



INTOSAI  
Working Group  
on Environmental  
Auditing

# COMPENDIUM of Country Papers on Environmental Auditing

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# Challenges and success stories in environmental auditing in SAIs

## ARGENTINA

### Satellite Imagery and Geographic Information Systems as tools in environmental auditing

#### 1. Background

Remote sensing and geographic information technology are increasingly being used for the monitoring of natural resources and environmental effects of changes in land use patterns (ESRI, 2013). Nowadays, the use of satellite images together with geographic information systems (GIS) are key tools for analyzing patterns and processes occurring at multiple spatial and temporal scales, such as changes in land cover types, expansion of agricultural borders and ecosystem fragmentation, among others.

Along with its growing utility for environmental scientists and policy makers, it turns out to be an innovative tool in environmental auditing (WGEA 2010). In line with recent developments, the SAI of Argentina, Auditoría General de la Nación is starting to include remote sensing technology in environmental audits.

In the following paragraphs, we present the first application of these tools in an audit on native forests.

#### 2. National context of the audit topic

Native forest conservation policy is set in National Law 26.331, enacted in 2007 and regulated in 2009. The law defines environmental minimum requirements for the conservation of native forests through the establishment of three main public policy tools for native forests: (a) land use planning; (b) management plans; (c) a national fund for conservation actions.

Land use planning for native forests (LUPNF) consists in categorizing and mapping native forests at the provincial level according to one of three categories:

- I. Red: areas of high conservation value, that cannot be cleared and must persist as forest areas. Any form of exploitation is forbidden.
- II. Yellow: areas of intermediate conservation value; may be degraded areas capable of attaining high conservation value through restoration. While clearing is not allowed, sustainable management (scientific research, tourism, silvopastoral management) is permitted.
- III. Green: areas of low conservation value that can be partially or totally cleared for other land uses.

After the LUPNF is legally established, each province is able to develop management plans for native forests. These may be either:

- Conservation plans (CP), directed towards conservation and/or restoration of native forests; these plans may be implemented in any of the LUPNF categories.
- Sustainable management plans (SMP), consisting in the implementation of sustainable activities; these plans may be developed in either yellow or green categories.
- Land use change plans (LUCP), clearing is permitted; to be implemented only in the green forest category.

The National Fund for the Conservation of Native Forests was designed to support the process of LUPNF and the implementation of CP and SMP.

#### 3. Audit approach and methods

We carried out a performance audit on the enforcement of the law with the objectives of: (a) determining the adequacy of native forest governance; (b) assessing the effectiveness of public policy tools on the reduction of native forest loss and degradation.

In order to assess effectiveness, we focused on the provinces of Salta and Santiago del Estero in northern Argentina in view of the conservation value and extent of their native forests.

As part of the audit process, the Secretariat of Environment and Sustainable Development (SEDS) provided us with the Geographic Information Systems (GIS) databases corresponding to the LUPNF at the provincial level, developed according to the requirements of law 26.331. GIS databases include: (a) provincial boundaries; (b) cadastral data; (c) water courses; (c) roads; (e) protected areas; (f) native forest cover; (g) LUPNF categories; (h) management plans (including type, year, project owner, type of intervention, LUPNF category in which the project is located, geographic coordinates).

We used this information together with two independent sources of geospatial information (Landsat images, native forest cover from SEDS 2005, deforestation data from REDAF 2012) to perform an analysis for answering following audit questions:

- Does LUPNF categorization at the national level ensure coherent protection of native forests among ecoregions?
- Is on the ground action taking place according to what was planned?

For answering the first question, we overlaid the GIS data on provincial boundaries, water courses, protected areas and LUPNF categories with satellite images and forest cover.

For answering the second question, we used the GIS data to select sites for a field survey to validate data on management plans in the field using GPS<sup>1</sup>. For site selection, we applied the following criteria: (a) LUPNF category in which the project is located (we selected sites located in the red category); (b) type of management plan (we prioritized CP); (c) accessibility (sites should be located in areas accessible by paved roads). Information gathered in the field will be overlaid with GIS data on management plans and independent deforestation information.

#### 4. Preliminary findings

Although the audit is still ongoing, and validation of management plan implementation is still pendant, some general patterns arise at the ecoregional level of analysis.

Preliminary findings indicate that there are discontinuities in land use planning for native forests categorization among adjacent provinces. Additionally, although land use planning for native forest is, in general, coherent with protected areas conservation categories, ambiguities and/or inconsistencies remain in some areas. This represents a threat to the preservation of biological corridors at the ecoregional level and affects the maintenance environmental services, which are general objectives of the law.

#### 5. Lessons learned and expected impacts

The application of the geographic information technology proved useful both in the planning and execution phases of the audit process and opens a new scenario for examination. Indeed, in the present case, these tools allowed analyses that would not be feasible otherwise. In particular, benefits derived from the application of these methods were: (a) the capacity to evaluate effectiveness of policy instruments developed by the government at different spatial scales; (b) the crossing of geoinformation provided by the auditee with independent sources of evidence; (c) the identification of gaps and inconsistencies in native forest management; (d) a thorough way for defining sample sites for field surveys.

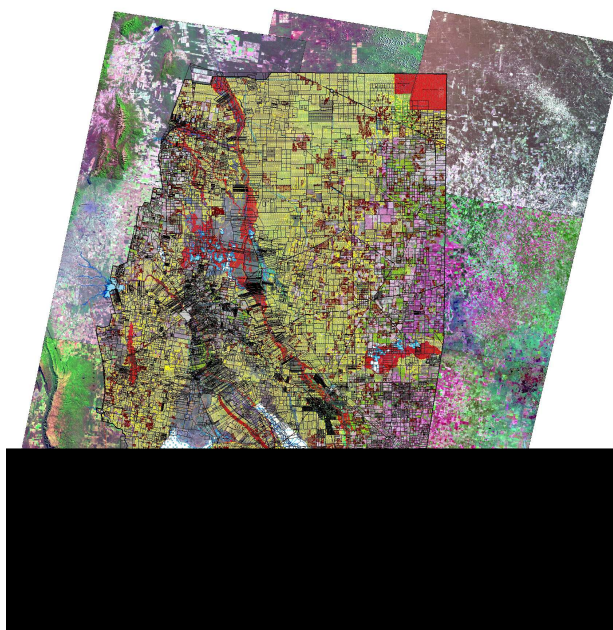


Figure 1. Landsat images and GIS information on LUPNF of the province of Santiago del Estero, Argentina.

<sup>1</sup> Global Positioning System is a system of radio-emitting and -receiving satellites used for determining positions on the earth.

Expected impacts are to promote increased native forest governance and monitoring, in order to accomplish national policy on the subject matter, and to facilitate the understanding and communication of audit results to different audiences.

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# Challenges and success stories in environmental auditing in SAIs

## BHUTAN

### Success stories of development in environmental auditing in SAI Bhutan

#### 1. A brief background of SAI Bhutan

The Royal Audit Authority, SAI of Bhutan, is a constitutional body with the Auditor General as the head of the Institution. The Article 25.1 of the Constitution of the Kingdom of Bhutan provides as “There shall be a Royal Audit Authority to audit and report on the Economy, Efficiency and Effectiveness in the use of Public Resources”. This is a vast and all- encompassing constitutional mandate of the SAI of Bhutan. The Audit Act of Bhutan 2006 provides that the SAI has the authority to take up any kinds of audit in order to promote Economy, Efficiency and Effectiveness in the use of public resources.

A full-fledged Environmental Audit Division established by the SAI is one of the initiatives undertaken to fulfill the constitutional mandate. Since the establishment of a dedicated Division, a wide range of thematic issues and topics were audited and reported to the Parliament of the Kingdom of Bhutan. The RAA audited and reported on the following environmental issues:

- Solid waste management of Thimphu (capital) and Phuentsholing City;
- Medical waste management of JDWNRH (Thimphu) and Phuentsholing General Hospital;
- Park Management System in Bhutan ;
- Audit of Industries on environmental compliance;
- Audit of Mining Operations in Bhutan;
- Audit of Multilateral Environmental Agreements;
- Audit of Drinking Water Supply and Sanitation;
- Audit of Environmental Issues in Forestry – the National Forest Inventory (NFI), Forest Fires & Watershed Management; and
- Audit on Sustainability of timber Harvesting

#### 2. Methodology applied for the environmental audits

The environmental audits are conducted primarily through the lens of performance audits, focusing on whether the economy, efficiency and effectiveness of plans, programs, projects, activities related to environment have been achieved. Nevertheless, as a country that is just transiting to democratic system, it was important for the SAI to see and verify if the laws, rules and regulations are duly complied with by the agencies charged with environmental governance. Therefore, the RAA had mainly conducted environmental audit from the perspectives of performance and compliance audits.

The SAI conducts two to three environmental audits in a year by engaging two teams of three auditors, who have been exposed to trainings in the field of environment or environmental auditing.

Audit planning usually takes around 3-4 months depending on the scope and complexity of the audit. Execution phase takes around 6-12 months and even more and reporting phase takes 3-4 months. Audit topics are selected based on various criteria laid down in the Environmental Audit Guidelines. For broader coverage, the SAI also invites topics of audit interest from other government agencies and other Divisions of the RAA. Topics are selected eventually by applying selection matrix.

Execution of audit as anywhere else is conducted through numerous audit tools and techniques. Some of the commonly deployed techniques are physical verification of sites, meeting with the executives, review of documents and reports of agencies, survey questionnaires, interviews, audio-visual evidences, and seeking external expertise. The RAA also takes guidance from the resources available in the websites of INTOSAI, IDI, ASOSAI and others SAIs.

#### 3. Findings and Recommendations

Preliminary audit findings are issued to the agencies concerned in the form of discussion papers. Upon discussion with audited agencies, analysis of information and further examination of additional evidences draft report is issued to agencies for comments and factual confirmation of audit findings and conclusions.

Audit Report is initially drafted by the audit team which then goes through series of quality review process. This includes vetting and reviews viz., by the Chief of the Division, the Head of the Department, Quality Assurance Division and even by the Auditor General. The SAI also engages subject matter experts from other independent institutions to comment and provide feedbacks on the environmental audit reports.

As required by the Audit Act, the environmental audit reports are submitted to His majesty the King, the Prime Minister, Parliament and the Chairperson of the Royal Civil Service Commission besides forwarding the copies to the Minister and Heads of the audited agencies concerned. As an apex body, environmental audit reports are invariably shared with the National Environment Commission of Bhutan.

#### **4. Impacts and Results of the Environmental Auditing**

The SAI has established close institutional links with the Public Accounts Committee (PAC) and the Anti-Corruption Commission (ACC) of Bhutan. Many environmental audit reports have been accorded high priority by the PAC and were deliberated in the Parliament of Bhutan and have directed the audited agencies to act upon the audit reports.

The Anti-Corruption of Bhutan taking lead from the environmental audit report investigated and taken legal and other actions including imprisonment of those involved in corrupt practices. Media have also played a critical role in disseminating audit findings and recommendations to the common citizens. Many issues in the audit report were re-produced by media that created strings of reaction amongst the Bhutanese society.

Audit reports and recommendations created greater awareness of environmental issues and concerns amongst executives and the Bhutanese society.

There have been many visible impacts created by environmental audit reports which included instituting and strengthening internal control and other systems and practices, legislative reforms, enhancing public service delivery and transparency in decision making. The commitment of the Royal Government of Bhutan towards promoting good governance and public accountability has accorded importance to all such reports by addressing the issues in the Parliament. Amongst many, some of the apparent impacts created are as highlighted below:

- 1) A 'Mineral Development Policy' has been framed which is expected to enhance better mining practice, transparency in processing and decision making of mining licenses, which gives emphasis of 'Ecology over Economy' ensuring cautious mining and equitable distribution of resources among all section of the Bhutanese society.
- 2) The Department has also instituted the concept of 'community development fund' where a mining company has to contribute 4-5 per cent of their profit to the fund as compensation to the community. The concept of Corporate Social Responsibility is also being gradually recognized.
- 3) Public consultation of the affected community by mining and quarrying operations is now more democratic and inclusive. Consent of local community must be obtained for mining operations.
- 4) The responsibilities and authorities of the Department of Forest and the Department of Geology and Mines (DGM) were also defined clearly as the consequence of the RAA's findings.
- 5) The audit recommendations of municipalities acted as an impetus both for the implementing agencies and the legislators to expedite and enact the waste management bill, improving on other aspects of solid waste management with designated dumping sites and identification of new land fill site including construction of wall fencing to prevent dumping waste in the storm water drain of the city.
- 6) The medical waste management in two hospitals – Thimphu and Phuentsholing now has a robust system of segregating waste at the point of origin, dedicated team to monitor medical waste, change in the timing of transporting medical waste from the hospital to the disposal area, conducted formal trainings on medical waste for waste handlers etc.
- 7) The hospitals in the Capital have now switched to electric cooking system saving huge quantities of firewood for cooking patients' food. This system is now implemented nation- wide in many different religious and academic institutions.
- 8) Proper zoning of parks into several zones such as core, buffer and multiple use zones for scientific management of parks was one of the main recommendations made by the RAA in the audit of Parks Management System in Bhutan, which has been implemented. Further, other recommendations such as timely completion of management plans, constant monitoring of



activities by park officials, maintenance of species diversity through proper inventory has also been implemented.

- 9) There is now better harmonization of plans between the Parks and local Governments which avoided overlapping and duplications of resources and efforts.
- 10) As recommended, one public school which was initially located in the close vicinity of the industrial estate has been relocated to a safer location.
- 11) Following the audit of water supply and sanitation, the government has initiated a nation-wide study of water supply to study on the adequacy of supplies and safety of drinking water, especially in the rural population. This exercise is expected to address the issues not only of shortage of drinking water but the safety of the water as well.
- 12) There has also been improvement in the management of financial and other resources as a result of environmental audit reports and recommendations which also invariably incorporate recommendation to develop standards, benchmarks and adopt best practices.
- 13) There have also been improved environmental compliances because of better monitoring and enforcements including imposition of fines, penalties and rejections of project proposals not meeting environmental criteria.

## **5. Challenges and barriers**

Given the importance of environment in the fragile landscape of Bhutan and the colossal mandate to preserve environment in the face of rapid modernization, the SAI of Bhutan has an equal, if not more responsibility as an oversight body to audit and report independently on the state of Bhutan's environment. Through independent environmental auditing, the SAI of Bhutan is aligning its audit efforts in achieving the country's development philosophy of GNH.

For the SAI of Bhutan, challenges lies with the SAI's ability to align its audit efforts with the GNH, development philosophy of Bhutan, which is already recognized and integrated in the five year plans and policy and budgeting system of the nation by making the audit methodologies, procedures and techniques responsive to such changing needs.

## **6. Lessons learned**

Environmental auditing can create huge impact on the conservation of environment. The SAIs should strengthen its capacity to carry out environmental audits.

Objective assessment and reporting of the impact of resources and efforts made for environmental conservation is rendered difficult due to global nature of environmental concerns and degree of complexities involved. Many environmental concerns being trans-boundary in nature, environmental conservation calls for collective commitment and efforts on the part of global community.

Environmental impact assessments usually require longer time frame as it takes time to create impact for any policy or activity. The SAIs should be mindful of this fact and should not jump to immediate conclusions of the impact of environmental conservation efforts.

Environmental reporting is neither adequate nor comprehensive enough to indicate true measure of impact of efforts made and state of environment. There is a need for developing comprehensive environmental reporting framework.

Audit reports should be objective and constructive and reflective of true state of environmental affairs. Audit recommendations must be relevant, useful and implementable. Photographic and visual images are usually found very powerful tool in reporting. Such images are easily understood and create immediate impact on the readers.

Trans-regional approach in environmental auditing helps develop new auditing methodologies and techniques, promote greater co-operation and provide strong platform for sharing of experiences. Audits conducted collectively through such a common platform may also provide strong voice in influencing greater commitment and cooperation on environmental conservation efforts amongst many countries across world.

The national priority dictates the need and usefulness of environmental audits.

Support and commitment of Head of SAIs to a large extent influence the effectiveness of environmental audits.

The United Nations has adopted Bhutan's proposal to include happiness as the Ninth Millennium Development Goal (MDG) in the 65<sup>th</sup> Session of the UN General Assembly. It is likely to promote the concept of GNH signifying acceptance of this all inclusive concept of development amongst many nations. Increasing awareness amongst other countries of the concept of Gross National Happiness and integration of elements of GNH in their developmental policies and plans will help SAIs to develop common auditing methodologies and techniques.

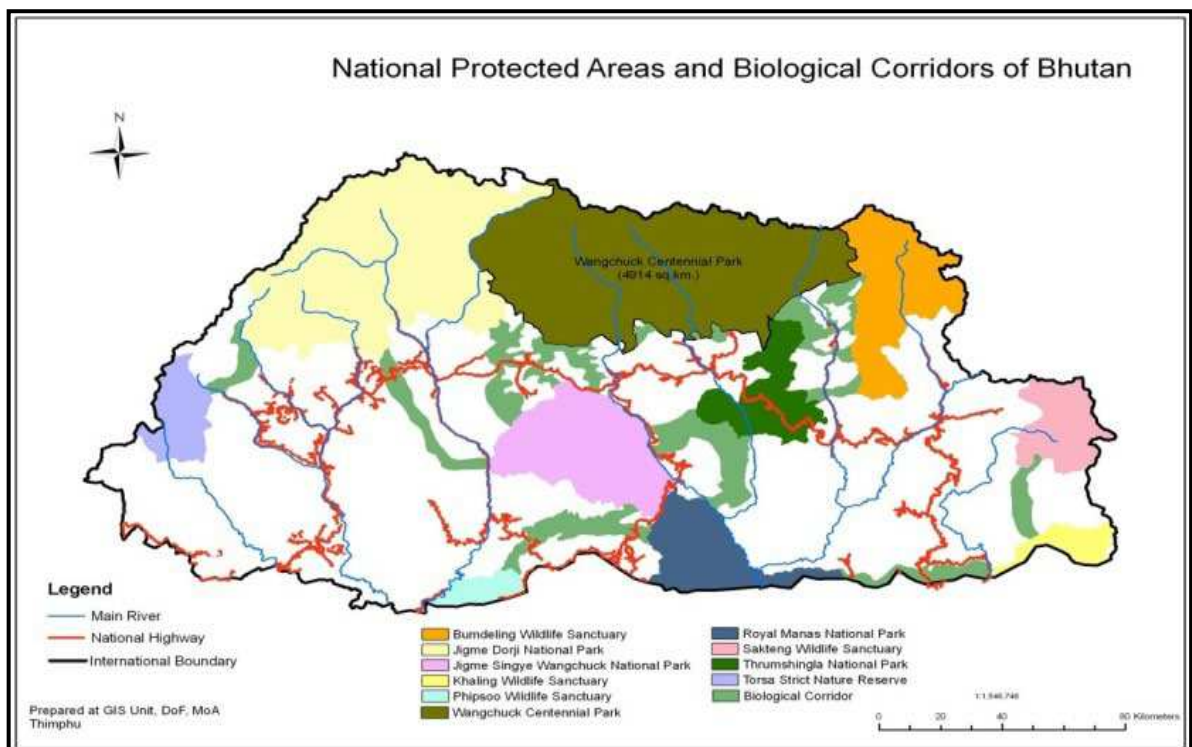
## Exhibits

### Country Profile with environment perspective

Bhutan is a small Himalayan country with a total area of 38,394 square kilometers and population of over 700,000 wedged between the two most populous countries, China in the North and India in the South. 'Environment' has always been placed at the center of all socio-economic activities by the successive Monarchs of the Kingdom of Bhutan.

- The Constitution of the Kingdom of Bhutan requires to 'maintaining at least sixty percent of the total land area as forest cover for all times to come';
- Bhutan follows a unique development philosophy called the Gross National Happiness (GNH), in which environmental conservation is one of the four pillars;
- Bhutan has ratified more than 13 International Multilateral Environmental Accords and many other regional accords which is a direct evidence of not only Bhutan's commitment in conserving its own bounded environment but a partner in global environmental governance and
- Bhutan has pledged to remain 'carbon neutral' in the Conference of Parties (COP 15) held at Copenhagen, Denmark in December 2009 and is being implemented through numerous policy intervention.

### Bhutan's current state of environment



Bhutan's environment is largely intact, excelling in many of the key indicators for health of a country's natural environment. Some of the broad facts about Bhutan's current state of environmental affairs are as follows:

- Its forest cover stood at 80.89% in 2010, covering an area of 31,058.17 sq. km.<sup>2</sup>
- Bhutan ranks top in terms of proportion of forest cover to its land area amongst the countries in Asia. Bhutan has designated 51.44% of its total land area as protected areas, accounting for 19,703.57 sq. km.
- Bhutan is ranked in the top ten percent of the world's countries with the greatest species diversity (species richness per unit area). It has been designated as one of the ten Biodiversity Hotspots in the world and the Centre of 221 Global Endemic Bird Areas.
- Many ecologists believe that Bhutan represents the last best chance for the conservation of biodiversity in the Eastern Himalayas, a region of critical importance.
- The air quality in Bhutan is also very clean with per capita emission of (-) 5.89 tons of CO<sub>2</sub>, meaning it presently sequesters more than what it pollutes.
- Bhutan's water resources at the macro level is in a very good state, rather very pristine and per capita availability of water per annum is 73,000 m<sup>3</sup> which is one of the highest in the world.



However, Bhutan as any other member nations of the World, cannot afford to remain complacent and continue to 'grandstand' on issues as sensitive, vulnerable and dynamic as environment. There need to be continual political and policy intervention to manage and govern environment not only to conserve environment but also manage environment as primary source of all economic activities.

Further, the biggest challenge of environmental management is that the issues confronting today are mostly of trans- boundary and inter-generational nature; the most prominent one being the climate change. Therefore, the management and governance of environmental issues goes far beyond the geographical boundaries of a nation and therefore requires genuine commitment and policy intervention at regional and international level.

While Bhutan is fortunate to have been gifted with excellent State of Environment, the country's pristine environment is constantly thwarted by rapid socio-economic development, urbanization, industrialization and expansive agricultural system, all to sustain an ever increasing population growth in the country. The impacts of climate change in Bhutan today is no more a theoretical rhetoric, but a reality. The Glacial Lake Outbursts Floods, Forest fires, Extreme weather conditions, Loss of habitats are all but being experienced in real in Bhutan. Increasing population coupled with craze for modern consumerism is generating burgeoning wastes in the urban centers that are far beyond the carrying capacity of the environment and waste managing authorities to manage the waste that is supposed to be managed.



With transformation of the system of Government from monarchy to constitutional democracy and political parties assuming central role in setting priorities and framing development policies in keeping with their promises, considerable pressure is likely to be exerted on the environment.

<sup>2</sup> Bhutan Land Cover Assessment 2010

Considering the above facts, the role of the Royal Audit Authority in conducting and reporting on issues of environmental matters are extremely important in Bhutanese context, primarily due to two reasons; firstly due to the rapid transition of political economy the country is experiencing and secondly and perhaps more crucially, because of the country's overwhelming constitutional mandate to conserve environment for posterity, which were briefly mentioned above.



Environment is deeply embedded in the Bhutanese way of life. This deeply held belief that the natural environment is fundamental for survival of all sentient beings are appropriately extended into Bhutanese legislative system and environment governance system.

Bhutan's commitment in protecting and preserving the fragile mountain ecosystems and its natural forests is enshrined in the Constitution of the Kingdom of Bhutan. Article 5.3 of the Constitution stipulates as '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.' We in Bhutan follow a unique development philosophy called the Gross National Happiness or GNH in short. Amongst the four pillars to achieve the GNH, preservation of environment is one of them and is accorded high priority by the government. Therefore, the RAA, the SAI of Bhutan is an indispensable lynchpin in the overall scheme of Environmental Governance in the country.

# Challenges and success stories in environmental auditing in SAIs

## BOTSWANA

### **Coordination of the implementation of the United Nations Framework Convention on the Climate Change and Kyoto Protocol – Department of Meteorological Services**

#### **BACKGROUND**

The effects of climate change in Botswana include among others; floods, drought which has adverse impact on food production and ultimately affect other sectors such as health, the change in rainfall patterns as well as the shifting in the water bond diseases belt such as malaria. The increase of global warming prompted Botswana Government to attach great importance on climate change issues. Therefore, in realising that climate change is a reality, Botswana became signatory to United Nations Framework Convention on Climate Change (UNFCCC) in 1994 and also ratified the Kyoto Protocol in 2005. Botswana is committed inter-alia to;

- Provide a National Inventory of sources and sinks of green house gas.
- Develop National Programmes for reducing emission of green house gases and developing strategies to combat the impacts of global warming and climate change.
- Develop and elaborate appropriate and integrated plans of adaptation to the impacts of global warming and climate change.
- Take account of global warming and climate change in all social, economic and environmental policy and action.
- Promote public awareness and cooperation with the Non-Governmental Organisations and reporting steps taken to implement the Convention to the Conference of the Parties.

