from deposits which resulted in negative impact on water quality entered to treatment projects, therefore the water produced is not compliant with specifications. The liquid wastes should not been thrown in the river before treatment has been conducted. The continuous cleaning on outlets of water treatment stations should be conducted

Recommendations submitted to the audittee are:

- 1 - Constructing new projects with high production capacities to terminate water scarcity problem in Baghdad, in addition of continuous maintenance to the treatment stations.
- 2- Taking the necessary procedures against transgressors on water nets to limit wasted water quantities, as well to prevent water pollution due to irregular links.
- 3- Constructing raw water pumping stations, rehabilitating old stations and extending raw water nets to neighbours with no raw water nets to decrease wasting treated water and control scarcity.
- 4- Providing new equipments used for in deducting pollution, toxicity tests and heavy elements, organic materials test and radioactive materials tests.
- 5- Adding progressive treatment stages to treatment stations such as hard water treatment to prevent the repetition of increased salts, iron, and aluminium and sulphate rates.
- 6- The treatment processes according should be conducted to standard specification, whereas adding chlorine and alum Portion according to standard specifications and adopting laboratory test, as well as continuous provision of electricity to prevent pollution in produced water.
- 7- The treatment processes according should be conducted to standard specification, whereas adding chlorine and alum Portion according to standard specifications and adopting laboratory test, as well as continuous provision of electricity to prevent pollution in produced water.

As a result of recommendations that made by our specialized body, Baghdad Water Department has taken a number of measures in accordance with the audit results and including establishment of Rusafa Water Project, production capacity about (190000M3/day) to eliminate shortage, conduct rehabilitation, ongoing maintenance of old project, the river water cleaned up for a number of under implementation projects, to provide some modern equipments to detect on pollution in river water and also providing emergency electric current line to operate the station. In addition to achieve some of environmental benefits as a result of audits, including improving the quality of drinking water due to improved used chemical additives in the treatment process and do the daily laboratory tests to drinking water.



Conventional water treatment plants and main sources of pollutions in Tigris River at Baghdad

KAZAKHSTAN

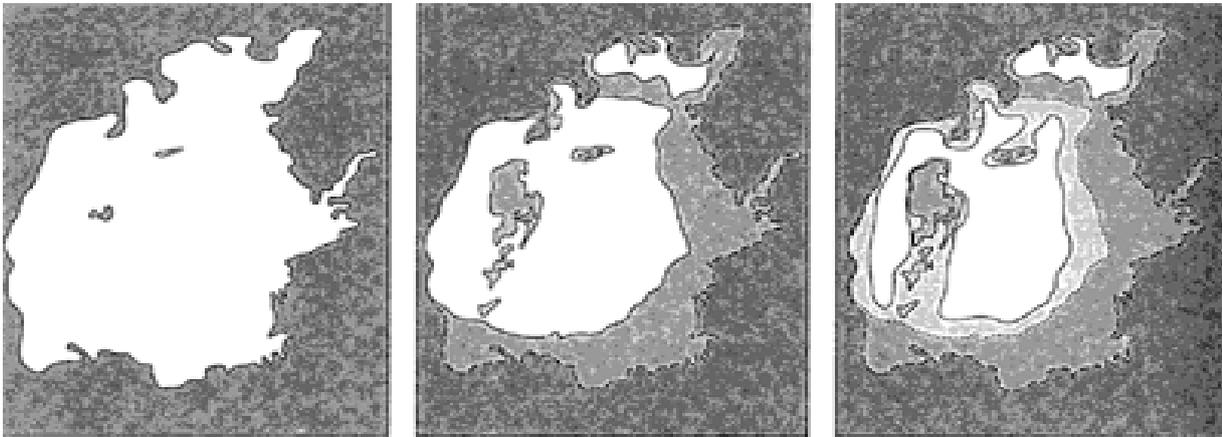
Performance Audit of implementing 2007-2009 Program for Complex Resolution of Aral Sea Region's Problems

PURPOSE OF AUDIT

Performance assessment of implementing 2007-2009 Program for Complex Resolution of Aral Sea Region's Problem.

DESCRIPTION OF THE PROBLEM

For the last 30 years the Aral Sea level has fallen from 55,3 to 39 m above the sea level, water surface area has diminished half the size (33640 square kilometers), water volume – more than three fold. The degree of



water salinity reached the sea salinity level (about 35 ‰), valuable fish species ceased to exist in the lake, fishing trade – the living base of local population – stopped.

In the zone of desiccation a salt desert appeared. More than 500 kilograms of salts per 1 hectare are dispersed by winds along the near-by territories. Local population disease incidence increased a twentyfold. The Aral region turned to the zone of ecological catastrophe, that cause very serious economic and social problems.

OLD PICTURES OF ARAL SEA



PROGRAM

Originally, in order to solve social and economic problems of the region and to eliminate the effects of environmental disasters, the 2004-2006 Program for Complex Resolution of Aral Sea Region Issues. For implementation of the Program \$ 266,2 million was allocated from the republican budget.

Mainly, the funds were assigned towards realization of the projects for regulating the channels of Syrdarya river and for preservation of the northern part of Aral Sea, as well as at water supply and sanitation of the region's towns and villages.

The projects were not completed within the provided time fare and the Government of the Republic of Kazakhstan adopted a new 2007-2009 Program for Complex Resolution of Aral Sea Region Issues. For implementation of the Program in total \$ 462,4 million was allocated from the republican budget.

ARAL SEA SHIPS



FINDINGS

Audit results indicated the main defect made by developers of the Program – absence of concrete targeted indicators in the form of measurable indices that allows estimate level of their achievement. It led to completion of only 8 items of Plan out of 31, or 25,8%.

The denoted objects of the Program did not rely on the results of technical and technological, social and economic, ecological research, which made it difficult to define the financial capacity and justification of realization effectiveness of investment projects realization.

As a result, lots of measures were not executed timely due to shortage of financial securing of the projects, realization of which were considered in the Action Plan on Program implementation.

Absence of concrete parameters of executive projects, diffusiveness of solvable issues made the process of justification of financial expenditures more complicated and without technical and economic justification of projects considered in the Plan.