In addition, the Government established National Committee on Climate Change (NCCC) to oversee the preparation of the National Communications to the UNFCCC Secretariat and the Conference of the Parties; and ensure the formulation of appropriate national responses to climate change issues.

#### **Importance of the Topic**

As Botswana is vulnerable to climate change impacts, it is important for the country to be pro-active by having a focal point to coordinate and implement the Convention and its Protocol obligations.

#### **Standards**

The audit was conducted in accordance with the INTOSAI-WGEA Guidelines on Auditing Government Response to Climate Change.

#### **Objective**

The audit objective was to assess how the Department of Meteorological Services (DMS) which was the Designated National Focal Point of all climate change issues in Botswana coordinated the implementation of the obligations, as provided for in the UNFCCC.

#### **Scope**

The audit focused on issues related to the attainment of Botswana's commitment to the obligations as captured above. The audit covered the period from the year 2001, when Botswana issued its Initial National Communication to the Conference of Parties (COP) Secretariat, until 2009/2010.

#### **METHODOLOGY**

Interviews were conducted at the DMS to understand how the Department performed its role as the Designated National Focal Point for climate change issues in the country.

Documents were reviewed to understand climate change scenarios in Botswana, regulatory frameworks; and the achievements made so far, in terms of responding to the impacts of climate change.

Seven (7) out of Sixteen (16) synoptic stations countrywide were visited to assess the conditions of meteorological instruments.

## **FINDINGS and RECOMMENDATIONS**

The following are some of the significant findings:

- There was absence of an over arching policy on climate change, to harmonise the different pieces of legislative frameworks that impacted on climate change. The policy would have assisted in integrating climate change objectives in relevant policy areas aimed at the energy, business, transport, households, agriculture, forestry and land use.
- There was no established long term Action Plan to successfully implement the Commitments under the Convention. The plan, if developed, would have provided specific objectives and detailed performance indicators for achieving climate change Commitments as well as to state the targets to be attained under each commitment and the cost-benefit analysis of implementation.
- The DMS had not effectively executed its coordination role because it strived to convince all stakeholders to own up to the responsibilities directed at developing objectives, implementation strategies for adaptation which will be part of the broader climate change policy, as well as monitoring and evaluation criteria for climate change activities.
- There had been delays of approximately five (5) and seven (7) years to produce and submit the Initial National Communications and Second National Communication respectively, to the UNFCCC Secretariat. This meant that the country missed on the opportunity to propose on the projects which supported its financial and technological needs to effectively reduce the greenhouse gases emissions.
- The country's National Inventories of anthropogenic by sources; and removals by sinks of all greenhouse gases were not periodically updated and published thus breaching the provisions of Article 4.1 (a) of the Convention on Climate Change. The absence of the updated database meant that analysis had not been able to have access to reliable and sufficient data that would have assisted to map realistic trends in the production of greenhouse gases in Botswana.
- Gaps were observed in the meteorological database maintained by the focal Department due to malfunctioning instruments.

## **RECOMMENDATIONS**

The DMS should:

- Develop a policy on climate change to address critical areas as outlined in the UNFCCC and the Kyoto Protocol.
- With the assistance of the NCCC develop a National Framework of Actions; and ensure that relevant stakeholders integrate climate change into their Development Plans, thus making a climate change risk reduction a priority.
- Periodically publish inventories of anthropogenic emissions by sources, and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies agreed upon by COP.
- Ensure that all required meteorological observing instruments at all the synoptic stations are fully functional and maintained on regular basis. This will assist DMS to provide reliable and accessible data for future reference and informed decisions.
- The Government should empower the NCCC to efficiently deliver on their climate change mandate, to enable better coordination of climate change activities in Botswana.

## **IMPACT and RESULTS**

Management stated that they valued the report and indicated that it had systematically identified areas that the DMS has to address and promised that they would use the report to monitor progress of implementation and resolutions of the issues raised. In addition the DMS indicated that with the formation of Parliamentary Climate Change Committee they hoped that the issues of climate change will be taken seriously by other sectors.

The Government has approached World Bank to provide expertise to develop a climate change policy which will be over arching. This will be to infuse climate change in the country's Development Plans.

## **CHALLENGES AND BARRIERS**

The data was always not forthcoming. Expertise on Environmental Audit in the office is limited. There are no Performance Indicators to measure the impact of climate change.

For further information contact Ms Botho Entaile at [bentaile@gov.bw](mailto:bentaile@gov.bw). These Reports have been posted to the SAI Botswana website (<http://www.oag.org.bw>).

# Challenges and success stories in environmental auditing in SAIs

## BRAZIL

### Challenges in environmental audit for the Brazilian Court of Audit

The Brazilian constitution confers to the Federal Court of Accounts the authority to conduct audits with accounting, financial, budgeting, operational or capital focus in the Legislative, Judiciary and Executive Power units. Such mandate enables the conduction of all types of audits in public policies related to the use, management and conservation of the environment.

The mobilization of a group of people dedicated to the analysis of environmental issues in the TCU took place as from 2001. At first, the group was linked to the department responsible for public works audits. Subsequently, the theme came to integrate the department responsible for the analysis of the management acts of the Brazilian Ministry of Environment. Currently, the environmental audits at TCU are predominantly conducted by a division – formed by 12 auditors - who are responsible for the management acts of the Ministry of Fisheries and the Ministry of Environment, as well as the department responsible for the agricultural function control.

Besides the institutional changes that took place along the years, the demands for the team of auditors changed due to the evolution in the country's economic and social situation.

In 2006, for example, new internal rules were edited and determined the analysis of the environmental licensing processes for public concessions. Among those concessions were several infrastructure projects, such as hydroelectric plants and highways. From that regulation, came the need to invest in qualification with a focus on the analysis of environmental studies of large-scale projects with different characteristics and complexities.

Large-scale infrastructure projects in Brazil go through conflicting environmental licensing, especially due to social and cultural issues involved. An increasing challenge for the group of auditors from the environmental board is to include the analysis of social aspects related to the projects in the assessment of the environmental license. In Brazil, the agency responsible for environmental licensing also needs to mediate social, indigenous and traditional communities conflicts. The difficulty found by the manager in this aspect reflects in the work developed by the auditors.

Another theme that, recently, started demanding attention from the auditors was the edition, in 2011, of specific laws legitimizing the adoption of sustainability criteria for purchases carried out by the public authority.

Considering TCU's mandate to inspect bidding procedures is concerned, the team of auditors of the environmental department started facing demands related to the challenges of conciliating the requirement of sustainability criteria in the acquisition of products and services with the principle of economy and the requirement to ensure the competitiveness of public bidding.

Another challenge for TCU in the analysis of environmental public policies lies in the fact that a great deal of the environmental issues in Brazil are treated in a decentralized way by states and municipalities, that is, outside the institution jurisdiction area. In order to attain a complete external evaluation of issues, such as illegal logging or solid waste treatment system, the participation of state and municipality control institutions is made necessary. Aiming at strengthening such state and municipality institution network, in 2013, the first audit in environmental cooperation between the Federal Court of Accounts and the control institutions of the legal Amazon states initiated.

The aim of the work is to evaluate environmental governance acts for the preservation units of the Amazon region at federal and state levels. As a supplementary objective, we aim at the institutional strengthening of the participating institutions, from the sharing of acquired knowledge by TCU over the years of experience on the topic, and involvement with the environmental international groups WGEA and Contema (theme committee of the regional group).

Internally, a challenge confronted by TCU is to involve other departments responsible for the analysis of management acts of entities that provoke environmental impacts in the analysis of environmental issues, since such matter permeates most part of public policies in the country.



# Challenges and success stories in environmental auditing in SAIs

## BULGARIA

### Challenges of environmental auditing

Bulgarian National Audit Office carries out environmental audits since 1999. During this period 18 audits directly related to environmental policy implementation, as well as 27 financial audits and financial management audits were carried out in different fields: water management and preservation, air clearness, climate change, sustainable development, monitoring activities, ecological evaluation and environmental impact assessment, territories protected etc. BNAO auditors have participated in 4 joint cooperative audits.

The experience gained helps us to improve constantly the quality of our audit work. At the same time in the last 10 years several problems creating difficulties for performing an effective and efficient audit or leading to a limited audit scope emerged:

**1.** One of the greatest challenges is to determine the structures directly related to the audit subject and which have to be included in a detailed review.

The realization of the environmental policy is assigned to several institutions. For example, the Ministry of Environment and Water shares the water management with the Ministry of Regional Development and Public Works, Ministry of Agriculture and Food, and the Ministry of Economy, Energy and Tourism. Certain responsibilities are also assigned to the local self-government bodies, mayors and district governors.

This problem is additionally complicated by participation of water users association and trading partnerships (state and private), in charge of water use and sewage services in settlements, irrigation and hydro melioration, energy, etc., as well as ecological infrastructure management investments.

Therefore the selection of audit topics for water management in the annual audit programme for the respective year requires the application of horizontal approach and careful evaluation of the problems aimed at audit scope limitation of the possible subject, according to the resources available.

The above-mentioned problem exists in other directions too: waste management, clarity to air quality, biological diversity etc.

**2.** The great number of participants in the realization of the environmental policies at different levels requires multifactorial analysis of the problems in audit tasks planning and leads to audit scope limitation, based on the risk-assessment. The wrong selection of the audit scope creates risk important aspects and problems not to be taken into account. On the contrary, too broadened audit scope does not allow the audit to be performed in an effective way.

**3.** One of the problems in carrying out environmental audits is the lack of enough information or the lack of validated information and comparable data for a continuous period of time. For instance, though the National Water Monitoring System is established in the midst of 90-ies, the database maintained by the Executive Environment Agency contains omissions due to certain changes in some of the monitoring points. Information for the transboundary waste shipment is collected and maintained by some administration bodies for different purposes. As a result the factual amount of the waste quantity which is imported/exported in/from Bulgaria yearly can not be identified; comparison can not be made between the ratio of imported and exported waste to the national waste production, as well as the ratio of imported and exported waste to the capacity of waste treatment plants. The monitoring system does not contain information for the biological diversity.

The lack of enough and comparable information does not allow a thorough analysis to be made and leading tendencies to be outlined, and often hinders the process of formulating well-grounded findings based on quality measurable indicators.

There is no unit within the BNAO structure in charge of supporting auditors in formulating statistical samples. Therefore there is a risk for the correct selection of the audit sample and respectively a risk for the accuracy and thoroughness of the findings, evaluations and conclusions made.

**4.** Another difficulty, frequently met in practice, is hiring the appropriate external experts. Since Bulgaria is a small country, experts in certain environmental fields are not so many. Most of them are related to some way (by contract, expert statements, participation in expert boards, etc) with the Ministry of Environment and Water or with other audited entities. Collecting statements by different sources of information does not always lead to overcoming this problem.

Searching for cooperation or expert support by non-governmental organizations do not contribute significantly to dissolving the problem. Non-governmental organizations' interests are concentrated in certain areas mainly related to preservation of protected territories and biological diversity. There are hardly a few NGOs that work in the field of wastes, noise, climate changes etc. Most of the NGOs are not very active and they prefer to protect their own or other persons' economic interests in certain fields.

**5.** The BNAO carries out audits in compliance with INTOSAI standards from the beginning of the century. In spite of the specialized trainings held, including with colleagues from other SAIs, the Bulgarian auditors still meet difficulties in the application of complex methods for collecting information and analysis, especially as it refers to impact assessment of the policy implementation.

**6.** The allocation of responsibilities among many and various persons complicates the processes of defining and holding responsibility in cases of omissions or violations identified, as well as giving appropriate recommendations.

**7.** Environmental issues are an extremely sensitive area concerning both social and economical interests. For that reason they are frequently used by political structures (parties, organizations, coalitions) to struggle against their opponents in or outside the Parliament. Therefore, auditors should be extremely aware and precise when formulating the findings, evaluations and conclusions contained in the audit reports. The existing high risk for misinterpretation of the audit reports for narrow political interests creates challenges to the selection of the appropriate time and measures for each of the audit reports to be communicated to the public.

# Challenges and success stories in environmental auditing in SAIs

## CZECH REPUBLIC

### Funds collected in accordance with Act on Hazardous Waste Management

#### Information on audit No. 12/20

Subject of audit:

Funds collected in accordance with Act on Hazardous Waste Management.

Aim of audit:

The audit aimed to examining collection of funds in accordance with Act on Hazardous Waste Management.

Period of audit performed:

The audit was carried out from July 2012 through to January 2013.

Period audited:

The period from 2007 to 2011 was reviewed, and preceding and subsequent periods were reviewed with respect to substantive correlation.

Type of audit:

Legality

Performance

Auditees:

Ministry of the Environment;

The State Environmental Fund of the Czech Republic;

The Czech Environmental Inspectorate;

and 14 selected landfill operators.

#### Introduction

Audit no. 12/20 was a follow-up to audit no. 05/28 "Management of the State Funds dealing with Hazardous Waste", which the SAO conducted in 2005. Audit no. 12/20 checked whether the waste management system, or specifically the collection of finances collected by law in respect of the disposal of hazardous waste, has changed and whether the identified systemic shortcomings have been eliminated. The audit also scrutinised compliance with selected legal obligations in the field of waste management by individual auditees.

The fee for landfilling consists of two components. The basic fee component is paid for placing the waste in a landfill site and is revenue of the municipality whose territory the landfill site is in. For hazardous waste, an additional risk component is paid, which is revenue of the State Environmental Fund. The fee tariffs are laid down in Annex 6 to Act No. 185/2001. In 2007 and 2008 the tariff of the risk fee component for hazardous waste landfilling was CZK 3,300 per tonne; since 2009 the tariff of the risk component for hazardous waste landfilling has been increased to CZK 4,500. Hazardous waste containing asbestos is charged by the basic fee component only. The tipping of waste such as technological material for the technical securing of the landfill site and waste intended for landscaping is entirely exempted from fees.

#### Principal findings

In the period from 2007 to 2011 a growing difference between the quantity of chargeable and not chargeable landfilling of hazardous waste was detected in the audited sample of landfill operators. The audit found that 7.21% of the total quantity of landfilled hazardous waste carried a fee and 92.79% was exempted from fee in 2007. In 2011 the proportion of not chargeable hazardous waste increased to as much as 98.49%, so a fee was charged for just 1.51% of hazardous waste placed in the landfills. Consequently, almost 100% of the waste managed by the selected landfill operators handling waste is exempted from the risk fee.

The State Environmental Fund, which is the beneficiary of the risk fee component, has no legal powers to check the payment and transfer of these fees by landfill site operators; it did not and cannot know whether it obtained the right amount of fees.

The increase of the risk component tariff in 2009 did not result in increasing of revenues for the State Environmental Fund, even though the audit of the audited sample of landfill site operators found that an increasing amount of hazardous waste is being placed in landfills.

One of the main reasons for the State Environmental Fund's falling revenue from the risk fee component is that the system enables the hazardous waste to be disposed of in ways exempted from fees even though this hazardous waste is actually being placed in landfill sites. The upshot is that a large quantity of hazardous waste is being placed in landfill sites without any feedback in the form of funds that the State Environmental Fund could use in the field of waste management or environmental protection.

### **Recommendation**

In the light of the SAO audit it is necessary to consider and re-evaluate the system for collecting funds under the act on the hazardous waste management.

# Challenges and success stories in environmental auditing in SAIs

## COLOMBIA

### Progress and challenges in finance control in Colombia

The General Controller of Colombian Republic strongly acknowledges the words said by United Nations General Secretary Ban Ki Moon, in the celebration of International Day Against Corruption, on the 9<sup>th</sup> of December 2012: “ The cost of corruption is measured not only in the hundreds of billions dollars stolen or mismanaged, but also, and in a cruder way, in the lack of hospitals, drinking water, roads and bridges that could be built with such resources and that, no question, would have changed the fate of the families and communities.”

It is difficult to have a precise estimate around the cost of corruption in Colombia. Nevertheless, on defense of Anti-corruption Statute project, it is considered that losses due to that concept reach US \$30 billion dollars every year. Even more, some experts have managed to say that, including hidden corruption, the figures could get US 50 Billion dollars.

In terms of Transparency International Index, Colombia is ranked 94<sup>th</sup> among 176 countries counted in 2012, with a score of 36 under 100 points. According to studies made by The General Controller of Colombia, 79% of citizens trust a few (41%) or nothing (38%) in accountability processes. 91% of the people acknowledges to have ever been involved in corruption or bribery actions. Finally 88% feels that always or almost always the public funds are diverted to private destinations, on personal behalf of third parties.

The General Audit of the Colombian Republic insists that “60% of contracts within the country are assigned directly and with no contest process, and this puts in in a risk \$26 billion pesos in the whole national territory (US\$ 14 445 000 000 or EU\$10 835 000 000). Politicians, governors and officials are seen by the population like the main responsible of corrupt actions, even more than illegal organizations like drug gangs and “guerrillas”. In addition, a great percentage of people consider that ordinary citizens commit corruption crimes (16%).

The General Controller of Colombian Republic fights day by day against this scourge, which stops many Colombian citizens from having access to the minimum vital conditions like education, health and housing. The General Controller recovered funds for about **\$10 billion** pesos within Colombian territory.

Today we face a new problem: technology progress and globalization have allowed illegally obtained money to “travel” from one place to another. “The corrupt” know that now it is no profitable no more to leave this money in Colombia. That’s why these funds are jumping over the fence to big capital cities around the globe and also hidden places, real tax heavens and no Colombian authority is able to track them down.

We must say that transnational asset recovery made itself stronger during the 80’s, when democratic governments that had been under dictator regimes demanded to big financial centers to help in finding and bringing back funds from ex and corrupt leaders such as Ferdinando Marcos in The Philippines, Jean Claude Duvalier in Haiti, Sani Abasha from Nigeria and Suharto, from Indonesia. These first cases made evident the lack of international regulation and national effective laws to combat this problem.

It is until the year 2000 when United Nations and the strong support of G-7 issued 54/205 resolution, from January 27<sup>th</sup> of 2000, in which it was assured that states should join efforts to remove legal fences that made impossible to developing countries to repatriate assets from corrupt ex leaders who had put funds in very hidden places in financial centers. In year 2003, at the beginning of 20<sup>th</sup> century, it was made a great step in that fight, when United Nations Convention against Corruption was adopted, and it created the first universal instrument that established, over chapter 5, a comprehensive and mandatory frame about asset recovery.

In the same way, The General Controller of Colombian Republic made a bet for transnational asset recovery, through the creation, within the Anti-corruption Law Act, of the National and International

Unit for Prevention, Investigation and seizure of assets obtained from corruption. This task had never been done before in Colombia.

Therefore, The General Controller of Colombian Republic has a greater challenge: to recover millions of dollars, through the implementation of Inter-American Convention against Corruption, in the frame of the Organization of American States (OAS), as well as the UN Convention against Corruption, from which the General Controller in Colombia is a real authority for its application.

On the other hand, The General Controller of Colombian Republic has implemented a strategy of focusing financial control in sectors and economic activities with a greater risk to be victims of corruption. General guidelines have been established to apply effective control over sectorial and inter-sectorial projects, adapting procedures and special actions over high impact investment projects and public policies, in special, those referred to the National Developing Plan 2010-2014. According to responsibilities of the General Controller of Colombian Republic, and the new point of action for the fiscal control model, it is now necessary to implement new instruments and methodologies to strengthen the mission and support processes.

Such strategy has harmony with the National Developing Plan "Prosperity to all", 2010-2014, and also with the Strategic Plan 2010-2014 "For a Timely and Effective Fiscal Control". In this context; The General Controller seeks to strengthen the response of the State to the constitutional mandate of applying fiscal control in the whole National Territory, and particularly the public policies made to meet great vulnerable communities (indigenous groups included) in vital needs like health, housing, education, transport, road security and safety, drinking water, hygiene, environment protection, etc.

### **Environmental Fiscal Control**

The General Controller work in the environmental field has a constitutional fundament. According to article 20<sup>th</sup> of the Colombian Constitution, the surveillance over the State management is based on Financial, management and results control, founded over principles of economy, equity and valuation of environmental cost.

The structure within the General Controller incorporates a specific organization dedicated to environmental issues. That's why, it includes the so called Delegated Controller for Environment. This office has the mission of watching and controlling the State Organizations that work in that field, such as the Ministry of Environment and Sustainable Development, the National Authority of Environmental Licenses, the Autonomous Regional Corporations and Environmental Research Institutes.

### **Mining and Environment**

In Colombia, they have promoted an extraction model of natural and nonrenewable resources, which has conducted to a rise in mining activities in a great portion of National Territory.

The mining land titles are granted without an objective selection process. The indiscriminate grant and the subsequent development of mining activities are violating fundamental and collective rights.

This conclusion comes from a study made by the general Colombian Controller, which found that in an area of 1.8 million hectares, the same that had been occupied by paramilitaries and guerrillas, a 10% of that area has been or is in the process of being granted to mining companies, and hasn't been given back to families who were displaced by violent actors.

Other problem has to do with the ravages of coal contamination in areas of non tech extraction, where mercury levels in water and air, are among the highest over the world. This problem is referred in the study, with a dangerous warning: Though increasing earnings in the business of mining for regular companies, these are not investing in "green" technologies for reducing impact on surrounding communities.

# Challenges and success stories in environmental auditing in SAIs

## ESTONIA

### Alternatives for electricity production

The National Audit Office of Estonia analysed electricity generation and strategic development of electricity generation in Estonia and whether it is in line with climate and electricity market policies of the European Union. Decisions on where and how Estonia will get electricity in 15 or even 30 years must be made soon. These decisions must be thoroughly considered because investments required in energy sector are huge and they are long-term.

#### Background

Over 90% of the electricity generated in Estonia is currently generated in two oil shale power plants in Ida-Viru County. At the moment Estonia has generation capacity that well exceeds its own consumption and in last few years approximately 1/3 of produced electricity has been exported. But nearly 3/4 of the generation capacity of these oil-shale power stations has amortised and most of the facilities must be closed down in the next 10-15 years.

Electricity generation with oil-shale power plants comes with high price because it has serious environmental impacts. Currently, the generation of oil shale electricity accounts for approx. 70% of the entire CO<sub>2</sub> emissions of Estonia, approx. 70% of all non-hazardous waste and approx. 82% of hazardous waste and approx. 80% of the entire water used in Estonia.

#### Major Findings and Recommendations

Until now the Estonian energy and electricity sector has been planned in advance for ten years, but state must plan its energy sector at least 30 years ahead. This way it would also coincide with the targets of European Union climate and energy policy.

National Audit Office wants to draw attention to that, in order to supply Estonia with electricity, the state should decide:

- how will the supply of electricity in Estonia be ensured in the open electricity market,
- how much electricity will be generated in Estonia with state or consumer support in the future,
- whether the state supports the generation of electricity from renewable or non-renewable sources and whether the state prefers to generate electricity in a few large power plants or in distributed power plants.

#### Main recommendations

- It is reasonable to create in Estonia such production capacities whose construction and maintenance are economically as profitable as possible that do not put excessive pressure on the consumer's wallet and the environment and ensure competitiveness in the open market. Estonian Government decision to support construction of new oil shale power plants does not ensure Estonia's security of supply or an affordable electricity price for consumers in the open energy market.
- The state should stop paying renewable energy support to oil-shale power plants for burning wood in oil-shale furnaces because Estonia has achieved its goal of raising energy generated from renewable sources to 25% of the end consumption by 2020. Since the efficiency of a thermal power plant is small in comparison with efficient cogeneration plants, the state has rather supported the inefficient use of biomass by supporting the combined incineration of oil shale and biomass and has not thought of reducing carbon emissions in the long term.
- Changes should be made of principle in the technology of electricity generation since being a Member State of the European Union, we are bound by the ambitious goal of the climate policy to reduce the CO<sub>2</sub> emissions of energy generation at least 93% by 2050. Currently, the state is planning on contributing financially the most to the development of the technology that uses oil

shale. The state is aware of the fact that the further development of the renewable energy sources that have the greatest potential in Estonia, i.e. wind and biomass, depends directly on large investments in the power networks and on widening the opportunities for the cogeneration of electricity and heat.

- The competitiveness of the power plants using oil shale will decrease considerably if the price of the greenhouse gas emissions allowances of the European Union rises. Decision made by Estonian Government to construct generation capacities using oil shale works against the goal of carbon-free electricity production and it should be taken into account that the price of the CO<sub>2</sub> allowances is of key importance when it comes to the competitiveness of electricity produced in such a manner.
- Upon continuing the production of oil shale electricity, the state must take in account the massive inevitable adverse environmental impact. Mining and processing oil shale for many decades has considerably harmed the natural environment and surface water and groundwater in Ida-Viru County, caused millions of tons of waste and air pollution and ruined the landscape. The impact of pollution on health has not been investigated to date. These damages that have been caused to the environment must also be paid for exported electricity.
- Estonia's electricity sector should be planned in advance not for ten years as has been the case so far, but for more. Due to the lack of long-term plans, it is currently unknown where will Estonia get electricity in 25-30 years when most of the sections of the oil shale power plants have been closed down due to becoming obsolete and not complying with environmental requirements. In order to reform the supply of electricity, huge investments in the modernisation of electricity generation and transmission are required. This calls for timely decisions on the part of the state, incl. legislative amendments, as well as time, human resources, technological resources and financial resources.



# Challenges and success stories in environmental auditing in SAIs

## EUROPEAN COURT OF AUDITORS

### **Methodology applied by the European Court of Auditors on environmental audits**

#### **The environment and the Court's strategy**

The Court's strategy for 2013 – 2017 aims to give sufficient coverage to global challenges which affect many policy areas, notably the environment and climate change (and its implications for EU policies on agriculture, water, energy, transport and development).

#### **Recent environmental audit work**

In recent special reports the following environmental subjects have been addressed: LIFE-Nature projects and sustainability; cross compliance in the agricultural sector; milk products; fisheries; public health; waste water treatment; intelligent energy, and disasters rehabilitation (see Annex 1). Examples of methodologies used in past audits are described in Annex 2.

#### **Environmental audit work currently underway**

##### ***Integration of water policy to the CAP***

The Water Framework Directive adopted in 2000 is the main tool setting the objectives for water protection (both for quality and for quantity). In line with this Directive Member States should develop river basin management plans and define "programmes of measures". The Common Agricultural Policy (CAP) has several instruments which may be used to promote sustainable water management. (Including cross compliance and rural development measures.)

The audit aims to establish whether synergies within the different CAP tools to contribute to the Water Framework Directive goals have been properly created and used.

##### ***Biodiversity***

Protecting biodiversity is a key environmental priority for the EU. The loss of biodiversity gives rise to substantial economic and welfare losses.

The audit could examine the effectiveness and sustainability of projects as well as the adequate use of the European Regional Funds as a source of finance.

#### **Audit Guidelines on Environmental Auditing**

The Court's internal guidelines on environmental auditing were developed after considering guidelines of the EUROSAI Working Group on environmental auditing, the Office of the Auditor General of Canada, and ECA's Performance Audit Manual and audit guidelines. The Court's guidelines include a conceptual overview of environmental auditing, how to take account of environmental risks when programming and planning audits, and methods and techniques to apply in environmental auditing.

Reports and other information are available on the website of the European Court of Auditors: [www.eca.europa.eu](http://www.eca.europa.eu).

**Annex 1: Recent SRs dealing with environmental auditing are:**

Special Report No 20/2012: Is Structural measures funding for municipal waste management infrastructure projects effective in helping Member States achieve EU waste policy objectives?

Special Report No 21/2012: Cost-effectiveness of Cohesion Policy Investments in Energy Efficiency

Special Report No 13/2012: European Union Development Assistance for Drinking-Water Supply and Basic Sanitation in Sub-Saharan Countries

Special Report No 1/2012: Effectiveness of European Union development aid for food security in sub-Saharan Africa

Special Report No 16/2011: EU financial assistance for the decommissioning of nuclear plants in Bulgaria, Lithuania and Slovakia

Special Report No 12/2011: Have EU measures contributed to adapting the capacity of the fishing fleets to available fishing opportunities?

Special Report No 7/2011: Is agri-environment support well designed and managed?

Special Report No 9/2010: Is EU Structural Measures spending on the supply of water for domestic consumption used to best effect?

Special report No 11/2009: The sustainability and the Commission's management of the LIFE-Nature projects

Special report No 3/2009: The effectiveness of Structural Measures spending on waste water treatment for the 1994-1999 and 2000-2006 programme periods

Special Report No 1/2009: Banking measures in the Mediterranean area in the context of the MEDA programme and the previous protocols

Special Report No 12/2008: Instrument for Structural Policies for Pre-accession (ISPA), 2000-2006 (Environment compliance)

Special Report No 8/2008: Is cross compliance an effective policy?

Special Report No 7/2008: Intelligent Energy for Europe Programme 2003-2006

## Annex 2: Examples of methodologies used in environmental audits

### Intelligent Energy for Europe Programme

#### AUDIT QUESTIONS

The objectives of the audit were to assess how the Commission monitored and evaluated the programme.

Did the Commission consider and ensure the availability of monitoring information to evaluate the programme impact regarding "security of supply", "competitiveness" and "environmental protection"?

#### AUDIT CRITERIA/METHODOLOGY

The audit was based on analysis of the legal basis of the programme, documents, review of project files; interviews with staff from Directorate-General for Energy and Transport and the Executive Agency; survey which obtained data from 736 participants in the programme; and analysis of the project database.

### The structural measures spending on waste water treatment

#### AUDIT QUESTIONS

The main objective of the audit was to assess the effectiveness of Structural Measures spending on waste water treatment for the 1994–99 and 2000–06 programme periods.

The audit questions in relation to the environment are:

1. Do EU co-financed treatment plants achieve an adequate performance in the treatment of waste water?
2. Is the sludge produced by the treatment plants being used appropriately?
3. Is the Commission fulfilling its role in relation to project selection, monitoring of outcomes through its analysis of final reports and promotion of environmental principles? The audit was based on desk reviews and sample of projects.

#### AUDIT CRITERIA/METHODOLOGY

The Court interviewed representatives from the various local, regional and national authorities charged with the design, selection, operation and monitoring of treatment plants.

In order to identify and compare benchmarks and best practices in the field, a review of standards of some non-EU countries was undertaken (USA, Switzerland, Canada, Australia and Japan).

### LIFE-Nature projects

#### AUDIT QUESTIONS

The objective of the audit was to assess the effectiveness of the Commission's management of the LIFE-Nature grants during the different phases of the project cycle in respect of the sustainability of the project results.

#### AUDIT CRITERIA/METHODOLOGY

Evidence was obtained through documentary reviews; interviews; questionnaires; audit visits were carried out on-the-spot for a sample of LIFE III projects.

## EUROSAI WORKING GROUP ON ENVIRONMENTAL AUDITING

### EUROSAI WGEA Cooperative audit

#### Adaptation to climate change – are governments prepared?



***Nine European Supreme Audit Institutions have assessed how adaptation policies are implemented on national levels. The report indicates that governments are not sufficiently prepared for the expected impacts of climate change and do not have adequate actions in place to deal with these unavoidable negative effects.***



This cooperative audit is based on eight individual national audit reports from Austria, Bulgaria, Cyprus, Malta, the Netherlands, Norway, Russia and Ukraine, and a fact-finding study by the European Court of Auditors.

#### Conclusions

Generally the national audits revealed that the countries assessed in this report are in an early stage in adapting to climate change. So far, adaptation activities are related to identifying risk and vulnerabilities and to some extent policy development. Actions identified in the national audits covered in this report are mainly a response to current challenges and not initiated due to anticipated medium-term and long-term climate change impacts.

#### Findings

The national audits revealed that most countries have prepared risk and vulnerability assessments of sufficient quality. Up to the time of concluding the national audits, only two of the eight countries had developed a comprehensive adaptation strategy. In most countries, weaknesses in coordination of adaptation are identified. There is also a general lack of cost estimates of impacts of climate change or adaptation measures in policy documents. This increases the risk that climate change and adaptation issues are not being sufficiently addressed in decision-making processes.

#### Recommendations

It is recommended that

- countries use adequate risk and vulnerability assessments for policy-making and consider the impacts of likely climate change scenarios with higher expected temperature increases than the 2-degrees scenario
- adaptation strategies and action plans should be developed and implemented at the government level
- the strategies should clearly specify the time-frame for implementation and the roles and responsibilities of all the parties involved
- governments should ensure coordinated adaptation policy and its implementation
- governments should provide knowledge, to the extent possible and meaningful, of the costs and benefits of climate change impacts and adaptation measures to ensure cost-effective implementation

#### Objective: Are governments prepared for climate change?

The aim of this cooperative audit has been to assess how adaptation policies and actions are implemented on national levels across Europe, identify governments' challenges related to climate change adaptation and provide common conclusions and recommendations. Moreover, the aim of the cooperative audit is to inspire and pass knowledge to other SAIs.

## **The scope and methods of the cooperative audit**

In order to collect and assess comparable information on national governments' actions, the partner SAIs prepared a common framework to set the audit issues and corresponding audit questions to be addressed in the national audits. Five major issues were identified by the SAIs as important for assessing governments' actions on adaptation to climate change, namely risk and vulnerability assessments, strategic documents, coordination, governments' implementation of adaptation actions, and potential results and impacts of adaptation policies and measures.

This report is based on a qualitative analysis of the levels of actions, implementations and corresponding results of adaptation policies addressed in the national audits. Since the coordinated audit is limited by the scope of the national audits included, findings are only representative for the countries addressed and the areas covered in the national audits. As this is a qualitative study, the results cannot be generalised, but the findings might be indications on conditions relevant for other sectors in the respective countries or for other countries that are not a part of this analysis.

## **Lessons learned**

The partner SAIs found the collaboration valuable for the SAI's work. The cooperative audit contributed to the initiation of the national adaptation audits. The joint effort in developing the audit questions for the cooperative audit broadened the scope of the national audits and facilitated knowledge sharing.

Even though the national audits' topics and approaches differ, collaboration is possible and highly beneficial. The flexible framework of the cooperative audit, where SAIs answered only questions that were relevant to their audit and context, made it possible for the SAIs to participate.

Since the framework for the national audits was a European cooperation, several SAIs reported enhanced interest in the SAIs' work and awareness of the subject among all recipients of the national reports.

The joint report provides valuable knowledge relevant to national and cross-national governments. The report gives a picture of national adaptation issues and corresponding governmental challenges across Europe. The cooperative audit addresses common challenges, examples of national challenges as well as best practice related to governing adaptation to climate change.

Adaptation to climate change is a demanding subject to audit due to the complexity of the topic, including its cross-sectoral and long-term nature. Furthermore, most countries are in the early phases of implementing policies and actions related to the subject, making it even more challenging. These factors, including a lack of common adaptation policy, made it necessary to have a flexible framework for the joint report.

Full report is available at the EUROSAI WGEA website ([www.eurosaiwgea.org](http://www.eurosaiwgea.org)).

# Challenges and success stories in environmental auditing in SAIs

## FRANCE

### Lessons from the 2010 floods on the Atlantic coast (Xynthia) and in the Var

#### 1. Background

The Xynthia flood on the Atlantic coast and the river floods in the Var that occurred in 2010 are etched in the memories of the French people because of their dramatic consequences.

In the night of 27-28 February 2010, sudden and extensive marine flooding was provoked by the storm Xynthia on the Atlantic coast, especially in the *départements* of Vendée and Charente-Maritime. The human toll was very heavy: 41 deaths (29 concentrated in the touristic town of La Faute-sur-Mer). On 15 June, flash river floods and run-off were generated by exceptional rainfall in the region of Draguignan in the Mediterranean *département* of Var. 23 people died (9 in Draguignan) and two were reported missing.

In addition to the total toll of 66 deaths, hundreds of people had been injured, had lost their homes and all their belongings. The damages were also huge for collectivities.

#### 2. Audit objectives

Three main objectives were fixed to the audit: to establish the financial costs of these disasters; to assess the management of flood risk, i.e. the actions engaged by public authorities before the disasters to reduce the risks or their adverse consequences: risk information, population warning systems, flood prevention in urban development, protection against the flood in inhabited areas; to assess the actions decided since the disasters and the remaining gaps.

#### 3. Audit challenges and solutions

##### Challenges

The field of investigation was huge and many public entities (over 50) had to be audited. The *Cour des Comptes* was not in capacity to conduct alone the audit, because its competence is to audit governmental authorities, but not local authorities, which are controlled by the *Chambres Régionales des Comptes*.

It was necessary similarly to audit public bodies with their possible failings and to assess public policies, to verify what happened in each of the 3 *départements*, with many angry victims, and to carry out a national synthetic audit. Specific scopes and a broad approach were to be used in the same investigation.

Good information of citizens about the conclusions of the report was indispensable.

##### Solutions

An interjurisdictional structure was created, with members issued of the *Cour des Comptes* and of the three concerned *Chambres Régionales des Comptes*. The control team was built from 2 *conseillers maîtres* (head counselors) of the *Cour* and 3 counselors issued of the *Chambres Régionales*.

Three territorial reports, one for each concerned *département*, and a national synthetic public thematic report were carried out.

The reports were presented to the Medias in press conferences. The public thematic report, dated from July 2012, was printed by the State's publisher, "*la Documentation française*" and is available on the Internet page of the *Cour*. A public presentation of the territorial reports was made in each elected assembly of the audited local authorities.

## **4. Main findings**

### **Costs and generalities**

The financial cost of the crises is considerable: about €660 million of public expenses and more than €1.3 billion of insurance payments, €640 million of which being covered by the “natural disasters” government guarantee scheme.

The disasters affected vulnerable areas, in which urban development had significantly increased the level of risk and where the desire of people to build was very strong. This desire was encouraged by property developers and supported by local elected officials.

A serious lack of risk awareness existed in these areas. Similar disasters which had occurred in the past were forgotten.

### **Prevention**

The wisest approach to protecting human lives and the least expensive is to prevent construction in non-urbanized high risk areas. The audit shows:

- before the crisis, in the face of population’s desire to build, the State representatives (the prefects) have often proven weak in their response to local pressures and did not oppose construction projects in high-risk areas;
- information concerning the risks was failing: flood hazard atlases were sometimes not distributed to communes or were insufficient in their content; municipal information and prevention documents on the major risks were only available in a tiny minority of towns; information for buyers and tenants was incomplete and not updated;
- flood risk prevention plans were not ordered by the prefects in all hazardous areas, or not adopted because excessive lengthening of the proceedings due to local oppositions, or were insufficient in their content so that the potential of urbanization was not really constrained even in high-risk areas;
- since the crisis, a new determination, encouraged by the government, is expressed by the prefects concerning all the matters of prevention and the interdiction of constructions in hazardous areas. Flood risk prevention plans must be adopted in the most dangerous areas within three years after the disasters;
- for an efficient policy of risk prevention, this determination needs to be continued in the long term and actions must be conducted at their end.

### **Warning**

The population warning system is essential to avoid human tragedies, and it is economical, because a good warning system can be very effective for a limited cost. But, it was very imperfect before the catastrophes. It has been improved since. Much remains however to be done. For example, the high-performance network to alert the population remains to be created.

### **Protection**

On the Atlantic coast, the situation of the flood defences on the eve of the disaster was disturbing: very poor governance (in many cases, unknown owners and/or unknown responsible authority for managing dikes) and poor maintenance of dikes, the two being linked. In the Var, no public authority was responsible for the maintenance of the non-government owned affected rivers, which belong to the riverside landowners, unable to realize this maintenance.

Since then, efforts have been made, in accordance with the “Rapid Submersion Plan” decided by the government, but governance of dikes and rivers remains to be put in order and work to consolidate dikes definitively, after the emergency work, will need time.

### **Purchase of houses**

After the disasters, the government decided to purchase houses on an amicable basis in the most dangerous areas on the Atlantic coast. It could have been a positive action according to the principles

of sustainable development, by not trying to protect too dangerous areas and by freeing these areas from human settlements.

However, the action was badly conducted. There was precipitation in the delimitation of the so called solidarity areas (the first name was "black areas"), where the houses had to be bought. So, the reactions of the concerned people were very negative. The hastiness of early decisions had others adverse consequences: approximations, compromises, or even irregularities, and ultimately redundant or unnecessary public expenditure.

A coherent policy remains to be defined for the most dangerous areas on the French coast.

## **5. Recommendations**

The Court addressed 46 very actual recommendations to government and its representatives as to local authorities, especially communes, in the fields of warning, prevention, protection and indemnification. The main ideas were: the State has to carry on, with determination against local pressures, the measures decided after the crisis to prevent risk and to protect inhabited areas; in accordance with the 2007 European Directive on the management of flood risks, the government has to define a national strategy against this risk and to put it in a concrete form as soon as possible, with an active involvement of all interested parties.

## **6. Impact**

The press published many papers about the reports. So, public awareness was increased. In the three *départements*, many actions were conducted by State representatives and local authorities to correct the shortcomings pointed out in the reports. Some examples: distribution to local authorities of all existing flood hazard atlases; adoption by the Prefects of flood risk prevention plans in the most hazardous areas despite local oppositions; updating of flood risk information.

On national level, the already evoked "Rapid Submersion Plan" was adopted by the Government in February 2011 and implementation of the European Directive was accelerated.

Generally, the principles of sustainable development were better taken in consideration.

Report by Cyrille Schott ([cschott@ccomptes.fr](mailto:cschott@ccomptes.fr))



## INDONESIA

### **Success Stories of the Development of Environmental Auditing in the Audit Board of the Republic of Indonesia during the Past Ten Years**

#### **1. Background**

The Audit Board of the Republic of Indonesia (*Badan Pemeriksa Keuangan/BPK*) has been given constitutional mandate to perform audit on financial management and accountability of the state finance in Indonesia through financial, performance and compliance audit. Incorporated implicitly in this mandate is audit of environmental perspective which can be combined with any other kinds of audit.

BPK has been witnessing enormous improvement in its environmental auditing practices within the past ten years. This can obviously be seen by four indicators which are: increased number of environmental audit reports, innovation in audit methodology, increased awareness among auditors pertaining to environmental audit mandate of the BPK, and active involvement in the international environmental auditing communities.

#### **2. Innovation in Audit Methodology**

To illustrate how improvement in new audit methodology shapes environmental auditing practice in the BPK, one can easily point out Geographic Information System (GIS) as one of the best examples.

Nearly a decade ago, the BPK assigned a team of auditors to a performance audit engagement of the reforestation program conducted by the Ministry of Forestry in South Sulawesi, Indonesia. One of the audit objectives was to determine whether or not the Ministry of Forestry complied with the related regulations and carried out the program economically, efficiently and effectively. One of the audit procedures required the audit team to conduct a field visit to many locations in the degraded forest area. This procedure was important to see whether or not the rehabilitation and reforestation were actually undertaken in those particular places so that taxpayer money that went into the project was spent economically, efficiently and effectively.

Two problems arose: first, how to determine which specific reforestation project location with high risk of incompleteness should be visited; second, how to compare actual project on the field with the management assertions on the documents.

Global Positioning System (GPS) device, Geographic Information System (GIS) and satellite image could easily overcome this issue. However, they were still not popular at that time. To select locations as audit samples, the auditors only picked the locations randomly without adequate geospatial information which could otherwise indicate specific projects with highest risk of incompleteness.

To access the location, the audit team relied upon manual mapping and the audited entity's explanations, while to measure the size of the actual project area and to count the number of new trees that were paid for by the program and were actually planted, the audit team only used a tape measure and manual counter device. This method was not effective and time consuming. It took at least one day to do a visit.

In contrast, some years later, the BPK utilized the GPS and GIS when carrying out Audit of Forest Management in the same audited entity. The result was compelling. Planning could be done effectively since the high risk forest area with high deforestation rate could be identified from the beginning. In addition, the result of the field visit could also be compared with the management assertions on the documents with the help of the GIS and satellite images more accurately. Man-hour could also be curtailed significantly to reduce the cost of the audit.

### **3. Increased Number of Environmental Audit Reports**

The BPK saw the trend of an increasing number of environmental audit reports in the last ten years. In the period between 2003 and 2004, for example, there was no single environmental audit conducted. The BPK started to publish its first environmental audit report in 2005 followed by another report in the next year. Then, it increased significantly to nine reports in 2008 following eight reports in 2007. In 2009, 11 environmental auditing reports were published as compared to 30 reports in 2010. Then, it released 10 environmental audit reports in 2011.

### **4. Increased Awareness among Auditors Pertaining to Environmental Audit Mandate of the BPK**

In early 2003, no one even bothered about environmental auditing. Regular financial audit and compliance audit were the only types of audit that auditors and managers cared about because the findings usually presented eye-catching state losses with nominal values that could attract attention from the stakeholders. Then, there was a shift in paradigm to include the environmental perspective in the audits in early 2006. There was a reorganization of the BPK forming a special audit department which conducts audit of natural resources and environmental issues. The notion that the BPK has an implicit mandate to undertake environmental auditing was spread out to the auditors through trainings and various dissemination of information.

### **5. Active Involvement in the International Environmental Auditing Communities**

Involvement in the international environmental auditing communities such as in the INTOSAI Working Group on Environmental Auditing (WGEA) and other international events such as RIO+20 is beneficial for the learning process, sharing of information and enhancing cooperation among audit institutions. Apart from its involvement in the INTOSAI WGEA, the BPK also conducted parallel audits with the SAI of Malaysia.

Being close neighbors, the two SAIs have many common issues to share. After completing parallel audits on Forestry Management and Mangrove Management, the SAIs have also completed a parallel audit on Illegal, Unreported and Unregulated (IUU) Fishing.

### **6. Lessons learned**

Many factors can be attributed to the success of the BPK in the development of environmental auditing in the institution. *First*, top managers are aware of the importance of their role in promoting sustainable development in Indonesia through environmental auditing. As seen in the strategic plan of the BPK, environmental audit is incorporated into its goals in the years to come. This support provides the institution with impetus to move towards achieving its goal in promoting environmental audit.

*Second*, cross-departmental collaborative team in environmental auditing was established to facilitate the information-sharing process regarding environmental auditing practices in the BPK. This think-tank team is also useful for disseminating information to all auditors and to provide advice and technical support for the preparation of environmental audit guidance such as manuals on forestry audit.

*Third*, the BPK welcomes technology advancement which can improve audit methodology in environmental auditing.

*Four*, the BPK has been recruiting new personnels from various educational background including those from environmental science, forestry, agriculture, fishery, civil engineering, geology, and mining discipline which can enrich perspective of the institution in carrying out related environmental audit.

*Last but not least*, cooperation, technical assistance and insights from subject matter experts in Indonesia as well as from audited entity, universities and also from international communities can help accelerate learning process within the institution.

# Challenges and success stories in environmental auditing in SAIs

## IRAN

### Challenges of Environmental Audit in the Supreme Audit Court of the Islamic Republic of Iran

#### Introduction

In the major documents of Iran, including the Constitution, protection of environment is considered as a national duty, and any kind of activity resulting in environmental pollution is prohibited. Moreover, in the Vision Document of the Islamic Republic of Iran in 1404 Hijri, the right of the Iranian nation to benefit from a clean environment is emphasized. In addition to the major documents, law-makers have also assigned duties in Common Laws as to the protection of environment.

Following the Constitution and its own Administrative Law, the Supreme Audit Court (S.A.C.) of the Islamic Republic of Iran has put audit of the utilization method and the responsibility of maintenance and preservation of natural resources and public wealth, mines, seas, lakes, rivers, forests, and natural groves on its agenda.

Fortunately, during the tenure of S.A.C.'s current presidency, special attention has been paid to environmental audit, and it is almost about three years that S.A.C. of Iran, a member of INTOSAI WGEA, has established an independent audit unit of environmental audit, and has set its gradual development on its agenda.

In this paper, taking the opportunity, the Supreme Audit Court of Iran attempts to account for the existing challenges of the application of environmental audit in the country, and benefit from the experiences of other member states of INTOSAI WGEA in order to improve the process of environmental audit.

#### Methodology

To achieve the goals of the environmental audit, the Supreme Audit Court of Iran conducts its environmental audits based on the International Guidelines of INTOSAI WGEA:

1. Compliance audit of environmental laws and regulations;
2. Environmental performance audit;
3. Carrying out environmental audit using the approach of compliance audit and performance audit simultaneously;
4. Financial audit;
5. Conducting environmental audit based on a pathological approach as an innovative method of INTOSAI WGEA in Argentina.

In this paper, focusing on experiences and a pathological approach, we have tried to enumerate the existing challenges of carrying out environmental audit in Iran, and suggestions have been made to solve the current problems.