Apart from that, the lack of communication and coordination among state authorities did not allow to fulfill all tasks and achieve all Program results.

As a result, while partially fulfilling separate actions of Plan (which consists of 6 sectors and 31 items), did not manage to complete timely all goals.

While projects implementation, due to bad drafting of technical and economical substantiation justification, design and budget documentation, failure to meet the deadlines and delays in commissioning the objects of construction, budget law and other statutory legal acts were infringed to the amount of \$ 54,3 million.

Resolution of ecological problems of Aral Sea is possible only on the basis of long-term and comprehensive cooperation of the countries of the region with active assistance of international community. Alternative plans like, for instance, saving Small Aral via building dam that could separate it from the main water area, or

creating artificial lake in the middle reaches of Amudarya can just deteriorate general ecological situation and cause the range of unexpected catastrophic consequences.

According to experts' opinion, in order to stabilize real situation it is needed to have yearly water flow equaling the volume of 35 km³, against today's 15km³.

VIEW FROM OUTER SPACE



July - September, 1989



October 5, 2008

MEXICO

Integral view of the subject of water, the performance audit approach

1. Problematic

Nowadays, water resources, in multiple regions of the world are a matter of great importance, due to their limited availability, abusive extraction or due to problems related to this vital liquid, such as: 1) low quality of the water connected to the aquifers excessive exploitation of the source; 2) the climatic change that modifies the hydrologic cycle affecting, among other, the availability of the water resources on the economic sectors; 3) water pollution, having its origin on human activities such as domestic, industrial and agrochemical waste, which generally lead to diseases as diarrhea; and 4) lacks in the provision of potable water, sewerage and wastewater treatment.

2. Performance methodology for evaluating the water sector

The Superior Audit Office of Mexico conducts performance audits to the water sector through a systematic, interdisciplinary, organized, objective, propositional, independent and comparative review to the social impact of water policies' public management, as well as to government activities focused on the execution of a water policy at local, regional and federal levels and finally, to those public entities linked to the water sector.

In this type of audits it is necessary to distinguish the development (degree of satisfaction of the human needs); economic growth (the percentage increase in the ratio of Gross Domestic Product and total population) and the use of the concept of "sustainable development" understood as "*the fulfillment of the present generation's needs without compromising the future generations capacity to satisfy their own needs*" [**Our Common Future**, from the Brundtland Foundation]. Based on these methodological assumptions an integral³² model is established with the purpose of defining the scope for the analysis public policies regarding water at the government sector. It takes a three-dimensional approach (social, economic and environmental), which determines a view of the public management of water.

The origin of the assessment strategy for the water theme is based on the problematic of "reductionism", that cuts the state action over complex problematic on parallel, uncoordinated and even contradictory actions on its attributions to the public agenda problematic, and that has its origin in the political – organizational logic, that grants monopolies of thematic action to specialized areas in a discrete way, and in logic for the disciplinary training of experts and professionals that occupy that areas.

The management of this lack of integrity of the public action, as well as the tension among the different thematic / disciplinary areas has represented two historic formats. In one hand the assumption of a complex theme by an area with the capacity to dominate the rest, enforcing their understanding and action logic. On the other hand there are the strategies that lead to the coordination amongst different areas whose functions and activities are linked to a problem with multiple causes.

Even if we have reached advances in the management of some policies and public programs, since the initial domination from one area over the others, towards the current efforts of coordination amongst different areas and logic of intervention; the current phase is still insufficient to solve the matter because we keep on thinking that the integrity of public policies will lead to the sum of diverse and discreet views.

It is relevant to point out that in the use of a comprehensive vision and verification of the fulfillment of a national policy of sustainable development, the SAO is coherent with the international best practices which

³² According to the Royal Academy of Spanish Language (*Real Academia de la Lengua Española, RAE*), the term "integral" defines each of the parts of a whole, composed in such a manner that everything - even without some of its parts - is able to exist.

state that government projects should have an influence on the final purpose of the policies and that the indicators should be linked to governmental superior goals [World Bank, 2010 | Formulation of public policies in OECD.]

Resuming the integrity approach, the water issue is conceived by the SAO in three parts: 1) Water management for social activities 2) Water management for economic activities, and 3) Water quality and the environment.

1) Water management for social activities

The approach of the audit in this field is oriented to measure the impact on the actions oriented to increase the coverage/range and quality of the services of drinking water, sewage and drainage, and to promote the water culture.

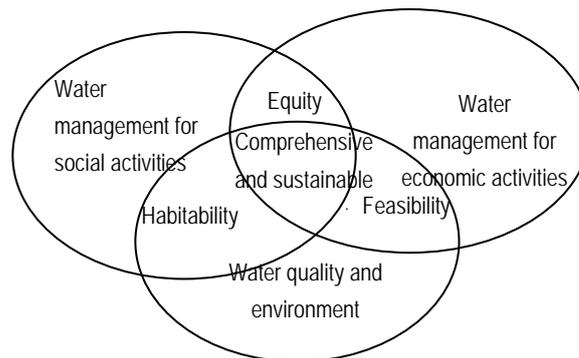
2) Water management for economic activities

The vision of the audits done in this matter is intended to measure achievements in the management of national waters in order to create a culture of law enforcement and a water contributive culture.

3) Water quality and the environment

The evaluation of public policies evaluations in this field are oriented to measure the impact in monitoring water sanitation, ecosystem preservation and climate change prevention to solve its degradation and depletion.

Therefore, we can conclude methodologically that the comprehensive and sustainable management of water is the sum of three “values” present in the water sector: habitability, feasibility and equity, as showed in the diagram below.



Source: Created by the Superior Audit Office of Mexico

With the assessment's results of public policies regarding water management for social activities, water quality and environment, we have a view that the conditions of sufficiency and quality of water resources, as well as the environment in which the population develops, grant the latter a “practical way of living”.

By auditing policies aimed towards the water management and economic activities, as well as water quality and environment, we determine how feasible is the access to water resources and to appropriate environments for human development.