#### Findings

The challenges of conducting environmental audit in Iran are classified into inter-organizational and intra-organizational challenges. This issue itself has caused some problems for carrying out this kind of audit. The most important of these challenges are as follows:

#### Inter-Organizational Challenges

1. Although environmental audit is a new subject in the world, the life of this type of audit in Iran is shorter than the time of its appearance. It is almost about three years that Iran has been seriously engaged in environmental audit, and has become a member of INTOSAI WGEA. For this reason,

due to the huge bulk of work and investments, there are limitations and shortfalls in this area, especially as to the number of professional workforce.

2. Many of the Supreme Audit Institutions have had the experience of cooperation and interaction with other institutions in auditing environmental subjects. However, the Supreme Audit Court of I.R. of Iran does not have such an experience. Additionally, this matter requires the tendency and enthusiasm of the neighboring countries, some of which have shown no inclination to participate in audit of the Caspian Sea environment.
3. Since it is not much time that the Supreme Audit Court of Iran is conducting environmental audit, its standards and guidelines have not been fully developed.
4. The vastness of our country and the variety of environmental and climate issues necessitate the preparation of special audit guidelines for different environmental subjects, which is, of course, time-consuming and requires sufficient professional workforce.

### **Intra-Organizational Challenges**

5. The first step for any kind of planning, decision-making, and taking action to audit environmental issues is to have a complete and comprehensive information bank (data base) and exact statistics from environmental information. The point is that the agencies responsible for the protection of environment are devoid of this capability.
6. Due to the lack of developed environmental accounting standards and, as a result, the non-existence of environmental accounting in Iran, currently the "financial environmental audit" is not completely carried out.
7. Since the economic values of the natural and environmental resources, despite their prediction in laws, and the costs resulting from environmental pollution and destruction are not considered in national accounts and the process of development, the costs and losses arisen from the destruction of environment and its effects on national economy are not clear, tangible, and distinct.
8. The environmental data is not properly registered, processed and reported by administrative agencies.
9. Administrative managers lack awareness of the importance and status of environment and the advantages of environmental audit. In other words, administrative agencies don't have enough knowledge of the role of environmental audit in understanding environmental problems. Unfortunately, executive agencies officials' lack of familiarity with environmental laws and regulations, their irresponsibility to enforce them, and their insufficient attention to environmental concerns because of their intangible short-term effects have resulted in inefficiency of environmental laws.
10. Some environmental laws and regulations are devoid of sufficient enforcement power. Naturally, if laws don't possess enough enforcement power, agencies won't pay heed to the consequences, and there won't be the necessary deterrence.
11. The adoption of aggressive policies instead of prevention policies by environmental protection agencies is one of the problems that has always threatened environment. In addition to wasting the expenditures and slowing or freezing the pace of the implementation of projects, the agencies' late acceptance of environmental protection has made environmental audit more difficult. However, according to law, one of the most important objectives and duties of Environmental Protection Agency<sup>3</sup> (EPA) is to prevent the pollution and destruction of environment.

### **Recommendations**

1. The first requirement for the institutionalization of environmental audit is to have enough professional workforce. Operationalizing policies and guiding auditors in the field of environmental audit, preparing reporting frameworks for different subjects, conducting cooperative audits with other countries, participating in programs, and having continuous interaction with ASOSAI<sup>4</sup> and INTOSAI WGEA all require sufficient professional workforce. Therefore, carrying out environmental audits of high quality necessitates the formation of a powerful team in S.A.C. headquarters and also support of auditors in guilds.

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<sup>3</sup> Environmental Protection Agency (EPA)

<sup>4</sup> Asian Organization of Supreme Audit Institutions

2. Considering the fact that the only authority responsible for conducting environmental audits in I.R. of Iran is the Supreme Audit Court, the need for specialized training in the field of environmental audit, especially through holding seminars and exchange of information with other active countries, is doubled. Compared with INTOSAI leading states, the Supreme Audit Court of Iran should make its utmost efforts in environmental audit.
3. Regarding the effectiveness of cooperative environmental audits and in order to find a solution to trans-border problems of ASOSAI and INTOSAI WGEA member states, it is recommended that the neighboring countries of the Islamic Republic of Iran, especially the Caspian Sea coastal states, conduct joint audit.
4. Although the preparation of environmental audit guidelines and reporting frameworks is time-consuming, it is suggested that the guidelines are prepared gradually alongside with environmental audit reports. It is worth mentioning that several reporting frameworks have been prepared and are about to turn into audit guidelines based on a developed timetable.
5. To participate actively in international bodies and to benefit from the experience of leading countries in environmental audit, it is suggested that the environmental audit reports prepared in the format of approved papers by INTOSAI be sent to the website of INTOSAI and ASOSAI WGEA, and our country have an active participation in INTOSAI and ASOSAI environmental audit working groups and seminars.
6. It is recommended that the Iranian government (Audit Organization) develop Environmental Accounting Standards so that environmental accounting enters the cycle of governmental accounting, and the related governmental organizations and agencies are obliged to register the financial environmental transactions in the financial statements.
7. To help protect the environment, it is necessary that the Presidency Deputy Head for Strategic Supervision and Planning, the Environmental Protection Agency, and the Ministry of Finance and Economic Affairs determine the economic value of environmental and natural resources, calculate the costs of the pollution and destruction of environment, and include them in national accounts.
8. To control the environmental information, it is proper that the necessary directions for the registration and process of environmental data be prepared by governmental agencies.
9. In order to familiarize managers of administrative agencies with the role of environmental audit, it is suggested that the Supreme Audit Court of Iran explain the importance of biological safety and the consequences of loss of a healthy environment, hold seminars with the attendance of managers of executive agencies and internal and external experts, present the outcome of the environmental audit reports, and prepare a brochure of performed activities and measures of other countries in order to raise the awareness of administrative agencies' authorities.
10. It is recommended that the environmental fines predicted in environmental laws and regulations of state be reformed in accordance with environmental degradations. To reach this end, it is required that the relevant authorities, doing expert work and all-out pathological study, increase considerably the penalties for people responsible for environmental contamination so that, in the long run, the prevention of pollution would take effect.
11. To make preventive measures more effective, it is necessary that the Environmental Protection Agency (EPA) strengthen its regulatory duties and change their process. The preventive actions which EPA can take are as follows: giving comprehensive and useful information about environmental laws and regulations, holding training courses and sending educational pamphlets to administrative agencies, reviewing the implementation method of construction projects, and giving comments to the relevant executive organizations.

### **Impacts and Consequences**

1. The obtained results from the environmental audits carried out by the Supreme Audit Court of Iran such as lack of an effective enforcement power of environmental laws and regulations, the inappropriateness of obtained fines with environmental degradations, and the insufficient attention of authorities to the importance and status of environment have been reported to the Islamic Consultative Assembly (Parliament) and the government. Also, the Supreme Audit Court of Iran

has provided the Supreme Audit Institutions of the Caspian Sea bordering states with the results of its own investigations into the Caspian Sea environmental audit.

2. To institutionalize environmental audit in S.A.C., the Senior President of the Supreme Audit Court of Iran has fully expressed his support for the gradual and continuous development of this new type of audit. Moreover, each year after his approval, the Annual Environmental Audit Plan is notified throughout the state.
3. Regarding the joint audit of the Caspian Sea environment, the Islamic Republic of Iran has corresponded with the coastal states of the Caspian Sea (Russia, Kazakhstan, Azerbaijan, and Turkmenistan), and has submitted its request for conducting cooperative audit. Moreover, in order to combat the phenomenon of dust particles, the I.R. of Iran has asked the heads of INTOSAI and ASOSAI WGEA to carry out joint audit.
4. Considering the fact that environmental audit is a new type of audit in Iran, the Senior President of the Supreme Audit Court has introduced environmental audit and the performed activities in this field in the financial seminars and conferences held by the administrative agencies. This has been a great help to the culturalization of this new audit.
5. To perform environmental audit for the first time in Iran, last year the Supreme Audit Court audited the environmental pollution of rivers, the prevention of contamination of metropolises, national parks, and audit of ensuring the decrease of pollutants of environment. Moreover, S.A.C. developed the related reporting frameworks and guidelines of environmental audit.
6. To determine the economic values of national and environmental resources and the costs of environmental pollution and degradation in the process of development and its inclusion in national accounts, the Supreme Audit Court of Iran is auditing the actions of government.

The focus of the present paper is to pay attention to audit results and the application of recommendations by Parliament, agencies responsible for the protection of environment, and all relevant executive organizations. The paper also reviews the efforts and cooperation of Iran's neighboring countries in the joint environmental audit of the Caspian Sea and the countries affected by dust particles.

### **Lessons to Learned**

1. Removing the consequences of environmental problems necessitates a time-consuming process, and their prevention is always more convenient and less costly than their correction. Environmental audit can help government provide the needed opportunities for prevention.
2. Considering the fact that the aim of environmental audit is to make sure the adoption of sufficient and appropriate processes and policies and their implementation and enforcement in order to achieve the objective of sustainable development, setting up and updating processes, policies, and proper guidelines is the most important priority.
3. Environmental audit can provide the necessary opportunities for nations to set up an effective plan for the protection of environment.
4. Since one of the most important components of sustainable development is a "healthy environment", and the loss of "biological safety" can have detrimental effects on social communities, the Supreme Audit Court of Iran is firmly determined to carry out environmental audit.

Finally, it is to be noted that since S.A.C. of Iran has recently become a member of INTOSAI WGEA, it makes its utmost efforts to benefit from INTOSAI environmental guidelines.

Report by Seyed Abbas Mirnajafi and Mostafa Ali Asgharpour

# Challenges and success stories in environmental auditing in SAIs

## IRAQ

### **Environmental auditing during the past ten years**

In 1927 the FBSA establishment according to Law No. (17) 1927, which was later called the Board of Comptroller General. According to Law No.(42) 1968 a financial control authority entitled “ Board of Supreme Audit has been established “in 1980, the Law No. 194 of the Board of Supreme Audit was issued .then the Law No.(6) of 1990 was enacted and amended by the Coalition Provincial Authority (CPA)under its order No.77 of 2004. Then Law No.(31) of 2011 has been issued and amended in 2012.

#### **Establishing performance evaluation department**

Specialized control in FBSA had been considered since 1980 appeared since eighties of the twentieth century, where establishing Performance Evaluation Department in 1986 to include the following specialized bodies:

- Specialized body for control of agriculture affairs.
- Specialized body for control of construction contracts.
- Specialized body for control of health affairs.

At the end of 1999, for specialized body for control Environment affairs had been formed that worked (6) months then halt its activities in July in 2003 ,where the body worked again with simple human ability and modest requirements till 2006, the specialized body for control of environment affairs with Varsity competences related environment activities such as:

- Environment engineers
- Chemists
- Biologists
- Agriculture Engineers
- Veterinaries
- Accountants
- Legalists

For the purpose of exercising its environment activities, the following devises were purchased in order to conduct laboratory and field examination:

- A portable Field device to conduct examination (free chlorine Cl, acid function PH, Electric wiring EC)
- Field device to conduct examination (temperature, soluble salt TDS, Turbidity)
- Digital cameras to photograph and document field visits for landfill sites and treatment unites of liquid wastes and other activities that audited by the specialized body.

In order to conduct examination for drinking water and water resources in projects, water pools of Amanat Baghdad, water and sewage offices in all provinces related to Municipality and Public works Ministry.

#### **Laws, regulations and instructions adopted in environmental audit**

- Instruction of (WHO) what related to pollution of (water, air, soil).
- The environment legislation issued from Protecting and Improve Environment Office that include group of laws, legislation and instructions about different environment activities.
- Standard specifications of drink water No. (417) issued by Central Organization for standardization and Quality Control (COSQC).
- River maintain law No. (25) 1967 (amended).
- Environment Ministry Law.
- Protecting and Improve Environment Law No.(27)2009 (the law aims to protect and improve environment through removing and treating damage, where keeping the public health, natural resource, biodiversity, culture and natural heritage one of its responsibilities with the

cooperation of concerns parties that ensure sustainable development and achieving international and regional cooperation in this field).

- Noise prevention Act No. (21)1966.
- Ionizing radiation Law No. (99) 1980.

### **Adopted environmental audit methods**

The environment audit body adopted two methods:

- Environment compliance control
- Laboratory technical examination

### **Environmental compliance control**

Represented in tests executed by auditor to verify the extent of commitment by administration and employees committed by laws, regulations and instructions also polices set by administration and applying by economic unites, the examination process go with the following steps:

- Recognize the nature of economic unites activities.
- Identifying environment laws, regulation s and instruction related to economic units nature.
- Identifying activities and operations that have environment affects.
- Designing audit program that includes detailed audit measures according to legal requirements and administration policies, with identifying auditor for each group and take in consideration skills, professional experience according each activity.

### **Laboratory technical examination**

This examination is one of the methods adopted by the specialized control body on environment affairs, the work started after the senior management of the Board to provide portable devices in order to exam what related to drinking water and water resources in addition to adopting sample testing method in neutral laboratories with coordination participation of technicians of the specialized body in the Central Organization for standardization and Quality Control (COSQC) and Ministry of Environment laboratories that include solid, liquid and gas waste for the service facilities and industrial activities and the impact of the waste on sewage systems,water resources ,local citizens and workers in those facilities.

### **Preparing reports for environmental audit**

Reports are prepared after completion of compliance audit process, and receiving laboratory examination test and compare them with international and local laws and regulations in order to evaluate the performance of facilities ecologically, and provide indicators by which can identify the social responsibility of the service and industrial facilities that enhancing the role of each facility in sustainable development.

### **Participations of FBSA**

Environmental audit working group was formed in the FBSA from 2009 included consisting of:

Dr. Salah Nori Khalaf – Director General /working group leader  
Saosan Salman Ahmad – Audit Team leader /member  
Amer A. Antek – head of Agriculture engineers / member

The working group has been changed in 2011 consisting of:

Mr. Rafil Yessen Khudair – Director General/working group leader  
Saosan Salman Ahmad – Audit Team leader/member  
Amer A. Antek – head of Agriculture engineers/member

### **Internationally participation**

The FBSA participated in INTOSAI WGEA:

- X Meeting in Moscow 2002
- XII IN Doha 2009
- XIII in China 2010

Iraq has participated in ASOSAI WGEA in Malaysia in 2012.



### Arabian participation

The FBSA participated in ARBOSAI WGEA as follows:

- Third meeting of the ARBOSAI WGEA in Tunisia 2011.
- Fourth meeting of ARBOSAI WGEA in Kuwait 2012.
- Fifth meeting (exceptional) ARABOSAI WGEA in Cairo 2012.

Iraq participated in ASOSAI WEGA meeting in Malaysia 2012

### Arabian training meetings

- The environment working group participated in cooperation with SAI IN Morocco in 2011 about control in biodiversity.
- The FBSA held training meeting in Iraq in cooperation with ARABOSAI on Environment Audit Methods and Techniques /Baghdad 2012.

### Specialized reports issued by the specialized controlling body of environment affairs

The specialized controlling body of environment affairs completed set of specialized reports in areas related to environment activities such as service sectors i.e, hospitals, municipal office, water and swages offices and the industrial activities as companies, factors for batteries industry and leather industries ,companies of vegetables oil production, cleaners, waste of electric power production and other environment activities within Environment Ministry Control.

No	Year	Number of issued reports
1	2004	5
2	2005	7
3	2006	8
4	2007	10
5	2008	11
6	2009	11
7	2010	14
8	2011	12
9	2012	11
	Total	89

# Challenges and success stories in environmental auditing in SAIs

## LIBYA

### **The effect associated water of produced oil on the environment at the South-East of Libya**

#### **Introduction**

The economic importance of oil according to the locale and global diminution that as positive indicator and mean built factor for the majority of people in the world to chive happiness and development in growth countries spicily Libya generally in the world, for that in this paper Focus on the negative dimension for this activities in environment where the local responsible and the foreigner partner don't care about the dangerous which treat general environment and it's systems at the same time of the effect of the associated water of produced oil under structure weakness and applets of institutions which related to the environment issues and protect the environment from pollution and drain and achive the goals of this paper which will show it's contents according to the followings.



The produced of oil comes with high load of associated water and carryinga lot of pollutions and flu it in the nearenvironment which leads to water and destroy the environment round the area of oil producing which leads to drain the water under the surface and death of palm trees, death of birds, deformation embryos and spread of disease between the residence in that area (paper area ).

#### **Paper problem**

The produced of oil comes with high load of associated water and carryinga lot of pollutions and flu it in the nearenvironment which leads to water and destroy the environment round the area of oil producing which leads to drain the water under the surface and death of palm trees, death of birds, deformation embryos and spread of disease between the residence in that area (paper area ).



#### **Paper objectives**

To preserve the environment and it's sources and keep on it and support methodology, in edition to test, transfer and use high technology for environment specific.

#### **Paper spouse**

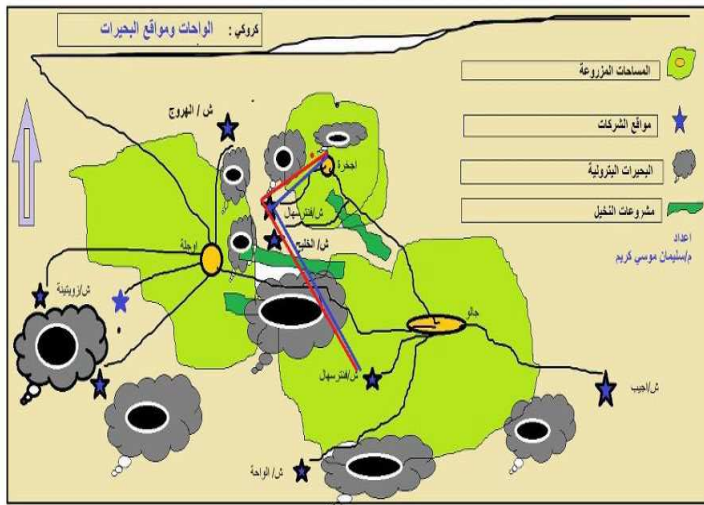
Produce the oil without the negative effect on the environment and manage the remnants of oil production according to international standers and protect the environment, health, and safety.

#### **Methodology of paper**

The paper studied included the reports which presented by Libyan audit bureau and general institution environment ,local and foreigner oil companies which had working in Libya and locale environment association and also field visit of the paper area.

## Paper area

Paper area extend from north of kofra city to the south of bengazi city and from the Libyan Egypt border to the jufra city in west said and also another area have same situations that be sure and give the paper more importance and include all the oil fields at national and international level, not in exact calculation but in general way.

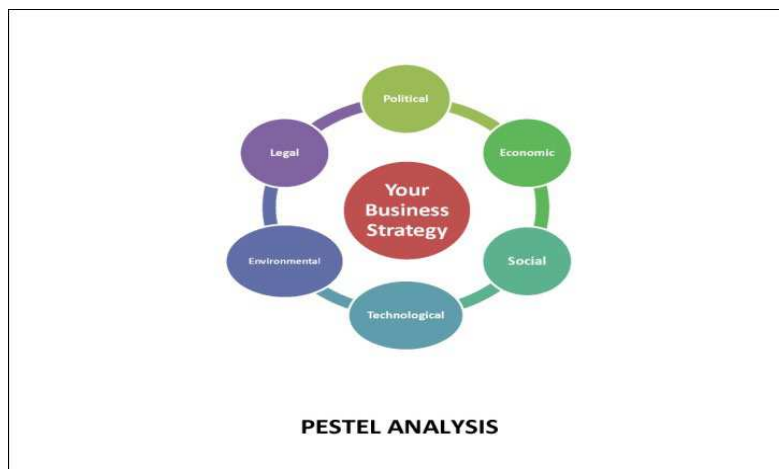


## Time of the paper

Between 2006-2013

## Case analyses

During which be given the paper analyses the situation to uses sixth analyses (PESTEL) according to the followings:



P Politic	E Economic	S Social education	T technology	E Environment	L Legalizations
In the absent of the executive laws which organises to protect environment activities which related to oil produce focus on priority of the important of it's incomes and provide work environment for the employees without any environment law pressure on the local or Foreigner producer because this incomes present 90% of the Libyan national income that's mean (economic luxury on count of environment pain ).	In economical way in the process of produce oil , the associated water doesn't constant any prior economic for this process but the negative effect only on the environment area and the life stoke there.	Because the problem is in the middle of the desert which is resident by few people comparing by total of Libyan population ( 5000 to 6500000 ) under the Absence of the environment culture and active media without any concern from who is responsible for environment fairs compare with the increase the important of oil with environment issues which lead to appearance of this problem which covered by this paper .	With the use of high technology of produce and industry of oil , the environment said remind very weekly without any importance of use high technology for treat the pollution of associated water and study the possibilities of benefit of it that's made environment phenomena (cries of associated water ) it will be in the near future .	Although of the endevetual organization government and non government screams with the necessary solution from Libyan responsible in this area but the priority of them the high economic incomes and provide for the employees the satiable work environment for them and they forget Intentionally or nationally it will reflect negatively in the oil Fields ( employees and others ) .	The Libyan legal man issued a lot of environment laws which is not bending for the locale and from companies and then become just inc on the paper in addition to the Absence of the sanctions and bonuses that's all created the paper problem .

### Analysis results

The lower commitment of the international standers for environment when the oil projects take a place in Libyan desert according to Conclusion of a contracts in audition the Libyan oil situation doesn't concern as will as it should be the environment safety and the health at this area.

## **Vision**

The vision of this paper hopes to improve the situation and develop the possibilities which needs to keep the environment clean and use part of the oil incomes for it (clean environment within strong economy).

## **The message**

The message include strong indicator for Libyan responsible and foreigner concern and the environment organizations locale and international to adopt this subject with the ability of this project (oil) to cover it's negativity by cutting apart of it's income to use it for treat this a Pollution and the environment will be clean according to the environment standers with in international a cooperation .

## **Strategic goals:**

Use the oil database in Libya to achieve environment treatment of this activities according to the laws to be sure for environment protect and more strong economy and clean environment and then create the environment protect system .

- Take strong procedures within provide environment protect and treat according to environment laws and international standers.
- The oil companies (local or Foreign) which works in Libya must be taking into their account and commit by the environment consideration according to the international standers environment in industrial country which produce oil that haven't any problem with associated water but created industrial activities on it.
- Establish international corporate with high technical and experience to solve and stop this problem.

## **Time table**

In this part will discuss executive side for where, when, how, with who ,how much, and which technology will be use to solve this problem.

## **Recommendations**

During the above should be the necessary taken steps as a fallowing:

- Work to make the Libyan oil institution to take care of this problem and include it in it's priorities and provide amount of money and take necessary procedures with related institutions and create solutions and then puts executive steps and puts the environment dimension as priory condition when they sign the projects contracts and commit with international environment standers and cooperate with international environment institutions as (UN, WHO, World Environment Organization)
- The Libyan government should make a scientific studies of this negative effects of associated water which happened and registered and take the responsibility (who did it should pay the cost of it).



## **Conclusion**

This case needs to work together all of us local and international with a necessary concern and very fast procedures to find the particular and scientific solution for this problem before it become a big environment disaster and in then it will be difficult to treat and the cost will be very high and the negative effect will be extend and the environment will be dead and then the desert will be treated us all, but if we work together the future will be spring and ensures a clean and healthy environment of our new generation.

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Together the future will be spring and ensures a clean and healthy environment of our new generation.

Prepared by Mr Ibrahim S. Abusriwil, Mr Mustafa I. Hema, Mr Ali I. Kawiri

# Challenges and success stories in environmental auditing in SAIs

## MALAYSIA

### Study on the Management of Public Market and its Effect on the Environment

#### 1. Introduction

The Simpang Renggam District Council (SRDC) of the Johor State is responsible to manage three types of public markets at different locations near Benut River. The public markets include fish, vegetables & grocery market; poultry market; and pork market. The cleanliness management of these three markets was contracted to Southern Waste Management Private Limited (SWM), a private service provider monitored by the SRDC Office.

#### 2. Objective of the Study

The objective of the audit was to assess whether the management of public markets was done properly, efficiently and effectively as well as its environmental impacts.

#### 3. Audit Scope & Methodology

Files, records, reports and relevant documents for the period 2009 to 2011 were scrutinised and reviewed. Apart from that, observations, site visits, interviews and distribution of questionnaires were conducted. Water samples were collected at the market's drain and the Benut River for analysis and this analysis was assisted by the Ministry of Health and Department of Environmental.

The Audit was conducted based on the Performance Audit Guidelines as well as the Environmental Audit Guidelines which includes preliminary study on the subject matter, preparation of Audit Planning Memorandum, entrance conference, exit conference and submission of final audit report to the auditee.