Likewise, auditing public policies regarding water management for social activities, as well as economic activities, we obtain a view of how “equitable” is the access to different sectors of the population to drinking water, sewer system and plumbing services, as well as in economic activities of the different productive sectors in the country.

3. Performance audits: results and impact

The performance audits integrity approach has allowed us to issue a national diagnosis on the sustainable water management in Mexico and to assess both the fulfillment of national objectives in terms of water

resources, as well as, the compliance with international commitments for which we are, as supreme audit institution, jointly responsible.

As a result of the audit work done by the SAO during 2003-2009, we can assume that Mexico does not have a comprehensive and sustainable water management due to deficiencies in each one of its components (social and economic activities and water management) as well as water quality and environment, this entails important consequences to the Mexican society, on its economy and its natural resources.

Finally, it is important to highlight that as a result of the performance audits carried out by the SAO, aiming at a sustainable development measures at the public sector in the following matters have been strengthened:

- Increasing coverage of drinking water, sewage system and plumbing services.
- Acquiring (under concession or assigned) gadgets to measure water volume.
- Increase in the installation of volume meters used under the protection of the given Titles.
- Designing and operating an inspection program to identify the fulfillment of the quality parameters of sewage water loading by water concessionaries for industrial use.
- Operating a regularization program for clandestine users in order to decrease excessive exploitation.
- Elaborating papers on the loading of sewage water levels in water bodies, allowing a verification of the fulfillment of maximum parameters of water contamination.
- Establishing systematic and permanent inspection systems of water quality on the 653 existing aquifers and 722 basins of the country.

NEW ZEALAND

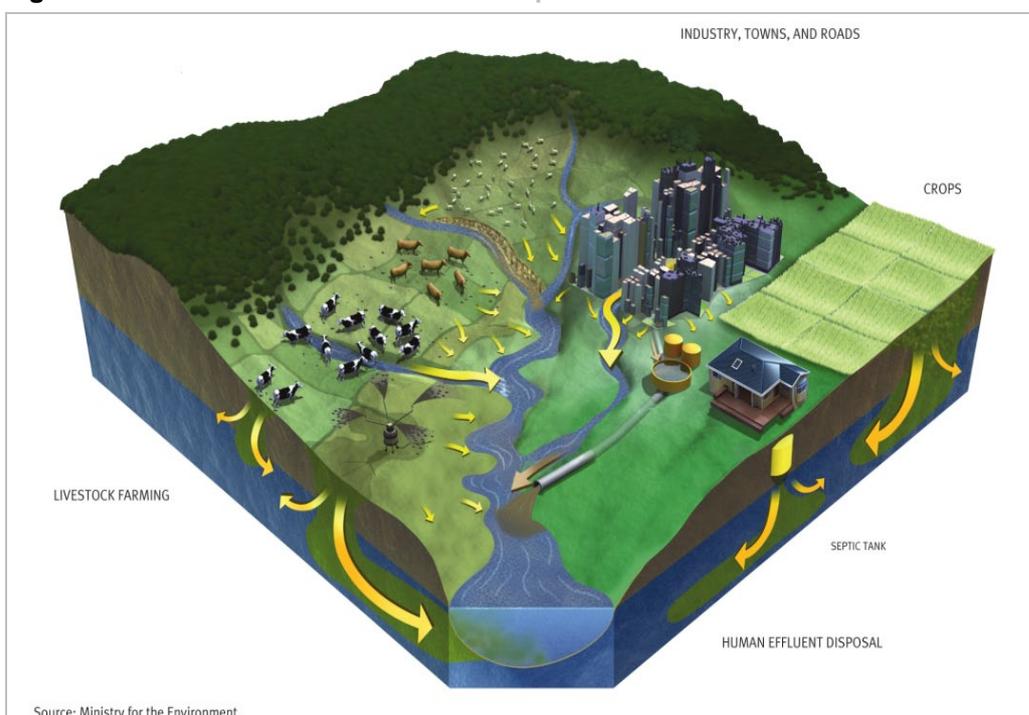
Performance audit

Managing freshwater quality: challenges for regional councils (September 2011)

Purpose of the audit

- 1.1 There has been increasing Parliamentary and public interest in water during the last decade and concern about deteriorating freshwater quality in some areas of New Zealand – in particular about the cumulative effects of “non-point source” discharges from agricultural activities (diffuse pollution). Although there have been improvements in management of other activities that pollute water bodies, such as direct discharges of sewage and storm water from industrial and urban activities, there has been a general concern in New Zealand that the quality of water in some areas, particularly lowland rivers, has been getting worse as land use intensifies.
- 1.2 The figure below shows various sources of freshwater pollution. Our audit focused on the area that has proved hardest to manage - non-point source discharges from:
- surface run-off of nutrients, chemical pollutants, and bacteria from rural and urban land areas to waterways;
 - farm animals in waterways; and
 - contaminants leaching through soil into groundwater from livestock farming, septic tanks, and agricultural crops.

Figure 1: Common sources of freshwater pollution

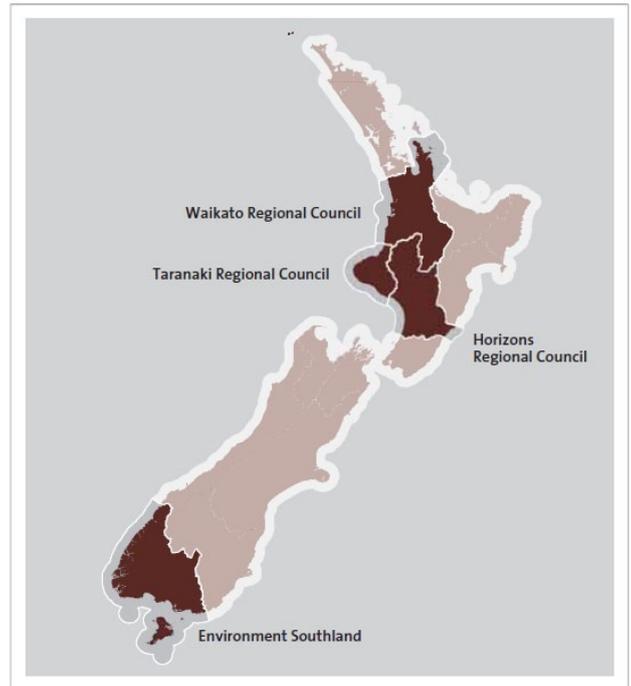


- 1.3 We carried out the audit to provide an independent view of how effectively four selected regional local authorities were meeting their statutory responsibilities to manage and control uses of land and related activities for the purpose of maintaining and enhancing freshwater quality.