#### 4. Findings and Recommendations

4.1. An Audit conducted in July to November 2011 found that there were several weaknesses in the overall management of public markets by SRDC Office as follows:

- i. The activities carried out in the markets have contributed to environmental pollution such as water pollution to Benut River and produced foul *odour* to the local community.
- ii. Even though the cleaning works of the market was privatised to SWM, the lack of monitoring on a regular basis has caused the market to look filthy. Wastewater from the market flowed to the drains at the Simpang Renggam town centre and finally into Benut River which is the main source of raw water to Simpang Renggam water treatment plant. Treated water produced by the plants was distributed to residents of Simpang Renggam, Macap and Benut town.
- iii. The water has been polluted whereby the water (quality index) has exceeded the parameter that has been set by the Ministry of Health. According to the standard, the water quality index should not exceed *Total Coliform* < 5,000, *E-Coli* < 5,000, *Ammonia* < 1.50, *Chemical Oxygen Demand* <10 35, *Biological Oxygen Demand* < 6.00 and Ferum must be less than 1.00. The analysis on water sampling that was taken from the river, it had shown that the *Total Coliform* > 160,000, *E-Coli* > 160,000 *Ammonia* > 20,000, *Chemical Oxygen Demand* > 6, *Biological Oxygen Demand* > 41 and Ferum 1.30.
- iii. The SRDC Office only compounded traders for trading without licenses but not for other offences such as environmental violation.
- iv. There was no scheduled maintenance on the public market. Maintenance works only done when there were complaints.

4.2. To ensure public markets are managed properly, efficiently and effectively, taking into consideration the environmental aspects, NAD recommended that the SRDC Office takes the following actions:

- i. Both the poultry and pork markets are relocated because they are the major contributors to water and odour pollution (stench) as wastewater from the slaughtering of chickens and pigs flowed into the Benut River, which supplied the raw water to the Simpang Renggam WTP.
- ii. Monitoring of the market cleanliness should be done regularly to ensure the market is clean and comfortable to all parties especially the consumers and traders.
- iii. Maintenance program and scheduled inspection should be undertaken to avoid minor defect from becoming more serious.
- iv. The enforcement of laws on traders to be tightened to ensure compliance with the rules and regulations.

## **5. Impact and Results**

On the overall, the management of the SRDC Office is not satisfactory because of the weak enforcement over the cleanliness of the public market areas where there were cases of traders breaking the rules and regulations as well as non-compliance to the Environmental Quality Act (EQA), 1974. This situation has also impacted the environment. The SRDC Office has taken several initiatives as follows to overcome the issues raised by National Audit Department.

- i. The SRDC Office has not only monitored their own staffs' activities but also the activities carried out by SWM to address the problem of cleanliness at the public market. It also collects water samples from the drains and Benut River regularly to check on the disposal and effects of effluents on the waters.
- ii. The SRDC Office makes an effort to clean the drain by using effective microorganism Technology.
- iii. The SRDC Office has identified an area to relocate the poultry and pork markets and is still waiting for the approval of the State Government of Johor to build the new marketplace.

## **6. Challenges and Barriers**

Highlights below are few problems encountered by NAD in performing the study:

### **i. Knowledge and Experience in Environmental Audit**

The audit team heavily depended on the agencies such as the Ministry of Health and Department of Environmental in providing expertise in understanding technical aspects due to lack of knowledge and experience in environmental audit which is relatively new among the auditors. However, the knowledge in environmental audit gained through training and guidance from the relevant agencies greatly assists in conducting the environmental aspects of auditing.

### **ii. Coordination and Communication**

Communication and engagement through email, telephone, facsimile and meetings with the relevant agencies to ensure the audit is completed according to the schedule. However, communication does affect the timeliness due to the time taken in exchanging of information e.g. late arrival of the laboratory analysis of the water samples taken by the Ministry of Health.

### **iii. Documentation and Records**

Insufficient record keeping of monitoring, enforcement and maintenance of cleaning public market area and disposal of waste resulting in difficulty to assess the performance of SRDC Office to reduce water pollution and foul odour from the market.

### **iv. Logistic Problem of the Auditor**



In carrying out the audit, the auditors also face problem with the supporting equipment such as transportation problem in accessing the pollution area. In addition they have to bear with foul smell, soft soil, mosquito bites and stray dogs.

## **7. Lesson Learned**

There is a widespread concern of the potential impact to the environment, economic and social effects when the public markets are not properly managed. A cleaner public market and river is important in providing a healthier environment for both customers and the market operators. By conducting this study, it provides an opportunity for the audit team to explore and experience new aspect of auditing the cleanliness of public market area in the local governments. The auditor also gained new experience in terms of carrying out water testing sampling method, the quantity of water that should be taken, how to use water testing equipment and read the result as well as how to interpret the data collected.

Prepared by Saharuddin Mahamud, Auditor General Office of Malaysia

# Challenges and success stories in environmental auditing in SAIs

## MALTA

### Challenges in environmental auditing

#### Introduction

The National Audit Office (NAO) of Malta has carried out several performance audits focusing on the environmental theme over the past decade. In view of the increasing importance allocated to the environment, the NAO performs performance audits on pressing environmental issue. In the past three years, the NAO has published at least one performance report annually, which dealt with important environmental issues and sustainability.

Environmental auditing at the NAO developed as a direct consequence to Malta's environmental concerns. Malta's small geographical size and the high population density, constrain its use of resources. In this regard, the importance of sustainable use of its resources is heightened.<sup>5</sup> Additionally, like other countries, Malta faces challenges imposed on it by the changes in the planet's life-support system. These emanate from the depletion of natural resources, climate change and loss of biological diversity.

However, an important factor in the development of the Office's involvement to undertake environmental auditing emanated through our active role in the INTOSAI and EUROSAI Working Groups on Environmental Auditing. The Office has participated in these Working Groups, practically since their inception around twenty years ago. Our involvement in these Working Groups has served as a learning experience through knowledge sharing with other SAIs and the themed seminars provided. The products provided by these Working Groups, such as the various auditing guides developed, are considered as critical tools in planning and executing environmental audits. Moreover, the NAO's environmental auditing capabilities were significantly upgraded through participation in joint and parallel audits with other SAIs dealing with common environmental concerns.

The NAO's commitment to environmental auditing is illustrated through the spectrum of topics reviewed. The NAO audited water, renewable energy, waste, climate change adaptation and marine pollution by ships related issues. Additionally the Office also carried out audits related to EU funded environmental programmes. Despite its efforts and continuous improvement in its auditing capabilities a number of challenges prevail.

#### Administrative capacity

Despite the improvements over the years, the resources available to the NAO for the conduct of environmental auditing still pose some limitations. Auditors embarking on environmental audits are considered as generalists rather than specialists in the environmental area.

In many instances, the audit aims to bridge this knowledge gap by engaging or consulting with experts. However, this is not always an unproblematic avenue. Issues related to availability and costs are the initial concerns when consulting and engaging experts. Matters are further complicated due to the potential conflict of interest, which may arise if these specialists had previously been engaged by the entities under audit on the same subject matter.

#### Data and management information

In many instances, the auditing of environmental issues was hampered by the lack of comprehensive data and management information. On various occasions, the NAO was unable to make chronological evaluations due to the absence of historical data. Moreover, the quality of the data available was on some occasions compromised due to collation and transcription errors. Matters become more complicated when the basis of data collection over time is changed. Admittedly, such methodological changes may have been undertaken in view of changing circumstances. However, in many instances

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<sup>5</sup> NEP Consultation Draft, 2011

the resulting situation was that assessments over time could only be considered as indicative rather than an accurate representation of events.

The fragmentation of data is another issue, which impinges on the availability and quality of data. Data fragmentation generally ensues due to the cross-cutting nature of most environmental concerns. In many cases, data emanating from different entities was not harmonised or generated different data sets. Consequently, this led to increased data integrity exercises, where in some instances severe limitations emerged.

### **Audit planning**

The NAO encounters challenges at the initial phase of the environmental auditing cycle. Audit planning is constrained through limited situation analysis and local literature on various topics. Audit planning is rendered more complex in situations where officially approved policies on the subject matter are unavailable and consequently impinges on the development of audit objectives. Moreover, challenges related to audit planning are amplified since, in many instances, the NAO had not previously addressed the topics under review. Consequently, the Office often opts to broaden the scope of the audit to obtain a wider perspective of the topic under review.

### **Audit methodology**

Designing the audit methodology also offers various challenges. The audit methodology has to cater for the scientific interpretation of environmental indicators. The lack of environmental specialisation within the Office may, on occasions renders this problematic.

Another methodological challenge relates to estimating the outcome and impact of environmental initiatives under audit. The long-term response rate generally associated with environmental initiatives makes the presentation of audit conclusions as highly complex, and in some cases subject to severe limitations. The latter mainly arises since long-term projections relating to environmental initiatives cannot produce robust results, as sufficient information over time would not have yet become available.

### **Audit findings and recommendations**

The cross-cutting nature of environmental initiatives involves various entities at the policy making, implementation and monitoring stages. As is common with horizontal initiatives, in some cases, accountability cannot be clearly assigned. Coupled with the lack of comprehensive management information, findings may end-up being diluted due to the lack of sound audit evidence.

The NAO aims to undertake audits soon after an environmental programme has been implemented. The benefits of this approach are mainly associated with the identification of programme weaknesses at an early stage. However, in many instances, the findings are mostly focused on project deliverables in terms of attaining programme implementation targets as environmental outcomes and impacts would not have fully materialised in the short time-span between programme implementation and the audit review.

The recommendations proposed in the environmental audits mainly relate to the policy process and inputs, programme implementation and monitoring. In many instances, the NAO would not be in position to propose technical and scientific recommendations.

### **Audit impact and results**

To date, the impacts of the NAO's environmental audit were generally deemed as positive. In some cases, the reports stimulated the implementation of the more important recommendations proposed. The implementation of these measures, generally related to policy development and approval by the relevant entities. These reports have also generated public discussion on an array of environmental concerns, including in the Parliamentary Public Accounts Committee.

Nevertheless, some challenges, which diminish the impact of audits undertaken, prevail. In some cases, budgetary constraints prohibited entities from implementing NAO recommendations in a timelier manner. Other challenges relate to entities implementing environmental programmes tend to give priority to the short-term stakeholders' interests rather than the long-term sustainability issues, which were pointed out in the audit report.

## **Lessons learnt**

Post-mortems of the various audit reports published by the NAO has led to the development of various strategies to mitigate the prevailing challenges and audit risks. Increasingly, the scope of the audits is being limited to specific issues within the highly complex and broad regulatory framework. This has facilitated audit management and analysis, as well as enabling a deeper understanding of the topic under audit.

At the outset, the NAO is seeking to bridge the prevailing technical gap with consultations and experts at a very early stage of the audit. In some cases, this led to reformulating the study objectives and scope. Similarly, due to the cross-cutting themes and issues involved, the NAO also seek to get stakeholders' opinions on the subject matter at the preliminary stages of the audit. This has enabled the identification of the various issues at stake from different points of view.

## **Conclusions**

Environmental auditing is not challenge free. This paper has outlined various challenges throughout the audit cycle. In many cases, these challenges are similar to those experienced through other thematic performance audits. However, in an environmental context, these challenges become more complex due to their scientific and cross-cutting nature.

Despite the technical and administrative capacity challenge, along the years, the NAO has contributed towards sustainable development through its environmental audit programmes. This can be seen through the widening of the NAO's environmental auditing programme, the increasing positive feedback of our reports, the public debate generated and the implementation of the proposed recommendations by the entities concerned.

# Challenges and success stories in environmental auditing in SAIs

## NETHERLANDS

### **Coordinated audit on shipment of waste**

Eight European SAIs are in the final stage of conducting a coordinated audit on the enforcement of the EU Waste Shipment Regulation (EWSR). This audit was launched in 2010 by the Contact Committee of the Heads of the EU SAIs and is conducted in close cooperation with EUROSAI's WGEA.

The EWSR has been set up to control international waste movements, in order to prevent illegal shipment or dumping of hazardous waste. The EWSR is also adopted by countries that are party to the European Economic Area. The following SAIs are participating in the coordinated audit: Bulgaria, Greece, Hungary, Ireland, Norway, Poland, Slovenia and the Netherlands (coordinator).

The objective of the coordinated audit is to improve the enforcement of the EWSR by providing insight into (differences in) enforcement strategies and performance (in terms of results and the achievement of intended effects) among countries. Participating SAIs have each audited their national enforcement agencies. As of March 2013 four of the national reports have been published; a joint report will be published in 2013 Q3.

The national report for the audit on the enforcement in the Netherlands was published in October 2012. The Netherlands Court of Audit concludes that the Netherlands complies with the requirements arising from the EWSR and that the Dutch government pays specific and systematic attention to the enforcement of this regulation. There is room for improvement, however, in a number of areas. There is only limited insight into the impact of enforcement activities and the functioning of the EWSR system as a whole. Firstly, because it is difficult to investigate illegal flows. Secondly, because there are weaknesses in the registration systems. This lack of insight means that an opinion cannot be properly formed on the effectiveness of EWSR enforcement in the Netherlands.

Furthermore, the Netherlands Court of Audit found that the public prosecutor decides not to prosecute two out of ten EWSR cases. This is a higher rate than the target of 10% that has been set by the public prosecutor's office. It means that offences go unpunished or time is spent on preparing official reports for cases that do not have a chance of success in court.

The Dutch national report is available in English on our website, <http://www.courtfaudit.nl/english>.

# Challenges and success stories in environmental auditing in SAIs

## PERU

### The challenge of audit on water environmental management in Peru

Ancient Peruvians so called Incas, faced problems of water supply for agriculture, known as “The irrigation water problem”. This will later start important changes in agriculture and society. A part of the existing irrigation infrastructure has Pre-Hispanic backgrounds (Zegarra 1988). Basis for Cosmo vision and social order of the Inca culture set its grounds in two important elements: water and land, which was then translated into the creation of a sort of divine couple, conformed by the god of water and the *pachamama* or mother earth.

Zegarra’s expressions are sustained on the vestiges found within several areas of Peru. Some of them are: i) *waru waru* or *camellones*, which are ancient practices of common use in the Altiplano, consisting on “pulling” land by making a platforms in floodable areas; ii) channels of irrigation crossing the Andes and carrying put water from a basin to another; iii) *the puquis*, water eyes (*ñahui yaku*) sets water on the high parts of basins; iv) the “amuna” systems, an ancestral practices of aquifers recharging; v) Andean systems, among others. Finally, we should enhance that some of such agricultural infrastructures; even today are used in daily activities by our farmers.

According to the geographical reality of Peru, the presence of the Andes, where hydrographical basins place Peru as a privileged country for the availability of water; however, due to nature, the distribution of hydric resources is unequal, particularly the Pacific Watershed that flows into the coast, mainly arid, and where most of the population lives; and the agro export activities. The following chart shows distribution:

Watershed	% of Population	% water
Pacific	70	1.8
Amazon	26	97.7
Titicaca	4	0.5

In addition, Peru is considered as one of the most vulnerable countries to climate change, therefore the National Strategy of climate change is relevant as well as the adaptation activities and the management for prevention of risks and disasters.

The legal framework related to water issues was established in 1969 under the law “Water General Law” and was applied up to March 2009, when was repealed to pass to the current Law N°29338. This law regulates the use and integrated management of hydric resources, the Government participation and the issues of such administration; as well as the associated goods. The National System of Hydric Resources Management was created with the purpose of sustainable management, conservation and increase of hydric resources. The head of the current administration of hydric resources in Peru is the National Authority of Water (ANA in Spanish), an independent organization dependent of the Ministry of Agriculture, and decentralized through Local Authorities of Water (ALAs in Spanish) for use and licenses. There is also an oversight organism for sanitation and sewage carried out by companies providing such service.

In this regard, the evaluation of water environmental management in Peru, constitutes for our SAI a challenge, which means knowledge and evaluation of policies, planning, roles, processes, verification of natural reserves situation, protection and conservation of resources, sanitation, sewage, distribution, rates; as well as surveillance and monitoring of water discharge, industrial activities, solid waste, disaster management and others. All of this is done from an integrated vision including culture and cosmovision of the population towards the water resource, in the interest of contributing to improve the public environmental management; and the quality life of the population and or future generations.

## **Summary of the Audits carried out by the SAI Peru:**

- **Local Authorities of Water – ALA (Departaments of Puerto Maldonado and Ica):**

Issuance of licenses for water use without having the environmental certification, the analysis of water quality, neither the documents sustaining the property of the land. The real value of water supply and demand has not been established; therefore, the real exploitable volume is unknown. There is a lack of supervision and oversight to users obtaining licenses for water use, consequently, water waste discharge are not treated and lack of authorization. Likewise, rivers water quality overcomes parameters for heavy metals established among quality standards. Drilling of deep holes in ground water was done despite the established parameters, without the proper inscription for the information of licenses. Licenses have been granted even in aquifers considered “forbidden”. Besides, the total collection of deposits for economic retribution related to the granting of rights to superficial water with non-agricultural purposes has not been carried out.

- **Bahias (Callao and El Ferrol):**

Limited compliance of environmental activities, especially regarding control and oversight of private organisms under their responsibility, which affect negatively, such as the final statement of oily mixtures and solid waste, mineral deposits, deficiency on the issuance and management of untreated effluent discharge to the sea. Other influences are weakness in the organization, specific and formal appointment of environmental responsibilities, supply of human, financial and infrastructural resources, which do not allow meeting the roles and legal attributions, management documents do not match the activities of environmental competency or budget, in order for objectives and goals to have the funding they need.

- **Climate Change:**

The more vulnerable hydrographic basins have not been yet identified towards the effect of climate change, due to the lack of established measures application within the political framework of adaptation by the UNDP and their integration to the National Agricultural Policy and instruments of administration for the identification of current and futures vulnerabilities facing climate scenarios.

- **Basins of rivers (Amazonas, Rímac, Mantaro and Putumayo):**

At the basin of Rimac river, there isn't a proper assistance to the problem of domestic and industrial water waste treatment discharged to the sea. There is a poor environmental control on the mining and industrial activities; as well as in the monitoring of effluents and water quality; lack of technical criteria establishment for the ecological flow, disorganization and absence of update of the National Registration of Discharge.

Process of sanctioning have not been regulated, insufficiency of logistics and technical media for a proper management of water provision, poor control of the loss volume in the distribution system, inappropriate storage and disposition of sludge in treatment plants. The evaluation of instruments for environmental adaptation need to be strengthen. Regarding the basin of Mantaro river, regional governments did not elaborate of approve the Action Plan for short, mid and long-term. Not even the Environmental Management Plan was done, despite the extension period given by Law. They didn't report to the Congress of the Republic twice a year. On the other hand, the bi-national projects of the Colombo-Peruvian Plan for the integrated development of the Putumayo river basin was not implemented as regional projects without relation to the bi-national context were a priority. The drinking water works and sewage have deficiencies in their execution; limited implementation of subprojects regarding Integrated of Fishery does not contribute to the reduction of pressure on hydro biological resources.

- **Management of Hydric Resources on the leading entity:**

Actions and activities included in the National Management Strategy of Hydric Resources have not been approved nor executed. There is no formulation of a Hydric Balance at a Hydrographical Basin level, in order to obtain an updated inventory of superficial underground water (supply). There is a lack of an updated register of water users (demand) nationwide. Quality of water on hydrographic basins has not been monitored. There are no technical reports on the issuance of water use and users have not been requested to present the requirement stated on the normative, risking the legal validity of the

rights granted. Underground water used for agricultural and non-agricultural purposes lack of a legal framework stating the economical retribution for their use. There is absence of control and oversight on the Cropping and Irrigation Plan of the Districts of irrigation nationwide, as a planning tool for the distribution of water. Requirement of strengthening control and oversight duties in the anthropogenic activities carried out on the riverbeds.

- **Protected Natural Areas (Pantanos de Villa, National Park of Huascarán):**

Pantanos de Villa is not recognized as integrated ecosystem born by hydric upwelling from the Rimac river, with superficial and underground water; consequently, this lack of knowledge caused them to be considered as agricultural land, then as a rustic plot and semi rustic plot; and finally residential with the intention of gaining land for urbanization. The main problem however is the surrounding area where there is a disorganized growing of houses with anthropogenic activities (industry, commerce, solid waste, untreated discharge, road building, others). The lack of water and drain affect the ground and the affluence of underground water. Regarding the National Park Huascarán, discharge of untreated domestic, industrial and hospital waste water were detected where the worst ones were the ones coming from formal and informal mining activities; the discharge of solid waste in the riverbeds and the inappropriate water treatment for human consuming; and the existence of populations in high risk zones of flooding, landslides or mudslides

- **Company rendering Sanitation Services in Cajamarca:**

Deficiencies have been determined in the operation and maintenance of drinking water treatment plants. There is not registration of volumetric information in acquisition units of rivers serving as sources of water. The monitoring of the drinking water quality in the distribution networks revealed a percentage of free chlorine concentration below to the established. Sampling points have not been selected, in order to be distributed evenly according to the technical criteria set. No measures have been set related to the proper management of dangerous waste such as sludge, chemicals substances and grease, generated during the water purification process. During the auditing period, the level of continuity of water service provided was not reached.

As a general conclusion, we can determine that the environmental management of the organisms responsible for the protection and preservation of hydric resources is limited. There is an absence of a coordinated integrated management implementation, including social, economic and environmental variables, which also is turning to be complex in a mid or long term as actors participating in the control and sustainability keep increasing. In addition, this condition risks sustainability of the hydric resource and therefore the water supply for human consuming. Despite the efforts of the current administration of the leading organism and the legal framework, water management does not constitute a "Government Policy" but a "Proposal of Government". The above mentioned becomes an inappropriate handling of hydric resource, causing several sort of conflicts (social, economic and environment)

Nevertheless, the recommendations given by the auditing reports have contributed mainly to encourage the issuance of technical information, updating of the water new law, normative leading organism, as well as the Database registration and processes of control. We feel that the challenge of the SAI Peru for auditing la water management still stands and we will continue. This time we are committed to the performance of a regional audit, through OLACEFS-COMTEMA, in order for this relevant cross-border environmental topic is treated comprehensively at a regional level so that better decisions can be adopted.



# Challenges and success stories in environmental auditing in SAIs

## PHILIPPINES

### **Citizen Participation in Environmental Audit: An Initiative of the Commission on Audit of the Republic of the Philippines**

#### **1. Introduction**

##### **1.1. Philippine Laws on Environmental Protection**

The Republic of the Philippines had passed several laws “to pursue its policies to protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature, promote and protect the global environment to attain sustainable development, systematic, comprehensive and ecological solid waste management program, economic growth consistent with the protection, preservation and revival of quality of water”. The most notable legislations and their intents/concerns areas follows:

<b>Law</b>	<b>Intents/Concerns</b>
Philippine Clean Air Act of 1999 (Republic Act (RA) No. 8749)	A balanced development and environmental protection
Ecological Solid Waste Management Act of 2000 (RA No. 9003)	A systematic, comprehensive and ecological solid waste management program
Philippine Clean Water Act of 2004 (RA No. 9275)	Economic growth in a manner consistent with the protection, preservation and revival of the quality of fresh, brackish and marine waters
Climate Change Act of 2009 (RA No. 9729)	Resolution of climate change issues, including disaster risk reduction
Interdepartmental Convergence Initiative for a National Greening Program (Executive Order No. 26)	Consolidate and harmonize all greening efforts and plant some 1.5 billion trees covering about 1.5 million hectares for a period of six (6) years from 2011 to 2016

The following agencies take the lead in the implementation of the above-mentioned laws:

- a. Department of Environment and Natural Resources (DENR) - the lead agency in the implementation of the Philippine Clean Water Act of 2004, Philippine Clean Air Act of 1999 and National Greening Program;
- b. National Solid Waste Management Commission (NSWMC), under the DENR- oversees the implementation of solid waste management plans and prescribe policies to achieve the objectives of the Ecological Solid Waste Management Act; and,
- c. Climate Change Commission (CCC) - an independent and autonomous body, attached to the Office of the President; the sole policy-making body of the government tasked to coordinate monitor and evaluate the programs and action plans of the government relating to climate change.

These three agencies coordinate with the different government agencies (national, local, corporate) and with private organizations on the performance of their respective duties and responsibilities in the implementation of the environmental laws.

The Local Government Code of 1991 (RA No. 7160) dated October 10, 1991 states that Local Government Units (LGUs) shall share with the national government the responsibility in the management and maintenance of ecological balance within their territorial jurisdiction.

## 1.2. Local Government Units' (LGUs) Initiatives on Environment Protection

The LGUs (provincial, city, municipal, *barangay*) are the frontline agencies in the implementation of environmental laws within their territorial jurisdiction. They have undertaken various initiatives and measures for a clean and healthy environment through implementation of programs, projects and activities on air, water, climate change, greening program and solid waste.

A number of LGUs have received international and local awards for their environmental programs/initiatives.<sup>6</sup> These are:

- Las Pinas City – United Nations Global Environment Award
- Muntinlupa City – 2012 *Galing Pook* Award
- Paranaque City – 2011 Bursary Award Australia
- Marikina City – 2007 *Galing Pook* Award
- Quezon City – 1<sup>st</sup> LGU to implement a package clean-up system of garbage collection
- Navotas City – Pink Orchid Award National Level 2010
- Pasig City – 2011 *Galing Pook* Award

## 2. Initiatives and Experiences on Environmental Audit of the Commission on Audit (COA), SAI – Republic of the Philippines

### 2.1. 2002 Environmental Audit of LGUs

The occurrence of natural calamities and the increasing global concern on the situation of the environment and its impact on the future of mankind, including the changing practices brought about by rapid urbanization, increase in population and intensifying economic activities contributed to the problem of solid waste management.<sup>7</sup>

In the year 2002, a performance audit on solid waste management of ten (10) LGUs at the National Capital Region (NCR) was conducted by the Commission on Audit (COA), the SAI of the Republic of the Philippines, covering the period from January 2001 to June 2002. The audit area was solid waste management focused on: selection of contractors, process of estimating solid waste generation and monitoring of contractors' performance.

The rationale, objectives, methodology employed and audit results of the audit<sup>8</sup> were as follows:

Rationale of the audit	Issues and concerns on solid waste were one of the priority areas identified during the COA Strategic Planning for Government Wide and Sectoral Performance Audit (GWASPA) conducted in 2002
Objectives of the audit	To determine whether the solid waste collection function of selected LGUs in the NCR was undertaken in the most efficient and economical manner giving consideration to (a) selection of contractors including the process of estimating solid waste generation; and (b) monitoring of contractors' performance
Audit methodology	Performance audit
audit results	(a) Failure of LGUs to establish adequate policies and procedures on selection of contractors resulted in inefficient and uneconomical solid waste management function; (b) Contractors were not able to comply with contracts requirements and their

<sup>6</sup> Awards – LGUs Matrix of Initiatives/Measures Undertaken for Clean and Healthy Environment

<sup>7</sup> COA Solid Waste Management Overall Report No. 2002-02

<sup>8</sup> Ibid

	performance not properly assessed leaving some solid waste uncollected; and (c) LGUs do not have established methodology in solid waste estimation from different sources and as such, estimated solid waste generation were only those from households population
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The COA, however, was unable to pursue subsequent environmental audits attributed to two main reasons: the challenge of limited resources in terms of funds and audit personnel; and the competing priority within COA to conduct fraud audits.

## 2.2. 2013 Citizen Participatory Audit (CPA) on solid waste management

Early on in her term, the incumbent COA Chairperson Maria Gracia M. Pulido-Tan launched the Citizen Participatory Audit (CPA) Project as a priority reform agenda which fitted well into Philippine President Benigno C. Aquino, Jr. administration's "open government" policy on increased transparency, accountability and citizens' participation in governance to improve performance. Participatory auditing "is a manner of conducting audit by a supreme audit institution with the involvement of the private sector and other stakeholders – interest groups, for the purpose of optimizing the use of resources and enhancing effectiveness, transparency and accountability."<sup>9</sup>

In the year 2012, COA requested assistance from the Australian Agency for International Development (AusAID), in collaboration with the Affiliated Network for Social Accountability in East Asia and the Pacific (ANSA-EAP), a regional network of civil society organizations (CSO) based in Manila, Philippines, to develop and test possible mechanisms and approaches for expanding transparency and accountability and enhancing citizen participation in the public audit process.

To institutionalize this audit approach/methodology, the SAI has included in its *Strategies for Reform the Citizens' Participatory Audit Project* in the years 2012 to 2014 which is aimed at strengthening citizen collaboration in enhancing transparency and public accountability.

The first pilot project under the CPA Project is the audit of the multi-billion KAMANAVA Flood Control Project of the Department of Public Works and Highways (November 2012-present).

The CPA presented an opportunity for COA to enhance and add to its experience of conducting environmental audits - this time with citizen participation as a key strategy. In early 2013, environmental audit was selected as the second pilot audit project under the CPA Project. It focused on the implementation of environmental laws by LGUs, particularly on solid waste management. LGUs are the frontline agencies in carrying out environmental laws within their territorial jurisdiction.

Under the environmental audit, COA undertook the following preliminary steps:

- i. Conducting research on environmental laws, to identify which laws the LGUs have to comply with; and
- ii. determining the audit area and focus, to identify which LGU/city and particular program/s the pilot audit will cover.

## 3. Environmental Audit of an LGU's Solid Waste Management Program

**The Auditee.** The pilot LGU is the biggest city in NCR, with a land area that accounts for approximately a quarter of the region's land area. It is also the most populated, with about 3.06 million<sup>10</sup> inhabitants. By 2013, it is projected that the pilot LGU's six districts will generate 1,979 tons of waste per day, with each resident contributing an average of 0.66 kg of biodegradable, non-biodegradable, and residual waste.<sup>5</sup>

The COA partnered with citizens to ask, *How is the pilot LGU managing its solid waste?* This CPA focused on the pilot LGU Solid Waste Management Program (SWM), a key program in its pursuit of a "clean, green and pleasant" city. The audit was conducted from April to May 2013 by the COA, the Affiliated Network for Social Accountability in East Asia and the Pacific (ANSA-EAP), and community-based civil society partners from pilot LGU.

<sup>9</sup> Talavera, Aida Maria. COA and Private Sector Participatory Performance Auditing. 2012

<sup>10</sup> Pilot LGU statistics as of 2011.

**Audit Objectives.** The audit was conducted to determine whether: (1) the Solid Waste Management Program of the pilot LGU is in accordance with the pertinent provisions of R.A. Nos. 9003 and 7160; and (2) a clean environment is achieved through solid waste management efforts spearheaded by the pilot LGU.

**Audit Criteria.** Setting the legal basis and operational parameters for the audit are the following:

1. Ecological Solid Waste Management Act of 2000
2. Local Government Code of 1991
3. Local ordinances on solid waste management
4. A local solid waste management plan
5. Terms of Reference/Contract of Services on:
  - ✓ System of collection, including waste segregation
  - ✓ Collection schedule (i.e., schedule of dispatch and frequency of collection)
  - ✓ Collection mode/s
  - ✓ Cleaning of litter-prone areas
  - ✓ Total clean-up package

**Audit Methodology.** The following are the audit methodologies used for the conduct of the CPA environmental audit:

Phase	Activities Undertaken
Understanding solid waste management	a. DENR briefing of audit team and CSO partner to know environment-related laws b. Briefing of audit team and CSO partner by the pilot LGU on its solid waste management program
Preparation of audit tools	a. Conduct of workshop to draft survey/audit tool to: <ul style="list-style-type: none"> <li>➤ Determinethe areas of inquiryin the survey</li> <li>➤ Set the selection parameters for partner CSOs for the audit engagement</li> </ul>
Field work	a. Initial meeting of audit team with enumerators of partner CSO with other expert CSO to explain audit objectives, procedures, etc. and redesign audit tool b. Meeting with the concerned Barangay officials to explain audit objectives, procedures, etc. and informed them of audit activities c. Briefing of the pilot LGU on its Solid Waste Management Program and audit team and CSO to enumerators/volunteers, with presence of concerned <i>Barangay</i> officialsto: <ul style="list-style-type: none"> <li>➤ Explain details of survey</li> <li>➤ Pre-test the survey/audit tool with selected pilot LGU employees living within its territorial jurisdiction</li> <li>➤ Revise survey/audit tool per pre-testing results</li> <li>➤ Group and give assignments to enumerators/volunteers</li> </ul> d. Conduct of survey by the audit team, CSO and enumerators/volunteers (data collection - 3 days/1 day per barangay) e. After data collection, debriefing of enumerators by ANSA-EAP for reflections of enumerators on the survey (survey itself, people’s reactions on pilot LGU SWM Program, CPA as a process)
Preparation of survey results	Data processing, analysis and interpretation with the assistance from the CSO partner to: <ul style="list-style-type: none"> <li>➤ Consolidate data</li> <li>➤ Analyzedata using frequency tables (for Yes/No questions)</li> <li>➤ Categorize responses to open-ended questions and with choices (Likert Scale, frequency table)</li> <li>➤ Interpret survey results</li> </ul>
Preparation of audit results	Data processing, analysis and interpretation of data/information by the COA audit team

#### **4. Results of the Audit**

The survey revealed the following:

- The Information, Education Communication (IEC) campaign for the SWM of the pilot LGU is effective.
- Effective information education campaign resulted in regular solid waste segregation.
- The segregation of solid waste is generally being practiced which is an indication of high awareness of the solid waste segregation program.
- Satisfaction rate of constituents on garbage collection method is high which could be attributed to effective IEC and solid waste management program.
- Majority of the respondents considered their community as clean.

The document analysis disclosed the following:

- The ten-year Solid Waste Management (SWM) Plan was prepared and was approved by the National Solid Waste Management Commission. The Plan contains the activities to be undertaken for the period of ten years.
- The pilot LGU, in addition to the IEC campaign by its hauling contractors, also conducts its information dissemination on solid waste collection and solid waste management.
- The pilot LGU implements segregation of different types of solid waste for re-use, recycling and composting and monitors the same. All non-recyclable materials are collected by the pilot LGU.
- Hauling and transfer of solid waste from source or collections point (households/business establishments/other places) to final dumping site, except cells covered by barangay trucks, is undertaken by the pilot LGU through its contracted services of haulers.
- The dumping of solid waste site is a landfill.
- The Materials Recovery System, which is an acceptable replacement for Materials Recovery Facility (MRF), is present in all barangays.
- The pilot LGU adopts a total clean-up policy for solid waste management.
- The required review of the SWM Plan of every two years per Implementing Rules and Regulations of RA No. 9003 is not done since it entails the conduct of Waste Analysis and Characterization Study which is very costly and a tedious process undertaken by a technical consultant.
- Although the priority concern of the pilot LGU is to achieve a clean environment, it was observed that the SWM Plan was formulated to comply with the requirement of the Ecological Solid Waste Management Act rather than the blue print of how the pilot LGU would like to undertake its program for a clean environment.

#### **5. Extension of Coverage of the CPA**

After the completion of the conduct of the environmental audit on solid waste management of the pilot LGU using CPA as well as the evaluation and enhancement of the audit methodologies and tools, the other programs and projects of this pilot LGU on the implementation of the different laws on environment protection and management will be covered by succeeding audits. This will be done simultaneously with those of the remaining 16 LGUs in the NCR using the enhanced audit methodologies and tools adopted in the pilot environmental audit.

## APPENDIX

### A. Survey Highlights: Towards a “Clean, Green and Pleasant” – Pilot LGU

#### Survey Results

- Majority (81%) of the respondents have heard of the SWM Program, and 82% are aware that it mandates the separation of biodegradable and non-biodegradable waste. The top three sources of information on SWM are: barangay assembly; garbage contractors; radio or TV.
- 89% of the respondents claimed to practice waste segregation regularly.
- 24% of the respondents said that they have witnessed instances wherein unsegregated garbage was still collected by contractors; 61% of these respondents reported this through the barangay hotline.
- 29% of the respondents said that there were alternative means to collect garbage in their barangay. Some of these are: children collecting garbage for a fee, selling waste to the recycling plant, giving garbage to the street sweeper, burning the garbage, and burying garbage underground.
- 55% of the respondents said that there were street sweepers in the barangay. 60% of respondents were not aware whether these street sweepers wore (city- or barangay-issued) uniforms.
- 15% of respondents were very satisfied with the garbage collection methods in their barangay; 61% were satisfied; 10% were somewhat satisfied. Only 4% expressed dissatisfaction. **The top two reasons cited for not being satisfied are: *not all segregated garbage is collected and improper handling of collected garbage.***
- 51% of the respondents rated their community as clean.

# Challenges and success stories in environmental auditing in SAIs

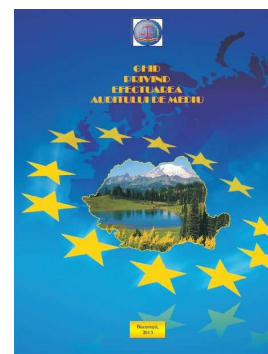
## ROMANIA

### Success Stories of Developments in Environmental Auditing in Romanian Court of Accounts

The supreme audit institution of Romania, **the Court of Accounts**, was initially set up in 1864 and operated until 1948. For the following 25 years financial control was initially the responsibility of the Ministry of Finance, and later of the Higher Court for Financial Control. The Court of Accounts **was re-established** by law in 1992, based on the provisions of the Romanian Constitution. It operates in support of the Parliament and conducts its activity independently - functionally, operationally and financially - from the entities it examines. It is currently the institution whose **role** consists of supporting the promotion of: accountability, correctness and the best practices in the sound management of public funds.

According to Law no. 94/1992 on the organization and operation of the Court, re-issued in 2009, and *Regulation on the organization and conduct of the activities specific to the Court of Accounts, as well as on the follow-up of the reports resulting from these activities*, approved by Plenum of the Court by Decision no.130/2010, within each control/audit activity (financial audits, compliance audits, and performance audits), external public auditors are required to record in different sections of the audit report, *the establishment, use and management of financial resources for environmental protection, improvement of living and working conditions.*

In order to harmonize the specific activities with international good practice and facilitate the implementation of own Audit Standards in accordance with the standards of INTOSAI, the Romanian Court of Accounts top management decided to develop audit guides on specific fields. Thus, in 2012, the department dealing with environmental issues developed the **Guidance on conducting environmental audit** that, after the approval of the Plenum, was submitted to all structures in order to be implemented after 12/01/2012. The **Guidance on conducting environmental audit** encourages the exercise of professional judgment at all stages of the environmental audit, which is essential, given the diversity of environmental auditing issues, objectives and methods of collection and analysis of data available in the environment audit.



**Some of the most important themes of the environmental audits conducted by the Romanian Court of Accounts in the last years are the following:**

**1. Compliance audit regarding the provisions of the Danube Convention on cooperation for the protection and sustainable use of the Danube River**

**The overall objective** of the compliance audit was to review the progress and the status of the provisions of the Danube Convention by Romania and every county situated along the river (Mehedinti, Olt, Dolj, Teleorman, Giurgiu, Calarasi, Ialomita, Braila, Galati and Tulcea).



#### 2004 – Main findings and conclusions

- The Environmental Protection Inspectorate identified and classified by production capacity the polluting sources, but it did not have the necessary equipment to detect radioactive pollution, pesticides and other hazardous substances;
- Environmental Protection Inspectorates regularly inventoried and prepared the waste situation in each county, but the measuring and control equipment was insufficient, there was no continuing concern to determine the content of heavy metals, petroleum chemicals, pesticides and other toxic specific substances and there were no significant improvements related to discharge of waste water;
- Some major priority investments in environment protection were not finalised;
- No comprehensive studies were performed on discharges of inadequately treated waste;

The general opinion was that even though some efforts have been made at local level to achieve the Convention's objectives, there were not enough programmes and projects implemented aiming to achieve environmental protection and its sustainability.

### **Main recommendations**

In order to totally implement the provisions of the Danube Convention a clear and coherent framework is needed, that will lead to:

- An increase of funds allocated to achieve necessary pollution control and environmental protection;
- Establishment and implementation of measures by the Ministry of Environment and Water Management, which will lead to changes in the behaviour of individuals and companies regarding pollution and environment protection.

### **Lessons learned**

#### **The Danube Convention can be implemented, if:**

- specific legislative provisions will be adopted and an appropriate strategy will be elaborated and implemented, both at national and local level;
- a contingency plan in the event of disaster is developed and adopted;
- protocols with the signatory countries for the suppression of poaching and for information exchange regarding the existence of waste on board ships;
- entities whose activities have an impact on the marine environment will constantly, efficiently and effectively carry out their activities for the prevention and protection of environment.

At a national level, legislative and administrative measures were taken regarding the prevention, control and reduction of the transboundary impact and for the protection and use of quality water.

### **2007 - Main findings**

- Phenomena of river pollution incidents and soil pollution with oil products have been recorded in the area of the Danube basin;
- Malfunction of wastewater treatment plants, powered by big and outdated equipment which do not meet current standards; lack of pre-treatment plants, and non-fixing conditions for the discharge of wastewater in sewage networks and insufficient capacity of urban and industrial sewage systems;
- Even though there were programmes adopted to equip the laboratories of the counties bordering the Danube, the funds allocated for investments were insufficient and there was no proper management for accessing external funds made available by the European Union, such as PHARE, ISPA and SAPARD funds.

### **Main recommendations**

- To reduce the negative impact of human activity on the environment;
- To improve the management and allocation of local funds for investment in environmental protection;
- To prepare internally/ externally financed projects for the conservation of green corridor areas and of special protection areas of the Danube River or to continue the projects which were carried out with good results in previous years;
- To identify the necessary investment funds to raise the dikes in the flood-prone areas and to strengthen the existing ones;
- To continue the rehabilitation and extension of sewerage systems and to identify the funds for their achievement;
- To draw up plans to prevent and control accidental pollution of groundwater;
- To eliminate, if possible, the adverse effects of cross-border transportation of hazardous substances and waste products and keep strict records of ships used for this purpose and the type of freight transported by such ships;

Most of the recommendations were implemented by central and local authorities.



## **2. Compliance audit regarding the provisions of the Convention for Protection the Black Sea against Pollution**

The main objective of this compliance audit was to review the progress and the status of the provisions of the Convention for Protection the Black Sea against Pollution:

- Prevention, control and reduction of the negative impact of pollution on marine environment of the Black Sea;
- Control of hazardous substances and pollution;
- Protection of living marine resources;
- Revival of the Black Sea Commission activity.

### **2006 - Main findings**

- A general tendency to stabilize the environmental factors and to reduce nutrient fund;
- Except for some limited areas, nutrient concentration was relatively low and homogeneous, especially mineral phosphorus, as it used to be 30 years ago;
- During the last five years the level of radioactivity has been low in all components of the marine ecosystem;
- Compared to previous years, in 2004 a decrease in hydrocarbons pollution was registered, both in coastal waters and in sediments due to increased values of domestic and industrial wastewater discharged into the area.

### **Main recommendations**

- To adopt an intervention plan in case of disaster, except for hydrocarbons pollution;
- To adopt a Black Sea Strategic Plan by the Government;
- To adopt specific legislation and formulate their local strategies to be implemented at local and national level in order to implement the provisions of the Black Sea Convention;
- To sign bilateral protocols with the signatory States of the Convention for the suppression of poaching and the exchange of information on waste existing on ships;
- To formulate strategies for sustainable tourism on the coastal area and a Local Action Plan for Environmental Protection;

### **2007 - Main findings**

#### **Regarding the prevention, control and reduction of the negative effect of pollution on the Black Sea marine environment:**

- Romanian coastal waters were under the influence of coastal pollutant sources (domestic and industrial sewage, harbour activity, shipping, tourism) carried by the Danube and by other rivers from the north-east of the country (Nistru, Nipru);
- Degradation of coastal environment and ecosystem are generated by the large amount of salt nutrients (nitrogen, phosphorus, silica) that can cause biological phenomena with long-term adverse effects;



#### **Regarding pollution with chemicals and hazardous materials:**

- Black Sea waters are polluted along the shore by permanent sources (the primary pollutants are economic agents) and by accidental pollution;

#### **Regarding the protection of living marine resources:**

- The lack of harmonization at national level of sustainable development strategy for the fisheries sector with the provisions of the environmental protection law;
- The lack of harmonization at regional level of the legal and the institutional framework for sustainable use of living resources.

### **Main recommendations**

- Large tourist projects must include environmental protection and ecological solutions that would prevent any disturbances in the marine ecosystem and its biodiversity.

- Handling and storage of polluting substances in the harbour area have to be conducted in compliance with technological discipline rules.

### **2010, 2011 - The coordinated parallel audit of protection of the Black Sea against pollution**

Along with neighbouring countries in the Black Sea area (Russia, Ukraine, Turkey and Georgia) it committed to participating in a EUROSAI WGEA project dealing with the implementation of the Bucharest Convention on the protection of the Black Sea against Pollution for the period 2007-2009. The audit **aimed** to assess the progress achieved by the participating countries in complying with the commitments made in international cooperation agreements and projects on preventing disasters, catastrophes and pollution of the environment of the Black Sea. The audit also aimed to monitor and examine the efficiency of the use of public funds for this purpose.

#### **Main conclusions**

Following the examinations conducted, an assessment was made of the progress in the implementation of commitments resulting from the Convention on the Black Sea Protection against Pollution, as well as the monitoring and analysis of the efficiency of the use of public funds allocated for this purpose (year 2009) and a reasonable assurance was obtained relating to the following aspects:

- Romania has made entreaties and has taken measures relating to the compliance of the engagements undertaken by means of the Bucharest Convention;
- An institutional structure is in place in this respect as well as systems for control, prevention and consequences elimination of the marine environment pollution;
- Financial programs have been provided.

#### **Main recommendations**

- Improving the coordination between national authorities in order to carry out a sustainable development of the Black Sea coastal zone;
- Improving the capacity of the health authorities to control the implementation of the legislation in the field of bathing water;
- Continuing entreaties for the adhesion of the European Union, represented by the European Commission, to the Convention on the Black Sea Protection Against Pollution, in order to facilitate the European funds accession process;
- Continuing the works for wastewater collection and treatment in the human settlements, consisting in the rehabilitation, modernization and extension of wastewaters sewerage networks, as well as of the wastewaters treatment plants and installations, so as to comply with Directive 91/271/EEC, respectively modernization of all treatment plants on the coastal zone;

### **3. 2012 - The performance audit on the conservation of the biodiversity of the ecosystems of forests, the status, evolution, management and administration of the national forest land**

The overall objective of the audit consisted in the analysis and evaluation of efficiency markers and of result parameters related to the administration and management of the national forest land, as well as to the preservation of its biodiversity.

#### **Main findings**

- In the period 1990-2012, public state property of forest area decreased by 3,028,762 ha, by retrocession to natural and legal persons, as a result of the laws of the land fund,
- An area of approximately 561,168.84 ha was returned or is in various stages of administrative or judicial process of restitution without the conditions provided by law, being considered litigious cases,
- The administration of the forest has become increasingly unbalanced, as economic interest prevailed over the rational management that would have also considered the interest related to the preservation of biodiversity,
- The total volume of illegal logging in public state and private property in the period 1990-2011 covers an area of over 366,000 hectares, being monetize over 80 million cubic meters of wood,
- The management of state owned forest is inefficient because there is no proper monitoring,



- A chaotic process of deforestation is the biggest threat faced by the local forests at this point and this phenomenon is increasing, unless urgent action is taken, as more forests are to be returned to the rightful owners they had before the confiscation campaign of the communist regime.

### **Main recommendations**

- Amendment of the legal framework governing the restitution of forest areas in the public property of the state - and creating the premises for reconsideration of the restitution law, making possible to remove prejudices, recovery and restoration of the forests owned by the state,
- Ministry of Environment and Climate Change along with National Forest Administration shall initiate a legislative proposal amending the Forest Code (to regulate the right of National Forest Administration to represent the Romanian State in disputes over ownership of property).
- Ministry of Finances and Ministry of Environment and Climate Change shall take measures for forest inventory,
- Enhancing security measures of forest owned by the state, to prevent and reduce illegal logging.

### **Impact**

Although the report has been published only recently, there have been quite many impacts from the audit:

- amendments to the current law on forests regarding planning and performing measures to improve health conditions of forests have been proposed to the parliament;
- serious issues related to forests management was put on the agenda of policy makers.

### **Challenges**

The major challenges the Romanian Court of Accounts is facing in conducting environmental audits are:

- The auditors have to make references to some audit cases and related knowledge without any published practical guidelines. No environmental auditing guidelines or standards were published in Romania till 2012,
- The auditors have an educational background in finance or accounting and none of them has an educational background in environmental management, environmental economy or environmental engineering, which gives rise to a lack of adequate expertise and techniques in environmental auditing.

In order to face these challenges, the Romanian Court of Accounts is planning to expand the audit scope for environmental auditing by evaluating the overall environmental performances of projects and promoting the effective integration of environmental factors into the decision making process. It will also choose different types of environmental auditing to comprehensively evaluate government and related entities' implementation of their duties in environmental audit and sustainable development promotion.