Methodology

1.4 We examined the state of freshwater quality in four regions of New Zealand. Our focus was on the effectiveness of approaches rather than legislative compliance. The four regional councils selected cover nearly one-third of New Zealand's total land area. We selected the councils based on water quality trends and pressures in their regions (including two regions that had been subject to significant land use intensification).

- 1.5 To determine whether the four regional councils are maintaining and enhancing freshwater quality, we looked at whether they:
- had a good understanding of the state of, and trends in freshwater quality in their regions;
 - were responding appropriately and effectively to any deterioration in water quality;
 - were improving their plans and policies in a timely manner; and
 - whether their actions were improving freshwater quality.

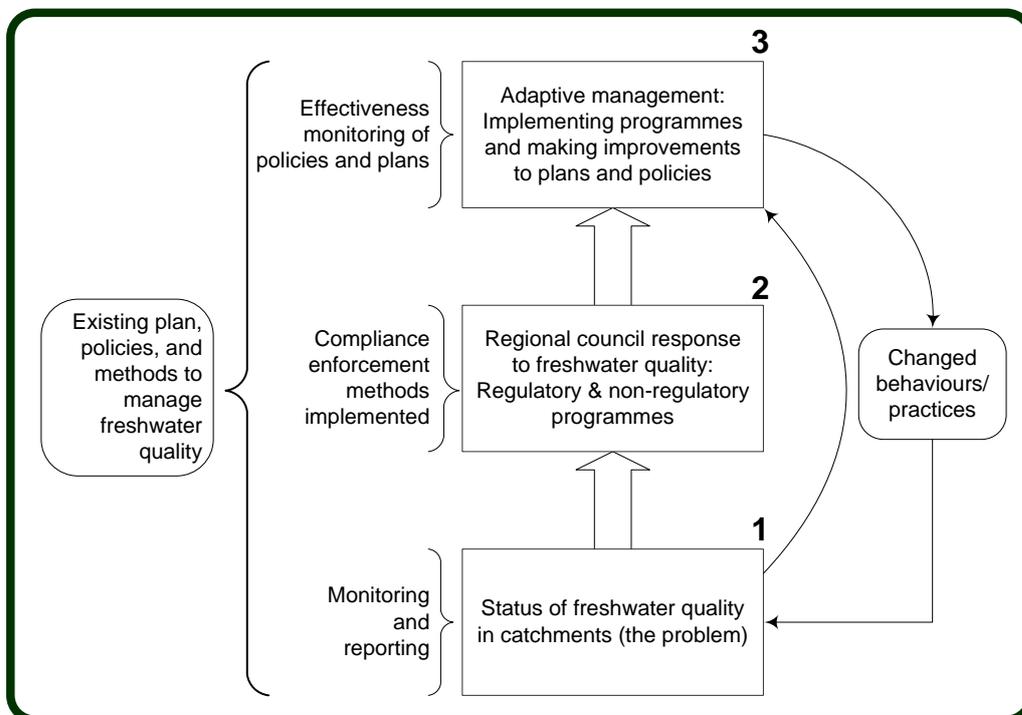


Source: Land & Water New Zealand.

Figure 2: The four regional councils' regions

1.6 We looked at all aspects of how the regional councils were managing freshwater quality – including both regulatory and non-regulatory (voluntary/best practice) approaches.

1.7 Overview of our audit model:



What we did differently

- 1.8 The audit was a mixture of a performance audit (effectiveness of approaches) and an inquiry (fact finding about the state of freshwater quality in each region, based on expert advice). This was different from our usual performance audit approach.
- 1.9 We commissioned an expert scientific organisation - the National Institute of Water and Atmospheric Research Limited (NIWA) to advise us on the suitability of the scientific monitoring networks that the regional councils operate and on the state of, and trends in, freshwater quality in the four regions.
- 1.10 We consulted widely on our draft report - with the councils, Central Government agencies, and with agriculture sector representatives. We would not usually consult with the sector interest groups but considered it important to do so given the topic.
- 1.11 We issued individual reports to each council during the audit, and wrote an overview report for Parliament and the public. In our overview report, we included a self assessment tool for other regional councils to test their performance against our audit criteria.

Overall audit findings

- 1.12 We found that although each of the four regional councils had a good understanding of the state of freshwater in their regions, the two councils with the most significant intensification of land use were not adequately managing the causes of non-point source discharges in their regions. Their current methods are not enough to reduce the known risks to freshwater quality. Both councils are trying to tackle the challenges of non-point source discharges and their cumulative effects, but there is still significant work to be done.
- 1.13 The other two councils were doing better but have areas within their regions where freshwater quality is at risk. Those councils are well placed to reduce risks to freshwater quality.
- 1.14 Two of the four councils were not meeting the statutory requirement to evaluate and publicly report on the effectiveness and efficiency of their approaches, based on their monitoring data.
- 1.15 With regard to enforcing compliance, we were concerned that councillors in all the regional councils had some involvement either in deciding whether the council should prosecute or in investigating a case once the decision to prosecute had been made. There are strong and longstanding conventions against elected officials becoming involved in prosecution decisions. We recommended that all investigation and enforcement decisions on individual matters should be delegated to council staff for an independent decision.
- 1.16 There is still a way to go if we are to halt and reverse the declining trends in freshwater quality. Changes are needed sooner rather than later, because it takes time before improved policies result in improved freshwater quality.

Impact and results

- 1.17 We published the overview report in September 2001, with some recommendations to all regional councils and the Ministry for the Environment. The councils have already responded to some of the recommendations in their individual reports that we gave them during the audit.
- 1.18 We will follow up the recommendations to other councils and the Ministry for the Environment in around two years' time.

Challenges and barriers

- 1.19 The audit was one of the largest and most complex we have undertaken. Challenges included:
 - Assessing freshwater quality – there is no single set of freshwater quality variables or monitoring methods that regional councils use to measure freshwater quality, and no nationally agreed guidelines, standards, or methodology for analysing and reporting regional freshwater quality data at the national level. This made it difficult to analyse regional data and report conclusions at a national level. Our analysis was primarily based on nine physical and chemical

measures. Considering biological measures of ecosystem health also (macro-invertebrate indexes) would have given us a more complete picture.

- The context kept shifting – we undertook the audit over a two year period where there was considerable Central Government activity in the water reform area. We needed to review and update our approach from time to time to ensure the audit adds value.
- The topic is controversial – agricultural production is vitally important to New Zealand's economic well-being. There is much debate about whether we can have clean water and a profitable and growing dairy sector. This is the subject of many strongly held and potentially conflicting opinions.

1.20 We largely overcame the challenges of understanding the science and the shifting context, but this added to the complexity of the audit. Given the controversial nature of the topic and the complexity of the science, we may be challenged on our knowledge and capability to undertake an audit in this area.

Lessons learned

- The audit confirmed the importance of understanding the science and the importance of good environmental data for an environmental audit of a complex topic.
- We learned a lot about freshwater quality during the audit. This will be of use in our future work with regional councils. We have developed good relationships with key staff of regional councils during the audit and will need to maintain those relationships.
- We looked at the INTOSAI WGEA guidance on auditing water issues during our audit planning and found it useful background information but not directly helpful for our planning.

UKRAINE

Coordinated Parallel Audit of Protection of the Black Sea against Pollution

The Black Sea – is an important part of global life support system. In addition to its impact on climate, weather and atmosphere condition, it is also a massive reserve of food stuff, material resources and raw materials, as well as other resources of humanity.

At the same time, Black Sea, as the most isolated from the World Ocean, is extremely vulnerable to pollution.

Taking into consideration the negative impact of pollution in their inner waters on marine environment of the Black Sea, the representatives of Ukraine, Russian Federation, Georgia, Bulgaria, Romania and Turkey have signed the Convention on the Protection of the Black Sea against Pollution and several Protocols to supplement it in Bucharest in 1992.

The Accounting Chamber of Ukraine during the XII INTOSAI Working Group on Environmental Auditing Meeting in 2009, initiated the conduction of the Coordinated Parallel Audit of Protection of the Black Sea against Pollution.

And SAIs of all countries, which signed the Bucharest Convention participated in this audit.

In connection with this, audit aim was identified as assessment of the implementation of commitments resulting from international agreements and collaborative projects on prevention of disasters and catastrophes and pollution of the Black Sea marine environment as well as monitoring and assessment of efficiency while utilizing the public funds allocated to this end.

The audit covered the following period:

- referring the issues of policy performance – from the date of coming into effect of the Convention on the Protection of the Black Sea Against Pollution signed on April 21, 1992 in Bucharest;
- referring the funds utilization efficiency – years 2007-2009, depending on each SAI's national approach.

Audit scope and main common audit questions were also identified:

- Establishment of main pollution sources of the waters in the Black Sea catchment area.
- Identification of the common legal framework for the cooperating countries that falls within this audit and assessment of the compliance level.
- Assessment and comparison of systems for control, prevention and consequences elimination of the marine environment pollution.
- Assessment of activities of the authorities regarding the protection of waters in the Black Sea basin;
- Determination and assessment of the implementation efficiency of international, national and regional programs as within the frames of this audit;
- Determination of the dynamics of the qualitative composition of the Black Sea waters.

While conducting the Coordinated Parallel Audit, three auditors meetings were held: in Kyiv, Istanbul and

Bucharest.

During the First and the Second Expert Team Meetings, participants reported on the national audits' status and preliminary results, approved the list of data for comparative analysis, the Joint Report structure and the list of its main addressees.

The Third Expert Team Meeting was organized in order to discuss the SAIs suggestions and amendments to the draft Joint Report, to prepare the final steps for the approval of the Joint Report and to decide the procedure and the way it is to be signed, as well as to prepare for its presentation at the VIII EUROSAI Congress, that is to be held on May – June, 2011 in Lisbon.

Well organized and professional work of auditors allowed them to formulate joint conclusions and carry out joint recommendations to governments of the countries, which signed the Bucharest Convention.

All auditors reached definite conclusion that with regard to importance of the Black Sea and its basin with the purpose of sustainable development of the Black Sea region countries, their parliaments have successfully taken necessary measures on implementation of provisions of the Bucharest Convention on the Protection of the Black Sea against Pollution into their national legislations.

As a result state policy of all countries was pointed towards reduction and prevention of the Black Sea pollution, as well as strengthening the supervision and responsibility for caused damaged.

However all auditors are unanimous that these efforts are not enough today. The "polluter pays" principle hasn't been fully implemented and as a result the issue of sea water pollution remains unsolved.

The Black Sea region countries managed to establish sufficiently wide system for monitoring the Black Sea waters quality, which allows receiving data regarding the qualitative changes of marine ecosystem.

They provide the Black Sea Commission with the data on the monitoring results in the form of reports.

At the same time it has been determined that inadequate harmonization and standardization of monitoring programs complicates the development of common strategies in the process of mutual struggle against pollution.

The main issue for the Black Sea ecosystem is eutrophication, mainly in result of pollution from agricultural, household and industrial sources.

Discharges of untreated sewage and industrial waste waters in river basins and coastal cities are not adequately supervised.

With regard to the results of conducted audits, supreme audit institutions recommended their governments, in particularly, to:

- Improve Supervision systems, especially to deal with illegal dumping into the rivers and the Black Sea;
- Adopt the strategies for the controlling of pollution carried by rivers;
- Support the implementation of "the best agricultural practice" for the purpose of reducing nutrient inputs from agriculture sources;
- In order to protect the Black Sea environment against untreated waste water dumping, concrete and continuous measures should be taken by all coastal countries to increase the number of waste water treatment plants and improve the level of treatment at the available ones.