The Romanian Court of Accounts, due to its independence, fairness, transparency and ability to hold public institutions accountable as well as to its active role in promoting good governance, is conducting independent audits regarding the implementation of the National Strategy for Sustainable Development.

In auditing the implementation of relevant commitments made by the Romanian Government, the Romanian Court of Accounts is assessing the efficiency of the delivery mechanisms in place, including: strategies, action plans, reporting and accountability mechanisms for delivery and progress against commitments. It is also auditing externally funded projects to implement commitments and is focusing on the delivery of specific topics including energy, water, waste, environment protection, agriculture, health etc.

The environmental audits carried out by the Romanian Court of Accounts in recent years involved the implementation of sustainable development objectives and combined factors covering economic, social and systemic issues. Environment problems have become regionalized and globalized and that is why the Romanian Court of Accounts began to cooperate and exchange information with the neighboring countries on environmental problems of common concern.

# Challenges and success stories in environmental auditing in SAIs

## UGANDA

### Environmental Audit Challenges in Uganda

#### Introduction

Uganda is a land locked country in Eastern Africa and protection of the environment has been one of the key goals of the Government of Uganda. Environmental information is vital in planning and decision making processes especially those involving sustainable development and natural resources management. The Government of Uganda<sup>11</sup> adopted a National Environment Policy in 1994 and one of the policy objectives is to collect, analyze, store and disseminate reliable information relating to environmental management issues. This was further strengthened in 1995 by the National Environment Act Cap 153 which put in place the institutional framework that established the National Environment Management Authority (NEMA).

NEMA is the principal agency responsible for the management of the environment in Uganda. It coordinates, monitors and supervises all activities in the field of environment. The Authority thus has the mandate for the management of environment information in the country. This includes implementing standards for environment information; strengthening environment information units within sectoral institutions and linking them through a National Environment Information Network. Both the Policy and Act are further reinforced by Articles 39 and 41 of the Constitution of Uganda. Article 39 provides for the right to a clean and healthy environment, while Article 41 provides for the right of access to information.

#### STATE OF THE ENVIRONMENT

##### Physical Environment

1.1 Land degradation is one of the main environmental issues facing Uganda. Over 80 percent of the country's population lives in rural areas and population is doubling every 20 years at the current rate of growth.

1.2 The key land degradation issues are soil erosion, decreasing soil fertility, agrochemical pollution and a tendency towards desertification. The main causes are population pressure, inappropriate land management practices and on rangelands over-stocking.

1.3 The main water environment concerns are the issues of quality and access. The main threats to quality include eutrophication, pollution, and the proliferation of invasive plants.

1.4 Tropical high forest has declined from a total of 13 percent of the total area (35,000 km<sup>2</sup>) in 1900 to about 7,000 km<sup>2</sup> in 2005. The Central Forest Reserve (CFR) currently covers some 12,000 km<sup>2</sup> and includes about half of the tropical high forest. Overall 70 percent of the nation's forests are not protected; they act as the nation's main fuel source and are becoming increasingly degraded.

1.5 Encroachment, involving the conversion of gazetted forest land to agriculture, has become a major problem throughout the nation and per capita forest has declined from 0.3 ha in 1990 to 0.1 ha in 2004. A fuel wood crisis is looming as demand exceeds supply with rising population. The average distance travelled to collect firewood has risen from 0.06 km in 1992 to 0.73 km in 2000.

1.6 Uganda's wetlands support a rich diversity of plants and animals and serve an important natural role for sediment, nutrient and toxin retention, stabilization of the hydrological cycle, harboring biodiversity, biomass production and water supply in rural areas. They are under threat in many ways including from encroachment, brick production, drainage and pollution.

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<sup>11</sup> National Environment Management Authority (NEMA) and Uganda Bureau of Statistics (UBOS).

1.7 As a consequence of civil strife Uganda has about 555,000 IDPs<sup>12</sup> located in six districts. In addition there a further 190,000 refugees from wars in neighboring countries are being accommodated in camps.

### **Evolution of Environmental Audit in SAI-Uganda**

The OAG's mandate to carry out Value for Money Audits is enshrined in the 1995 Constitution of the Republic of Uganda, Article 163(3). This mandate is amplified by Section 21(1) of the National Audit Act 2008 which requires the Auditor General to carry out VFM audits for purposes of establishing economy, efficiency and effectiveness in the operations of any department or ministry.

### **Special audits and investigations:**

Section 22 of the National Audit Act 2008 also permits the Auditor General to carry out special audits, investigations or any other audit considered necessary by him or her.

SAI of Uganda has conducted the following studies/audits in the management of natural resources namely:

- Management of Wildlife Conservation by the Uganda Wildlife Authority
- Solid Waste Management in Uganda.
- Distribution of water to urban areas by National Water and Sewerage Corporation.
- Management of Farm Income Enhancement and Forest Conservation (FIEFOC) project.
- Environmental audit report on forestry activities in Uganda.
- Environmental Audit of Lake Victoria Basin – Fishing.
- Audit of Medical Waste Management.
- Protection of Central Forest Reserve in Uganda.
- For further details on these reports, visit OAG of Uganda Website; [www.oag.go.ug](http://www.oag.go.ug).

### **High lights of Major issues of concern related to Environment Auditing in Uganda Case Study on Environment audit in Uganda**

AN Environment Audit was conducted on the Protection of Central Forest Reserves by National Forestry Authority (NFA)

#### **Motivation**

Forests provide a wealth of direct and indirect environmental benefits to the people. Tropical High Forests (THFs) are particularly important as they provide disproportionately high values of natural products, environmental services and support high levels of biodiversity. However, in Uganda, the quantity and quality of the THFs has declined overtime. Well over 30% of the THF in Uganda is now degraded, with private forests shrinking more rapidly than forests managed by the government.<sup>13</sup>

#### **Major Findings:**

##### **Forest Management Plans (FMP)**

A review of documents and management interviews confirmed that out of 506 only 8 FMPs for Mabira (6 CFRs), Kalinzu (1 CFR) and Namavundu (1 CFR) had been approved by 2010. This implies that only 46,123 ha, representing 4% ha are managed according to plan leaving 1,219,348 ha, that is, 96% of forest coverage managed at the discretion of NFA management without approved plans, since the National Forestry Tree Planting Act (NFTPA) came into force in 2003. It was further noted that seventeen (17) FMPs that were submitted to the Minister in 2009 have remained unapproved to date, while the remaining FMPs are still with the Board. Although the process of making FMPs was not concluded, a review of documents relating to the financing of NFA revealed that shs.100, 650,000 and shs.902, 143,992 was budgeted for FMPs and board members and a total of shs.123, 904,340 and shs.769, 840,313 was spent on FMPs and board members respectively for the three years.

<sup>12</sup> These (People living in protected camps) have since been asked to return home with the emerging peace in this part of the country.

<sup>13</sup> The Value of Uganda's forests: A livelihoods and ecosystems approach, 2004

### **Recommendation**

NFA should expedite the review and submission of draft FMPs for approval. Efforts should also be taken to get feedback on the submitted FMPs to the Minister responsible. Board members outputs should be clearly determined with clear timelines.

### **Opening and Maintenance of Forest Roads for effective management of CFRs**

Out of the 404 km forest roads planned only 122 kms were actually opened and maintained representing 30% performance. The 122 km work was done in only eight out of the thirty five CFRs i.e. in Budongo, Mabira, Kalinzu, Namanve, Itwara, Bugoma, South Busoga and Mbale.

From the review of documents, it was noted that shs.572,326,000 was budgeted for road maintenance and shs.224,612,051= was spent in the three years under review.

### **Recommendation**

NFA should ensure that forest roads are well maintained to facilitate responsible forest management. This can be achieved by setting realistic achievable targets in a phased manner in the operational plans.

### **Forest boundaries**

The boundaries of the thirty five forests in the sample were found to be unclear. The sampled forests have a total cut-line boundary length of 1340.32 kms. In the three years under review 668.85kms of forest boundary were planned for reopening and maintenance. Out of this, only 453.3 kms of the boundary were actually maintained, representing 68 % performance. Review of the financial statements indicated that shs.1, 123,910,000 was budgeted for boundary opening and shs 809,804,810= was spent in the three financial years under review, implying that the boundaries of the forests should have been clear.

### **Recommendation**

NFA should ensure that Forest boundaries are opened and maintained. Beacons (Pillars) such as the ones used in South Maramagambo CFR, should be installed at forest boundaries that are unclear and prone to encroachment. Work plans and budgets should be prepared on the basis of the resource envelope so that they can be effectively implemented.

### **Prevention of Forest Fires**

The audit revealed that for all the thirty five forests in the sample there were no serious cases of fire except in the South Busoga CFR. This is because natural forests have a very low risk of fire since they are ever green. While the fire cases were not serious, the forest stations were not equipped with the necessary tools to fight fire in the event that serious fires broke out. Station managers reported that the small fires were fought using fire beaters (tree branches). It was also noted that there were no nearby sources of water to fight the fires in case of emergency. Furthermore the stations did not have a fire monitoring crew and there was no evidence of sensitization of surrounding communities on the prevention of fire. The analysis of financial statements revealed that shs.553, 420,000 was budgeted for fire control and shs 300,062,084 was spent during the period under review.

### **Recommendation**

Using the budget allocation, NFA should ensure that basic tools and equipments for firefighting are prioritized and procured for forest stations. Fire monitoring and fighting crews should be established.

### **Illegal Activities within CFRs**

Audit found out that in all the thirty five forests under study, there were various illegal activities going on. Management reports, field observations and fines (as a revenue source) confirmed the existence of illegal activities, such as: timber harvesting, cultivation, settlement, grazing, sand mining and charcoal burning. Review of the financial records revealed that shs.865, 675,000 (was budgeted for forest patrols and shs 1,143, 585, 291= (425,000USD) was spent on this activity, implying that illegal activities should have been drastically reduced but which is not the case.

### **Recommendation**

NFA should implement a zero tolerance on illegal activities. Collaborative Forest management practices should be stepped up to make the communities appreciate the value of forests. NFA should

form collaborative arrangement with the local government to sensitize the communities on the benefits of forests so that the community may appreciate them.

### **Encroachment**

All the 35 forests in the sample had been encroached on and, according to management; the number of encroachers has gone much higher since the last census in 2005. In South Busoga CFR, for example, 13,105.6 ha out of the 16,382 ha of the forest, representing 80%, had been encroached on by 844 settlers according to the 2005 census by NFA. The analysis of the financial records indicated that shs. 380,597,988= was budgeted for law enforcement and shs.639, 313,366= was incurred, implying that encroachment of CFRs should have been scaled down.

### **Recommendation**

The NFA should restore the legal integrity of CFRs by evicting all encroachers. Furthermore, NFA as the lead agency mandated to protect all CFRs in Uganda, should plan and expedite the introduction of environmental police just like UWA has wild life conservation police to protect CFRs from encroachment.

### **Community Sensitization and Participation**

Review of documents and interviews with management revealed that twenty-two Collaborative Forest management (CFM) agreements were signed with communities adjacent to five (5) CFRS only, out of the thirty five sampled, representing 14 % performance. The analysis of the financial statements for the financial year under review revealed that shs 738,553,068= was budgeted and shs 284,524,400=, indicating a performance of 38.5% implying that this activity was not prioritized by management.

### **Recommendation**

NFA should embrace community participation in responsible forest management by ensuring that as many CFM groups as possible are formed and respective agreements signed to reduce the level of encroachment.

## **AUDIT CHALLENGES FACED BY ENVIRONMENT AUDIT IN SAI-UGANDA**

Environmental audit still faces a lot of challenges in Sub Saharan Africa, where SAI Uganda belongs. Among those, the following are highlighted:

### **Hostility from encroachers on wetlands and other environmental protected areas**

Auditors have been forced to hire police so as to access encroached areas. In some instances, photographs have been taken stealthily as mobs have threatened to vandalize audit equipment including cars.

### **Support from Parliament**

There is very little action taken on the very beautiful recommendations given by the OAG, since Parliament has not discussed most of these reports. Action has been taken mainly where the Accounting officer s have been very corporative and have appreciated the audits.

### **Skills and Expertise required given that this is a new area of audit.**

The office is still struggling to build capacity in this field. Currently, only one staff recruited has a background in environmental studies. Other staffs conducting environmental audits are Lawyers, accountants, and Social Scientists with little training in environmental audits.

### **Government's reluctance to take action on culprits**

Most environmental degradations are taking place unabated, even when NEMA tries to do its mandate. The Tone at the government level seem to suggest, "**we develop first and conserve later**" Case in point, where the Government is still insisting on giving away Mabira Forest , one of the most unique and influential forest in the eco system of the entire region, for sugar cane growing!!. This poses a big challenge to audit, since the policy to conserve is set at that level.

### **Poverty among the population**

A hungry man is an angry one. It is not easy to preach to a starving man about sustainable development. He is looking for his daily bread from that swamp you are telling him to preserve, his firewood from that forest you think he is depleting, and those animals in your protected area are food to him, traditionally. Conservation and preserving the environment, is luxury that poverty cannot afford.

**Inadequate expertise and tools in the various environmental aspects that is vast in nature.**

Lack of adequate equipment needed for environmental audits. Auditors have been hiring this equipment which at times is found not to be calibrated and thus potentially likely to give wrong results. Simple equipment such as GPSs, Noise meters etc are not yet procured for the auditors. Besides, even the few that are hired cannot easily be utilized as a result of lack of training and experience.

**Lack of clarity between the VFM audits and Environmental Audits**

Environmental audits have been carried out by VFM auditors, mainly as VFM audits, using those methodologies and techniques of VFM. It may not be easy to tell the difference between the two, especially so, to other stakeholders such as Parliamentarians.

**Lack of Standard guidelines and Regulations to guide and regulate the audits**

Environmental Specific Audit Guidelines and Regulations are still being developed, however, our SAI like is the case with most SAIs in the same region has adopted guidelines developed by the AFROSAI -E's WGEA to guide these kind of Audits.

**Lack of whistle blowers policy on environment**

Leads are important in finding trails. Without whistle blowers policy, the public is reluctant to give the necessary leads to environmental degradation sites.

**Audit inspection time and the cunning nature of polluters**

Often, pollution is done at hours when no auditor can be in the field. Most polluters are positioned in areas where catching them ready handed is very difficult. Their operation time coincides with time for normal sleep and rest for the rest of the community around them, including the auditors.

**A brief history and Geography of Uganda;**

Uganda, is in East Africa. It is bordered on the west by Congo, on the north by the Sudan, on the east by Kenya, and on the south by Tanzania and Rwanda. The country, which lies across the equator, is divided into three main areas—swampy lowlands, a fertile plateau with wooded hills, and a desert region. Lake Victoria forms part of the southern border.



**Government:** Multiparty democratic republic

**President:** Yoweri Museveni (1986)

**Prime Minister:** Amama Mbabazi (2011)

**Land area:** 77,108 sq mi (199,710 sq km); **total area:** 91,135 sq mi (236,040 sq km)

**Population (2012 est.):** 33,640,833 (growth rate: 3.3%); birth rate: 45.8/1000; infant mortality rate: 64.2/1000

**Population (2012 est.):** 33,640,833 (growth rate: 3.3%); birth rate: 45.8/1000; infant mortality rate: 64.2/1000; life expectancy: 53.45

**Capital and largest city (2011 est.):** Kampala, 1.659 million

**Monetary unit:** Ugandan new shilling

**Languages:** English (official national language, taught in grade schools, used in courts of law and by most newspapers and some radio broadcasts), Ganda or Luganda, other languages include, Nilo-Saharan languages, Swahili, Arabic



**Ethnicity/race:** Baganda 16.9%, Banyakole 9.5%, Basoga 8.4%, Bakiga 6.9%, Iteso 6.4%, Langi 6.1%, Acholi 4.7%, Bagisu 4.6%, Lugbara 4.2%, Bunyoro 2.7%, other 29.6% (2002 census)  
Expectancy: 53.45

For God and My Country.

Compiled by Ndahura Patrick – SAI-Uganda / Principle Auditor (Patrick.ndahura@oag.go.ug)



# Challenges and success stories in environmental auditing in SAIs

## ZAMBIA

### Challenges in environmental auditing

#### 1. Background

Environmental auditing was introduced in SAI Zambia in 2004 after the Public Finance Act No. 24 of 2004 was passed that allowed the Office of the Auditor General to conduct performance and other specialized audits. After the law was passed, in April 2005 the Office introduced a performance and environmental audit section under the Specialised Audits and Consultancy Directorate. The section is headed by a Deputy Director who is assisted by four (4) Principal Auditors, seven (7) Senior Auditors and six (6) Auditors. The unit has carried out and published four (4) environmental audits namely Provision of water in Zambia, Medical Waste Management in Zambia, Solid Waste Management in Zambia and Forestry Monitoring in Zambia. In addition, the office is undertaking two (2) environmental audits on Management of Environmental Degradation caused by Mining Activities in Zambia and Management of Dams in Zambia. It is planned to publish and table these reports in parliament this year.

#### 2. Challenges

Since the department is relatively new, the office faces some challenges in carrying out environmental audits. A few notable challenges are listed below:

##### a) Lack of autonomy

Currently the Office of the Auditor General cannot hire its own staff or set the salaries of the employees directly. Placement of staff of staff done by Public Service Management Division (PSMD) under Cabinet Office.

##### b) Mandate to carry out environmental audit is not explicitly written

Although the Public Finance Act of 2004 allows the Auditor General to carry out performance and other specialised audits, It is important to clearly define specialised audits so that environmental audit is clearly written in the laws and not left to speculation. This may also reduce possible impact of future litigation on the office.

In addition, all the laws i.e. the current Constitution of Zambia, the Public Audit Act of 1980 and the Public Finance Act of 2004 only allows the Office of the Auditor General to carry out audits of government institutions, corporations and statutory bodies and not private institutions. Private institutions can only be audited if they have received government grants or subsidy. Whereas this is revised for financial audits, it is a concern for environmental audits in that the polluters are in most cases the private companies. This is one of the major challenges and we hope to address this when review the Public Audit Act of 1980.

##### c) Inadequate staff

The performance and environmental audits section has a total of seventeen (17) members of staff who carry out both performance and environmental audits. The minimum threshold of performance auditors of at least twenty (20) has not yet been reached. Understaffing may result in the office not carrying out all the assignments as per the work plan. At the moment the Management has been lobbying the Public Service Management Division to increase the establishment. The establishment has risen from eight(8) members of staff in 2005 to seventeen(17) in 2013. More staff are still needed in this section.

##### d) Need to build capacity for all members of staff

The Office still needs to build the capacity of all its existing members of staff in the section especially in the field of environmental audits. Resources are required to conduct trainings on various areas of the environment such as water, solid waste, forestry, biodiversity and mining among others. Capacity

building will ensure that performance and environmental audits are carried out in line with international auditing standards (ISSAIs).

The Office has taken advantage of environmental audit training being offered by SAI India, AFROSAI WGEA and INTOSAI WGEA. Training on data analysis and use of innovative tools such as GPS should also be carried out to assist auditors in their data collection and analysis.

**e) Lack of resources**

Environmental audits are very expensive especially when it comes to carry out tests on pollutants. The budget and work plan of the office is approved by the parliament and funds are released by treasury which usually do not meet the demands for the environment audits. In addition, we have inadequate motor vehicles, office machine and tools for conducting environmental audits.

**f) Lack of Knowledge on environmental issues by our key stakeholders**

Environmental auditing is a new concept in SAI Zambia and as such our auditees, members of parliament and other key stakeholders do not understand the difference between environmental audits conducted by the Office and that conducted by the government departments in charge of environmental issues such as Zambia Environmental Management Agency(ZEMA). Therefore, it is imperative for the office to use a participatory audit approach and conduct sensitization workshops and trainings of stakeholders in order to create awareness on environmental audit issues.

**g) Environmental audit manuals not yet customized**

While INTOSAI has developed guidelines on environmental auditing, the Office has not developed any environmental audit manuals to guide the officers in the performance of environmental audits. Currently the office is relying on various manuals developed by INTOSAI WGEA.

**h) Lack of Environmental Experts**

The environmental audit section was formed but is manned by auditors that have a financial auditing background. Although this is good in one way in that the auditors come with experience of carrying out compliance auditing and investigative skills, The auditors lack technical skills in environmental auditing. The nature of environmental audits can be complex at times and hence there is need to have experts on every assignment. The office have in the past relied on experts from the auditees institutions or other government departments not taking part in the audit as a way of enhancing the quality of work. The cost associated with obtaining experts is very high and it would be better to have own few environmental experts that can guide the audit teams.

The use of experts on audit assignments does not mean the office surrenders ownership and responsibility for such audits and as such the risk still remains with the office.

**i) Lack of data on environment**

The office faces challenges in collecting data on environmental auditing especially if the area being audited has not been audited before.

## BRAZIL

**Environmental licensing of hydroelectric plants on the Madeira River (in the Amazon)****Background**

The compliance audit in the environmental licensing for the implementation of the Jirau and Santo Antônio hydroelectric plants, which are under construction on the Madeira River, in the Rondônia state, in the Amazon region, was carried out by determination of the National Congress.

The work aimed at examining the regularity of the environmental licensing of the projects, as well as evaluating the observance to the conditions established by the licensing: mitigating, compensating measures and environmental programs.

**Methodology**

The audit issues were:

- a) Were the legal stages/requirements of the prior authorization<sup>14</sup> for the Jirau and Santo Antônio project held in accordance with the related legislation?
- b) Were the legal stages/requirements for the installation licensing<sup>15</sup> of the Jirau and Santo Antônio projects held in accordance with the related legislation?
- c) Were the stages/criteria for the operation licensing<sup>16</sup> of the Santo Antônio project complied with?
- d) Were the conditions established in the environmental licensing for the Jirau and Santo Antônio projects complied with?

During the implementation stage, the audit team conducted in loco inspection in the two plants, in order to examine the fish transfer system and the log handling system, which were considered important conditions in the licensing process.

The auditors also inspected the location on the margin of the Madeira River where erosion occurred, the Sorting Center for Wild Animals (Cetas), as well as health centers, schools and hospitals built by the entrepreneurs, in response to the conditions established in the environmental licensing. People in communities affected by the projects were asked to answer questionnaires.

The audit took place between 2011 and 2012. The work was conducted in compliance with the norms of audit in accordance with the Federal Court of Accounts.

**Findings and recommendations**

The main conclusion of the audit was that, in general terms, the environmental licensing processes of the Jirau and Santo Antônio hydroelectric plants complied with the legal procedural steps determined by the related legislation. However, a few specific flaws were identified. One example is: lack of inclusion, in the Computerized System of Environmental Licensing (SisLic), of technical advice by the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama) - the agency responsible for licensing. This was in disagreement with the provisions contained in the law. The

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14 The prior authorization should be required during the preliminary stage of the activity planning, in order to make sure that the project is feasible, to approve its location and conception and to define the mitigating and compensating measures on the negative impacts of the project.

15 The installation license should be required to the environmental agency prior to the beginning of the construction, so that it can be verified whether the project is compatible with the affected environment. That license validates the proposed strategy for dealing with the environmental issues during the construction stage.

16 The operation license authorizes the party concerned to start their activities. Its purpose is to approve the project's proposed form of relation with the environment and to establish conditions for the continuity of the operation.

Operation License (LO) for the UHE Santo Antônio was issued prior to the full observance to the conditions established in the previous licenses, which was in disagreement with the legislation.

Problems with the local and state government conduct affect the use of social compensation benefits. Teachers and doctors, for example, were not provided by the public authorities for the schools and hospitals built by the entrepreneur, harming the use of those services by part of the population, in spite of the formal compliance with the environmental licensing condition.

The audit has observed that there is no definition concerning maintenance responsibility for the Sorting Center of Wild Animals after the construction is over. The center was built by the entrepreneur as a requirement of the environmental licensing, to serve as a destination for the fauna rescued at the project site. The entrepreneur claims that he will not be held responsible for the center after the building is over, since this was not a requirement of the environmental licensing.

Ibama has received recommendations and determinations indicating measures to correct the legal flaws registered in the report. It was recommended to Ibama that it should involve other government actors in the process of evaluation, monitoring and post-licensing follow-up of the negative social effects resulting from the construction of large-scale projects, that bear the potential to generate great negative impacts in the region where they are installed.

It has been recommended that, on the occasion of the definition of conditions that demand continuing maintenance, like in the case of the Sorting Center for Wild Animals, the responsibility for the maintenance of the facilities should be established from the very beginning, on a permanent basis, in order to avoid discontinuity to occur.