Besides the governments, the recommendations were carried out to address the Black Sea Commission, in particular:

- to develop data quality assurance and quality control procedures for all the data and information regarding its activities so that BSIS could be an effective mechanism able to achieve the anticipated targets;

- harmonization of monitoring programs should be achieved;
- with the purpose of comprehensive and practical risk assessment due to gradual increase of oil shipping in the Black Sea, it is essential to ensure better cooperation, scientific data exchange and implementation of “polluter pays” principle;
- to improve scientific regional cooperation.

The Joint Report on the Results of the Coordinated Parallel Audit on Protection of the Black Sea against Pollution was signed and presented at the VIII EUROSAI Congress.

While compiling the Joint Report, participant countries were guided by the following approaches.

Introduction contains information about the significance of the Black Sea to each country.

The Preamble contains information concerning the history of conducting this audit, its general provisions and the information on resources used.

The first section contains general conclusions and recommendations.

The second section contains summaries of national audits, conducted by audit participants, as the basis for carrying out joint conclusions or recommendations.

The third section contains the comparative analysis of auditing data.

The fourth section is devoted to improving international and regional collaboration to deal with pollution.

Free full version of the Joint Report is available at the Accounting Chamber of Ukraine web-site.

The audit has established that the determining factor in forming main environmental problems of the Black Sea is the river flow impact.

The causes of the Black Sea ecosystem pollution include not only activities at sea, but also activities in coastal regions or upper reaches of over 300 rivers, which carry polluted waters. The most full-flowing are Danube, Dnieper and Don. The Black Sea catchment area is fivefold larger than the area of the Black Sea itself.

This is the reason why the Black Sea is so vulnerable to the pressure from anthropogenic activity and its condition directly depends on its basin condition.

Therefore, as the next step of our work, we initiate the conduction of the Coordinated Parallel Audit of Protection of the Black Sea catchment against Pollution in 2012-2013 years.

ARGENTINA

Auditing climate change: a system approach to evaluate, Argentine government response

Background and audit planning

Climate change is the most large-scale and challenging environmental problem. Its potential effects may alter both natural and socio-economic systems in unprecedented ways. Dealing with this phenomenon involves two main strategies: (a) mitigation, which refers to reducing greenhouse gases (GHG) emissions and enhancing carbon sinks; (b) adaptation, which refers to the adoption of measures to reduce the vulnerability of natural and human systems to the actual or potential effects of climate change.

In view of the predicted impacts of climate change on the region (IPCC, 2007), the Special Technical Commission on Environment of the Latin American and Caribbean Organization of Supreme Audit Institutions (COMTEMA-OLACEFS) has prioritized this issue for performing a coordinated audit. The general objective of the audit was to examine the accomplishment of the commitments established in United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP) by the governments of the participating countries.

In Argentina, the Secretariat of Environment and Sustainable Development (SESD) is the highest environmental authority and, as such, it has the mandate to apply international environmental accords –including the UNFCCC–, coordinating actions with other government agencies.

In view of this, Auditoría General de la Nación carried out an audit to examine the performance of SESD in the implementation of commitments acquired by the ratification of the UNFCCC. Specific objectives of the audit were:

- a) To examine whether the governance of climate change issues at the national level is adequate;
- b) To examine whether the government has attained the mitigation commitments established for developing countries (Non-Annex I parties);
- c) To examine the progress attained by the government in the development and implementation of adaptation measures.

Methodology

The evaluation approach was based on the guidelines provided by the International Organization of Supreme Audit Institutions referring to performance audit and environmental audit (INTOSAI, 2004, INTOSAI-WGEA, 2010). Specifically, we built on the system-oriented approach to assess government interventions (INTOSAI, 2004, Appendix 7). Accordingly, we distinguished three spheres of analysis:

1. **Institutional setting:** which comprises the regulatory framework, the organizational structure and resource allocation.
2. **Administration:** which comprises the elements through which the government implements undertakings, i.e., planning, information and resource management and management control (coordination, supervision, monitoring and follow-up).
3. **Products and outcomes:** regarding the attainment of commitments on mitigation and adaptation and the transparency and effectiveness of implementation. Based on the UNFCCC, we grouped commitments in the following categories:
 - a) Mitigation commitments: policy development, policy instruments implemented (including the Clean Development Mechanism –CDM– established by the Kyoto Protocol);

- b) Adaptation promotion: vulnerability assessment, policy development, and policy instruments implemented;
- c) Education promotion;
- d) Research and technology development;
- e) Communications to the Conference of the Parties.

Major Findings and Recommendations

With reference to the institutional setting, we found that:

- The regulatory framework adequately defines the functions of the executive bodies involved in climate change management; these bodies are fully operational. However, internal organization is not entirely in accordance with the regulatory framework, existing overlapping functions among dependencies. While the need for reorganization has been identified by SEDS, the procedure applied for making the necessary institutional changes is not clear and does not comply with legal requirements.
- The national government has established forums for inter-sectoral work at different levels (within national government, with provincial governments, with the academic sector, and with the civil society). These instances favor an adequate representativeness of relevant stakeholders.
- However, the legal status of some advisory bodies has not been properly established, displaying discontinuous functioning, incomplete records of their actions and poor articulation among them.

With reference to administration, we found:

- Poor coordination among government agencies with related functions regarding either mitigation or adaptation to climate change, what precludes efficient, effective and economic action.
- Major deficiencies corresponding to: (a) lack of planning in executive agencies; (b) weakness in information and documentation management procedures; (c) incomplete documentary evidence of financial management; (d) lack of monitoring and evaluation mechanisms at all organizational levels. These problems hinder adequate accountability and preclude effectiveness assessment.

With reference to commitments assumed in UNFCCC, we found that:

- GHG national inventories have been elaborated and published (according to article 4, paragraph 1.a of the UNFCCC).
- Action oriented towards education and public awareness in climate change issues have been undertaken (article 4, paragraph 1.i and article 6 of the UNFCCC)
- Some advances are observed in the promotion of research and development (article 4, paragraph 1.g and article 5 of the UNFCCC)
- Two national communications to the COP have been launched and a third is being worked out (article 12 of the UNFCCC).

The government has developed and implemented a number of policy instruments on mitigation of climate change. Also, CDM has been implemented and supported through various instruments for assisting project proponents. Regarding the conservation of carbon sinks, major progress is represented by the current formulation of a REDD strategy.

On the other hand, main advancements in adaptation entail cooperative pilot actions with governmental and non-governmental organizations.

Common weaknesses in mitigation and adaptation issues are:

- Lack of general plans and/or strategies with specific quantitative goals;

- Lack of implementation of national programs on mitigation and adaptation, already formulated;
- Absence of a database centralizing information on policy instruments developed and implemented by diverse government agencies;
- Lack of performance monitoring and evaluation procedures.

Based on these findings, we recommended that the SEDS:

- Optimizes the climate change institutional framework through reorganizing and strengthening organizational structures involved.
- Completes the formulation of the national strategy on climate change, which will be a key milestone for improving coordination and integrated action.
- Establishes a system for regular planning, with clear and measurable objectives and goals and detailed implementation strategies, making provisions for financial support.
- Establishes a performance monitoring and evaluation system that allows the detection of non compliances and the enforcement of corrective actions.

Lessons learned and Expected impacts

The application of the system- based approach facilitated the identification of strengths and weaknesses in institutional capacity of the government, and assisted in the detection of information and management gaps that should be filled in order to assess efficacy and effectiveness of undertakings.

Expected impacts of the audit are:

- Climate change governance capacity, stewardship, planning and implementation of climate change issues improved at the national level.
- Increased transparency in the management of climate change issues by strengthened accountability arrangements.
- Public informed on the performance of the government and public participation promoted.

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BRAZIL

Audit in the environmental sustainability actions and rational use of natural resources

The subject of sustainability and rational use of natural resources in the Federal Public Administration is based on international agreements and national norms. The objective is to reduce the pressure on the natural resources, to promote a national low-carbon economy, to induce a culture change in the market, based on the strong State purchasing capacity, supporting the suppliers to provide more sustainable options to their clients and to promote sustainable actions in the society, besides promoting citizenship.

According to this bias, an Performance Audit was carried out about the actions deployed by the Federal Public Administration in order to promote a rational and sustainable use of the natural resources, specially the electric power, water and paper. It was also evaluated aspects related to three government programs about this subject. They are: the Environment Agenda in the Public Administration (A3P), coordinated by the Ministry of the Environment; the Program of Waste Efficiency (PWE), coordinated by the Ministry of Planning, Finance and Management and the *Procel* Subprogram of Energy Efficiency in Public Buildings (Procel EEP), conducted by *Eletrobras*, company linked to the Ministry of Mines and Energy.

In the audit, it was evaluated the public bodies' support to the rules about public purchases with the use of sustainability criteria, which guides the separation and destination of the solid wastes generated by the administration, as well as the economic and efficiency principles in the use of public resources.

In order to obtain a wider evaluation of the federal public administration it was opted to carry out a research, sending questionnaires to 71 federal bodies, including unities of the executive, legislative and judiciary. The conclusions were obtained by the answers consolidation, avoiding the individualization of the situations, aiming not to embarrass the respondent and, thus, to achieve a more reliable overview of the real situation.

Regarding the main problems encountered, TCU detected that there is no clear directing of the Central Government to lead the managers to adopt actions to promote the sustainable use of the natural resources. One of the consequences is the large heterogeneity in the promotion of measures of efficiency and sustainability in the federal public institutions and bodies. Some institutions have very new and sporadic actions while others are examples of a sustainable management that could be replied all over the Administration. The adoption of actions with this purpose is mainly a consequence of some managers' individual efforts rather than a Government Policy. It is also a consequence of the lack of guidance to the government bodies to support programs for the rational use of resources.

Furthermore, it was noticed that these programs are not well structured and would not be able to serve the real latent demand of the public institutions, if necessary. Besides, it was observed that the programs have been carried out in a disarticulated way, resulting, therefore, in overlap and dispersion of efforts and resources, as well as a low effectiveness.

Additionally, there are financial sources to promote power efficiency in public buildings that have not been used by the federal government. These resources would be very important in order to promote power efficiency, without compromising the investment budget of the Government. The Global Reversion Reserve possessed, in December 2009, an available balance of R\$ 7.5 billion (US\$ 4,7 billion) and it was verified that this source have not been used to support public projects, although there is legal provision for such purpose. In a similar situation, the resources from portion of operating incomes of the concessionaries and permissionaries of the public services of electric power distribution, which have to be destined to energy efficiency programs. In spite of the investments in the public sector be, by law, a second priority of use, it

was verified that the federal public bodies participated, in the last three years, irrelevantly in this financial source.

Other observations refer to the administrative management of sustainability, in which it was noticed a low level of institutionalization of the rational use of natural resources actions as well as it was verified that the management of sustainability actions encounters itself not much systematized in the Federal Public Administration. Campaigns to make people aware, which depends on an institutional leading, have not been much used by the institutions, despite the fact that they are fundamental to promote an everlasting sustainable culture. The observed result is the management personification, in which the actions are carried out, or not, according to each manager's private judgment, many times not reaching the full capacity of the institution. Consequently, the measures are discontinuous, isolated and are not covered with the proper institutional legitimacy.

It was also verified that 73% of the researched public bodies do not perform sustainable public tenders, in spite of the fact that there is a Law which establishes the National Politics of Climate Change and the norm about the criteria of environmental sustainability in acquisition of goods, hiring of services or works by the Federal Public Administration. In other words, even though they are guided to observe sustainability criteria in their acquisitions, almost three fourths of the researched institutions declare not to follow this normative guidance.

Finally, it was notice that there is a great potential of sustainable use of natural resources in the federal sphere that has not been used. This situation causes, besides financial losses due to not saved public resources, a greater and unnecessary pressure on the use of natural resources and higher national greenhouse gas emissions. In the audit, a potential annual economy of 20% in electric power was verified, which would represent an amount of R\$ 240 million (US\$ 150 million) in the year of 2009, and of 22% in water, which would represent R\$ 67.5 million (US\$ 42 million) per year; thus, only with electric power and water there could be an annual economy of over R\$ 300 million (US\$ 190 million) per year.

Among TCU resolutions, it was recommended that the Ministry of Planning should elaborate an action plan aiming to advise and motivate the public bodies and institutions of the Public Administration to adopt measures to increase the sustainability and efficiency in the use of natural resources. It was also proposed to include, in the TCU's normative that guides the future processes of the Federal Public Administration account provisions, additional information about the execution of measures regarding sustainability, as well as evaluate the possibility of consolidating these information, so that it could be included in the Government Accounts.

Other pertinent recommendations were addressed to the Ministry of Planning, to *Eletrobras* (Brazilian electric power company) and to the Ministry of Environment so that the referred programs may be spread before the Federal Public Administration, informing the given support and the existence of data set about good practices. Moreover, it was recommended that these bodies should evaluate their structure, aiming to provide the programs the necessary conditions to promote the adoption of the actions of rational use, and also to make it available in the internet the organized relation of all the institutions of the Federal Public Administration, with performance indicators and consumption parameters. In addition, it was proposed to the Ministry of Planning to encourage the federal public bodies and institutions to adopt a structured organizational management model and to introduce inner institutionalized programs, predicting formal designation of responsible people, as well as the carrying out of campaigns to make the users aware.

As the end of the audit was recent, being only available since April 2011, there are still no observed impacts, although the TCU has already required, in the annual report of the federal public administration bodies accounts provision, information about the environmental managements and actions to promote the sustainable use of resources.

Regarding the faced challenges, it may be highlighted the large diversity between the federal public bodies, which makes difficult to acquire conclusions that may give an accurate idea of the real situation of the whole federal administration. Among the researched institutions, there are those with thousands of servants and others with few hundreds, even if it enables conclusions regarding the performance of a certain number or proportion of public bodies, it does not enable to make more precise conclusions on volumes and values involved.

After all, it is important to point out that the audits about the administrative behaviors, as the adoption of actions to the sustainable use of resources, imply the questioning about the SAI acting related to the subject. Even though it was not done in this audit, would be important an exclusive topic describing the acting of the SAI that carries out the audit regarding the subject, as this points out a commitment with the SAI's accountability.

CZECH REPUBLIC

Trading of surplus Assigned Amount Units and use of such funds received from the trading

Aim of the audit:

The audit aimed to examine:

- setting of the AAUs surplus trading;
- setting of GSP;
- fulfilment of GSP goals and objectives.

Audit period:

2009 - 2010

Performance of the audit:

September 2010 - February 2011

Type of the audit:

Performance

Audited bodies:

Ministry of the Environment of the Czech Republic (MoE)
State Environmental Fund of the Czech Republic (SEF)

Audit criteria:

Sources of criteria:

- legal framework (including international and national regulations);
- GSP indicators (indicators of direct effects).

Types of criteria:

- **outputs:** definable/measurable outputs of specific activities (e.g., number of supported projects in each area of green savings);
- **outcomes:** direct and immediate effects of support;
- **impacts:** long-term all-society impacts corresponding to the main goals of the environmental effort (contribution to the stability of the global climate system).



ISSUE ANALYSIS

Two key audit questions were set in the context of the audit objective:

- Did MoE set up the emissions trading scheme properly on the national level so it ensures maximum benefit for green savings activities?
- Does SEF provide efficient utilization of time-limited funds received from the international emission trading scheme?

What is the GSP?

The Green Savings Programme (GSP) was designed in the Czech Republic as a tool of fulfilling the Green Investment Scheme.

The Green Investment Scheme (GIS) is a mechanism set in the framework of International Emission Trade. The GIS was designed to achieve greater flexibility in reaching the targets of the Kyoto Protocol while

preserving environmental integrity of International Emission Trade. Under the GIS, trading of the AAUs surplus between the Parties of the Kyoto Protocol can be arranged. The proceeds from the AAUs sales should be “greened”, i.e., channelled to the development and implementation of the projects by either acquiring the greenhouse gases emission reductions (hard greening) or building up the necessary framework for this process (soft greening).

GSP provides financial support to projects aiming at:

- A. Energy savings (thermal insulation)
- B. Constructions in passive standard
- C. Renewable resources used for hot water preparation and additional heating

The expected GSP benefits are:

- o Reduction of CO₂ :
-1.100.000 t/year (comparing 2013/2008)
- o Reduction of local dust pollution:
-2.200 t /year (comparing 2013/2008)
- o Increase heat production from renewables:
+ 3.700 TJ
- o Creating or keeping jobs
- o Limiting the energy import dependence
- o Reduction of emissions of other local pollutants (SO₂, NO_x)



SUMMARY

GSP was launched in April 2009. In accordance to the Kyoto Protocol, the GSP funds should have been used by 31st December 2012. However, the acceptance of applications was prematurely suspended in October 2010, due to the shortfall of funds. By the end of 2010, MoE acquired nearly 20 billion CZK through the sale of surplus AAUs, whereas the total volume of requested funds amounted to 30 billion CZK.

FINDINGS

The amount of AAUs sold and the average price per one AAU sold were close to expectations. The target values of the set objective (CO₂ emissions reduction) were not defined as binding, which will make the assessment of reaching the target possible only in relation to the envisaged different and not-binding values.

The tools for monitoring of interim results in achieving the target value were not set up. Due to the lack of criteria for assessing the efficiency of applications, the maximum efficiency in pursuing the GSP objective was not achieved.

The application administration capacity was overloaded due to insufficient and unclear administration rules. This led to delays in providing of complete and up-to-date information about the GSP development. No assessment criteria were set to minimise administration costs. A part of the audited tenders either failed to demonstrate their economical benefits or resulted in uneconomical expenditure.

Although the Steering Committee was informed about an imminent problem of lack of funds, it did not decide to suspend the acceptance of applications until five weeks later.

The final audit report was published in May 2011, its English version is available at www.nku.cz.