### **Impact and results**

The follow up of the work will take place during the year 2013. The implementation of the issued recommendations seek to mitigate the negative social effects resulting from the construction of great impact projects.

The outcome of the audit work was important to warn the National Congress of the need for improving the articulation between local and state governments for the effective use of benefits resulting from social compensation. It was observed that, in the case of Jirau and Santo Antônio, there were determinants met by the entrepreneur, such as the building of schools and hospitals, but no teachers or doctors were provided by the local authorities, what affected the use of those services by part of the population, in spite of the occurrence of formal observance to the environmental licensing condition.

### **Challenges and barriers**

TCU's need to develop methodology and expertise to evaluate the result of compensating measures adopted by the entrepreneur in the quality of life of the affected populations was a challenge emerging from this audit work. The responsibility of the Brazilian licensing agency, Ibama, in the mediation of the social conflicts resulting from the environmental licensing of large-scale projects creates an impact upon the duties of the auditors from the environmental team.

## INDONESIA

**Environmental Issues Related to Infrastructure****Summary**

Environmental issues range from ecological sustainability, human health and even to disaster cases, which can be seen from the victims of their consequences. In our country's case, disaster is another form of consequence that might directly reflect the quality of environmental management. In a preceding case, the disaster of Lake Situ Gintung that happened on March 27, 2009 and killed over a hundred people was a type of human-made disaster caused by inadequate infrastructure and environmental management of the lake's dam and catchment area.

The audit was conducted to find the cause of the disaster and resolve the existing problems related to the environment and the infrastructure, and to identify a better governance system for the government lake watershed management. The Audit Board of the Republic of Indonesia (*Badan Pemeriksa Keuangan/BPK*) recommended the Government to redesign its spatial and infrastructure management according to environmentally sound practices and periodic risk assessment of the lake watershed area based on the lake's ecological function.

**Background of the case**

Lake Gintung (or locally known as Situ Gintung) situated at Banten Province, Indonesia is one of the important water reservoirs for the City of Tangerang. Serving the watershed area of about 31ha and irrigating the agriculture paddy fields around the city, the lake was built from 1932-1933 by the Dutch government during the colonialism period in Indonesia. Its ecological function relies on the watershed area which serves as water catchment and reservoir facility, where its economic benefits come from water utilization and its beautiful green scenery. However, demographic and economic pressures from urbanization, city growth and industrialization during the development period caused significant damages to areas surrounding the lake and changes in land use. Eco-tourism, housing settlement and office buildings are examples of changes in the Situ Gintung areas.



Following a week of heavy rain, the lake dam was unable to hold water inside it. On March 27, 2009 the dam broke, spilling out tons per cubic of water to nearby areas, creating a massive flood and destroying houses and everything in its path. More than a hundred people were killed, 300 hundred houses were damaged and more than a thousand life became refugees.

Along with the government's efforts to relieve the victims and recover the damages, we conducted a performance audit to assess whether the infrastructure maintenance and operational activities were effectively conducted according to related laws and regulations, and whether those actions were designed and implemented according to environmental sustainability principles. Moreover the audit focuses to uncover causes of the disaster.

**The Generic Model and its application for Disaster Case**

The generic model implemented in the WGEA research paper can be seen as a process-oriented approach to determine a set of activities necessary to carry out an infrastructure project. It is a very

useful and practical model to achieve the development target effectively and efficiently, since the model flows activities in a logical way with cause and effect relationship.

**Normal pattern (Process-oriented approach)**

Business case → Decision → Planning → Design → Procurement → Construction → Maintenance and Operation

The model places maintenance and operation activities as ultimate goal or output of an infrastructure project, where planning and designing are the hearts of construction. From our perspective, the model is powerful for that can be applied as well in the state of Lake Gintung disaster. It only needs a minor adjustment to accommodate infrastructure solutions in resolving the problems or causes of the disaster. The basic of the model is maintained.

**Pattern at disaster occurs (Problem-oriented approach)**

Disaster → Decision → Planning → Design → Rehabilitation or Reconstruction → Environmental re-function → Maintenance and Operation

**Audit recommendations for better governance**

In each step or management phase, our audit identified potential risk and possible impact so we could provide effective recommendation for better governance in the infrastructure project. Potential risks were acknowledged from preliminary and detailed audit phases based on physical checking and documents in-depth analysis of the lake watershed area environmental management. To achieve those objectives, the audit focused on spatial planning and its implementation especially in the watershed area that serves as water catchment, and changes of land-use were identified to assess compliance to relevant laws ad regulation as well as its impacts to environmental sustainability. Auditors applied GIS and remote sensing technology to measure and identify changes in the lake watershed area. In addition to that, our audit projects tried to evaluate infrastructure maintenance and operation activities conducted by central and regional government, especially to its relation with decentralization of authority scheme. The intention was to identify causes of disaster from managerial, infrastructure and environmental perspectives. Furthermore, the audit recommendations were applied into the generic model to provide a mid-term infrastructure project model that would be set as better governance to manage Situ Gintung and other water resources.

A summary of the risk and impact identification is as follows.

Phase/Cycle	Risk	Impact	Better governance
Decision	Weak coordination between central and regional government	<ul style="list-style-type: none"> <li>▪ Duplication of works</li> <li>▪ Misuse of land</li> </ul>	<ul style="list-style-type: none"> <li>▪ Periodic and effective coordination</li> <li>▪ Improvement of law enforcements</li> </ul>
Planning	Weak linkage between sectors and regional planning	<ul style="list-style-type: none"> <li>▪ Spatial and environmental aspects were poorly managed</li> <li>▪ Demography pressures</li> <li>▪ Land use or occupancy poorly managed</li> <li>▪ Over exploitation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Redesign or reorientation of spatial uses and lake utilization based on ecological perspectives</li> </ul>
	Changes of lake function from agricultural irrigation to eco-tourism	<ul style="list-style-type: none"> <li>▪ Decreasing in water absorption ability</li> </ul>	<ul style="list-style-type: none"> <li>▪ Redesign of spatial uses</li> </ul>
Design	Weak coordination between central and regional government	<ul style="list-style-type: none"> <li>▪ Duplication of works</li> </ul>	<ul style="list-style-type: none"> <li>▪ Integrative planning based on watershed management</li> <li>▪ Disaster control system</li> </ul>

Procurement	n.a.*)	n.a.*)	n.a.*)
Construction		▪	▪
Maintenance and Operation	Inadequate budget	▪ Inadequate scope of works	▪ Improving budgeting process and allocation

\*) out of audit scope

Important recommendations for better governance included effective coordination among government institutions and integrated spatial planning. To improve reinforcement efforts and disaster control system were part of the audit recommendations that was aimed to significantly improve the government's ability to protect its people.

## BRAZIL

### Revitalization of the São Francisco River

#### Background

The river basin of the São Francisco is of extreme importance to Brazil due to the volume of water transported in a semi-arid region, and also to the water potential liable for utilization. About 16 million people, or approximately 8.5% of Brazil's population, live on this river basin. The basin has 634,000 km<sup>2</sup> of drainage area, which represents about 8% of the national territory, covering seven units of the federation. The San Francisco River is 2,700 km long with an average flow of 2,980 m<sup>3</sup>/s.

The revitalization project of the São Francisco River is of great economic and social value. It is listed as an essential condition for the Integration Project of the São Francisco River and the Water Drainage Basins of the extreme Northeast of Brazil to succeed, ensuring hydric potential for navigation, power generation, irrigation and supply for the population from the northeastern semi-arid region.

The Revitalization of the São Francisco River Basin Program (PRSF) is coordinated by the Ministry of Environment (MMA) in an integrated effort, engaging several Ministries and agencies of the Federal Government.

The Program consists of the environmental recovery, conservation and preservation through the implementation of integrated efforts that promote sustainable use of natural resources, improvement of social and environmental conditions of the São Francisco River Basin, and increase of the volume and quality improvement of the water for multiple uses.

#### Methodology

The audit aimed at evaluating the actions for recovery and control of erosion processes carried out by the Federal Government within the PRSF in the São Francisco River Basin (BHSF).

The audit issues that guided the work were:

- a. How much was invested in the control and prevention of erosion processes within the PRSF from 2004 to 2011?
- b. What results were observed in the tendency towards watershed degradation in the Basin?
- c. Has the coordination of the MMA been favoring the interaction between the institutions and spheres of the government and the complementarity among the PRSF forms of investment?

To identify the problems, the stakeholder analysis, the SWOT analysis and the Risk matrix were employed. Study visits were carried out in several cities along the São Francisco River Basin.

The audit took place between the years 2011 and 2012. The works were conducted according to the norms of the TCU operational audit.

#### Findings and recommendations

Regarding budgetary matters, it was found that the Federal Government allocates large amounts of resources to budgetary actions related to the revitalization of the watersheds. However, the department for recovery and control of erosion processes receives only 6% of the national budget reserved for the revitalization actions. The sanitation works receive most part of the resources. Besides that, most actions show a low budget and financial execution. In fact, very little is effectively invested in actions that may create dramatic impact upon the available water volume in the basin.

The PRSF has been working mainly on water quality, leaving behind the actions that can have an impact on the amount of hydric resources. Despite the significance of the sanitation works for the



improvement of the water quality in the São Francisco River, the Program loses its effectiveness when it neglects other causes for the Watershed degradation.

The pace of soil degradation has been intensified due to many factors, such as poor inspection, which favors disorderly property occupation and stimulates mining companies, marble factories, charcoal plants, large-scale farmers and cattle farmers to work in disagreement with the environmental regulations.

Other factors that are worth mentioning here are the absence of economic alternatives for small owners who are obliged to preserve the riverbanks, springs and hillsides, and the need for adequate projects for the recovery and control of erosion processes.

In addition to the high pace of degradation, there is the fragility in the quality of actions for recovery of the degraded areas, which add to the aggravation of the environmental issue in the São Francisco River Basin. The activities are hindered due to the poor participation of the communities involved, mainly because of insufficient environmental education and rural extension. Moreover, the lack of planning in the short and long run, by the agencies responsible for the projects implemented, undermines the maintenance of the activities carried out.

The PRSF does not have clear and objective indicators for result evaluation. The executive agencies have no access to data concerning the impact of the activities for recovery and control of erosion processes in the Basin. As a result, the planning of actions is affected, with consequent loss of public resources, and it discourages the participation of society.

It has also been observed that the failures in the coordination impair the program progress.

The coordination structures created since the program launching, in 2001, were not implemented, and the actions lack centralized orientation to guide the individuals involved with its implementation. Several organizations are dealing with the development in a disjointed and sectorial manner, a fact that contributes to the aggravation of the environmental conditions in the basin.

Among the recommendations proposed to the MMA, are:

- a) to prioritize the establishment of the Management Committee of the Program;
- b) to promote and support, through institutional articulation and resources from the PRSF, integrated actions for environmental inspection in the basin region, given its profound significance to the curbing of the degradation process and damage repair;
- c) to include, in the revitalization projects carried out in the PSRF, mechanisms for the generation of economic alternatives that can guarantee the survival of small producers obliged by law to recover and preserve riverbanks, springs and hillsides;
- d) to produce, implement and follow the indicators to measure the efficiency of the actions directed to the recovery and control of erosion processes in the PRSF.

Besides that, it was recommended to the São Francisco Valley Development Company (Codevasf):

- a) to take over the planning and implementation of projects able to promote efficient solutions for a whole region, as for example, a whole sub-basin, always consulting the other spheres of the government and agents affected by the proposed solution, so as to maximize the result of the actions;
- b) to include, in the actions for recovery and control of erosion processes, concomitant initiatives concerning environmental awareness, both in schools and rural properties.

### **Impact and results**

The audit will still be monitored. It is expected that the adoption of the proposed measures by TCU can contribute to the improvement of the Program for the Revitalization of the São Francisco River, so as to maintain the volume of its water, enabling its potential for multiple uses, in order to improve life quality for all the Brazilian citizens who live along the river basin and depend on it to survive.

Articulation improvement among the spheres of the government and institutions will be able to maximize the program results and avoid waste of public resources.

## CAMEROON

### Lake Chad joint environmental audit

#### Background of the project and audit planning

The second annual meeting of the AFROSAI Working Group on Environmental Auditing (AFROSAI-WGEA) held in Yaoundé from 18 to 20 July 2012, concluded, among other resolutions on the execution of a joint environmental audit on the drying up of Lake Chad.

This joint environmental audit which is co-executed by the SAIs of countries bordering Lake Chad including Cameroon, Chad, Niger and Nigeria, assisted by experts from the SAIs of Tanzania, Kenya, Morocco, with the support the Canadian Foundation for Integrated Auditing and GIZ project "Support for AFROSAI."



This joint environmental audit of Lake Chad is justified because of many reasons as it occurs in a particular context which can be summarized as follows:

- to this day, Lake Chad has lost 90% of its area from 25,000 km<sup>2</sup> in 1963 to 1500 km<sup>2</sup> in 2010. The lake runs the risk of disappearing in the next 20 years if nothing is done there to save the effects of climate change and population pressure;
- about thirty (30) million people living in the Lake Chad Basin are forced to compete for the use of water from Lake Chad and its drying could lead to migration and conflict from the experts;
- each year in addition to financial support from international partners, the riparian countries of Lake Chad, finance through large direct budgetary contributions, many studies and other activities to overcome the problems of the drying up of Lake Chad.

#### 1. Overall Audit Objective

To determine whether the partner states have effectively implemented monitoring, control and enforcement practices and systems to accomplish achieve sustainable use of water resources in the Lake Chad basin.

Specifically, the audit includes an analysis of the environmental challenges of Lake Chad, reports, means and methods implemented by the Commission of the Lake Chad Basin (LCBC) at the sub regional level and by the Ministries and Agencies concerned in each country to address and monitor the environmental problems of Lake Chad.

#### 2. Audit planning activities and processes

- a. The planning meeting in N'Djamena in Chad, from November 26 to December 1, 2012: with two (02) major objectives:
  - the signing of the MOU between SAIs participating in this joint audit;
  - the development of key planning documents of this joint audit: the audit logic matrix, the work plan and budget.

This meeting permitted the joint team to:

- understand the theme of this joint audit;
- define the objectives and audit criteria;
- determine procedures for data collection and analysis of evidence;
- develop the Logic Matrix;
- define how to document the joint audit.

- b. The training workshop in environmental audit of Yaoundé, Cameroon, from 18 to 22 March 2013:

Organized by the General Secretariat of AFROSAI, the general objectives of this workshop were to:

- Improve the joint audit team knowledge of the process of performance audit, such as data collection and analysis, report writing, assessment of the economy, efficiency and effective in environmental audit;
- Finalize the audit logic Matrix and develop the detailed draft of the audit program of the joint audit.

Main results of the workshop:

- framework for managing risks related to joint audit;
- organization of the quality control and quality assurance of joint audit;
- compilation of the audit logic matrix;

c. The meeting in Abuja, Nigeria, from 14 to 16 May 2013:

This meeting led to the joint audit team to finalize and validate the audit program for the following lines of enquiry:

- **line of enquiry #1 – Control: to determine to what extent partner states have put control measures in place to ensure that water quantity in the lake chad basin is managed in a sustainable manner ;**
- **line of enquiry #2 – Monitoring: to determine to what extent partner states have put systems in place to ensure efficient and effective monitoring of sustainable water use in the lake chad basin;**
- **line of enquiry #3 – Enforcement: to determine the extent to which partner states effectively enforce environmental protection regulations, guideline and standards to control water use in the lake chad basin;**
- **line of enquiry #4 – Lake Chad Basin Commission (LCBC): to determine whether**
  - **LCBC carries out its responsibilities;**
  - **LCBC evaluates and monitors the performance of the partner’s states regarding implementation of various measures to control water use.**

The Work Plan of the joint audit has also been updated and the team is expected to start on 15 June 2013, data collection in the field in each riparian country.

## **Methodology**

The methodology to be used will comply with:

- INTOSAI auditing standards (environmental, performance and compliance audit);
- The guidelines of AFROSAI and Its Linguistic Sub-Groups;
- National auditing standards.

## **Expected results and impact**

This joint environmental audit is a matter of public interest through the use of the final result and the expected benefits that will clearly identify all risks associated with the management of water resources of Lake Chad. In addition, given that the Governments of riparian countries are concerned about the preservation of Lake Chad and the survival of populations that depend on the Lake, this joint environmental audit will allow SAs of these riparian countries to contribute in identifying viable solutions that these Governments may set up for a suitable governance of Lake Chad resources and beneficial regional cooperation in the Lake Chad Basin.

In terms of outcomes, this joint environmental audit will clearly identify the main shortcomings in the management of water resources and the ecosystem of Lake Chad and especially highlight the useful recommendations to address the problem of its drying. In addition, these results will have impact because they will be presented in a joint audit report to be tabled at:

- the Governments of countries Bordering Lake Chad;
- the Parliaments of countries Bordering Lake Chad;
- the CEMAC (Central African Economic and Monetary Community) Parliament;
- the Pan-African Parliament;
- the African Union Commission;
- the CEMAC Commission;

- all the other stakeholders Involved.

### **Challenges and barriers**

- 1. The risks associated with that joint audit are numerous and should be mitigated by appropriate and effective actions:***
  - lack of quality control and compliance with ISSAIs
  - insufficient financial resources for Conducting the audit;
  - delays in Achieving key milestones;
  - safety of the audit team around the lake Chad;
  - failure to detect significant issues and;
  - lack of follow-up of audit findings and recommendations;
- 2. The working languages (French and English);***
- 3. Additional support in terms of coaching, mentoring will be needed during the conduct of the audit;***
- 4. Each SAI must first develop a national report, in order to achieve the audit report spouse.***

### **Lessons learned so far**

- 1. This joint environmental audit is unique because it involves a specialized area of multiple stakeholders and actors involved and the impact can be global, regional or national, but it must be done professionally and in accordance with the standards of INTOSAI;***
- 2. Identification and implementation of the following actions to mitigate risks in this joint audit:***
  - reinforce training/knowledge on ISSAIs for the joint Audit Team;
  - competencies on quality control on each team;
  - assessment (self assessment/peer reviews) and action plan ;
  - diversify financing sources of the join Audit, and Obtain detailed and final budget and ensure rigorous monitoring of expenses and of time of auditors
  - monitor closely the progress of the audit process in relation to the plan and the detailed audit timeline
  - ensure the security of the audit team with the support of the countries that are part of the Commission.
  - improve quality control process, supervision/mentoring, independent review
  - ensure that the audit entities transmit their responses to each SAI and provide the action plans regarding the recommendations;
  - ensure that one year after tabling of the joint Audit report, the SAIs conduct follow up audit to ensure the implementation of recommendations.
- 3. Utility of Guides / Manuals of INTOSAI WGEA and sharing of experiences among SAIs.***

## ESTONIA

### Effectiveness of measures for improving the status of Lake Peipus

National Audit Office of Estonia and Accounts Chamber of Russian Federation prepared the parallel audit about the activities of the Estonian and Russian state authorities in conservation and sustainable use of natural resources of Lake Peipus, the trans-boundary lake between Estonia and Russia. The audit was started based on the cooperation agreement concluded in 2010 between the National Audit Office of Estonia and the Accounts Chamber of the Russian Federation, according to which both states shall audit the factors influencing the status of Lake Peipus in their respective states.

Both countries prepared their own national audit reports. The common memorandum of the parallel audit was compiled and agreed on the basis of common audit findings and results. The memorandum was signed by the Estonian Auditor General Mihkel Oviir and Chairman of the Russian Accounts Chamber Sergey Stepashin on 29 of March 2012.

#### Summary of the Estonian national audit

##### *Lake Peipus*

Lake Peipus (also Lake Pskovsko-Chudskoe) is the 4<sup>th</sup> largest lake in Europe and the largest trans-boundary water body in the European Union, which belongs both to the Republic of Estonia and the Russian Federation. About 58% of the catchment area of the lake is situated in Russia, 34% in Estonia and 8% in Latvia. The lake is a valuable ecosystem and important freshwater habitat for fish stocks, migratory birds ect.



Catchment area of Lake Peipsi

The status of the Lake Peipus has greatly deteriorated over the last decades: according to the latest data, the status of Lake Peipus (the main northern part) is “moderate”, the status of the southern part of the lake (Lake Lämmijärv and Lake Pihkva) is more critical - “poor”. The ecological condition of Lake Peipus is influenced by the everyday activities of about 1 million people living on the Estonian and Russian side of the catchment area, as well as activities related to agriculture, extraction of mineral resources, forest management and other economic activities. The main ecological problem is the lake’s eutrophication (nutrient saturation, especially of phosphorous and nitrogenous compounds), which causes changes in the lake’s ecosystem, reduces fish stocks, decreases the quality of water and in critical cases also encourages the spread of blue-green algae that emit poison which endangers the biota as well as the health of swimmers.

##### ***What did we audit?***

The NAO of Estonia audited whether the state is aware of the pollution sources influencing the ecological status of lake, whether the measures implemented by the state have helped to reduce the pollution load of the Lake. Attention was especially paid to the inspection of activities influencing the pollution load (point source and diffuse pollution) as well as Estonian-Russian cooperation in this area. The audit focused on the following main issues:

1. Are the quality of water in and the status of the ecosystem of Lake Peipus being assessed?
2. What kind of measures has been taken to reduce pollution in and protect Lake Peipus?
3. Is supervision carried out over the conformity to environmental requirements of the sources of pollution in Lake Peipus?
4. Is the cooperation between Estonia and Russia contributing to the preservation and improvement of the status of Lake Peipus?

## **Audit results**

According to the NAO the current activity of the Estonian state does not ensure the reduction of the pollution load of Lake Peipus so that it could achieve the lake's good status by the year 2015 to meet the requirements of the European Union, or by the next deadline in 2021. Here, the main reason is that upon reducing the pollution by eliminating point source pollution not enough attention is paid to agricultural diffuse sources of pollution which constitute the main part of anthropogenic pollution load on the Estonian side. Likewise, cooperation between Estonia and Russia should be more efficient in improving the lake's status.

Main observations of the NAO:

- Over the last ten years the nutrient content of Lake Peipus as a whole has remained stable. However, water monitoring indicates continuous increase of pollution in the catchment area on the lake's Estonian side. Thus, Estonia has not been successful in ensuring Lake Peipus' cleanliness. It is not yet possible to precisely assess the impact of implemented measures on the improvement of the status of water.
- On the Estonian side of the catchment area 68% of anthropogenic phosphorous pollution and 90% of nitrogen pollution is due to agricultural diffuse pollution. The percentage of the remaining sources of anthropogenic pollution is significantly smaller. However, currently planned and implemented water protection measures do not take this proportion into account and the state has spent proportionally the largest share of funds on the reduction of point source pollution. Measures for reducing agricultural diffuse pollution are lenient and supervision of diffuse pollution is insufficient.
- The state's water management investments have largely been spent on the development and construction of wastewater treatment plants and sewerage systems. This is especially important for the reduction of phosphorous pollution. However, only a fifth of Lake Peipus' anthropogenic phosphorous pollution comes from the municipal wastewater. The audit also identified cases where, despite the investments, the efficiency of large wastewater treatment plants has not improved and there are problems with operating the small plants.
- Although the Ministry of the Environment has developed a river basin management plan to achieve the good status of Lake Peipus, the coordination of the execution of the plan's activities is poor. The state does not have an overview of all activities currently implemented in the basin of Lake Peipus that can influence the status of lake. The river basin management plan does not address in a detailed manner the measures for reducing agricultural pollution and it is unknown to what extent the environmental protection measures of the rural development plan help to improve water protection. There has not been sufficient cooperation with the Ministry of the Agriculture in the field of pollution reduction. Likewise, the state does not know the impact of already implemented measures (incl. those funded by the state) and whether planned activities facilitate achievement of objectives as it has not assessed the performance of those activities.
- National environmental monitoring enables to assess the status of Lake Peipus and changes in its condition. However, the monitoring system is not entirely in compliance with the requirements of the EU water framework directive. The distribution of Lake Peipus's pollution between different sources is calculated on the basis of monitoring and survey data but this cannot be precisely confirmed due to the scarcity of data. Therefore it is difficult to plan efficient measures for the reduction of the pollution load and assess the performance of their implementation and impact on the status of the lake.
- As 2/3 of Lake Peipus' catchment area lies in Russia, both states must take steps to improve the status of the lake. Estonia and Russia's transboundary joint committee for the coordination of cooperation in the protection and sustainable use of Lake Peipus has been successful in exchanging current information and organisation of joint monitoring expeditions and research seminars. There is still room for development when it comes to improving the efficiency of cooperation: so far there are no agreements regarding joint environmental objectives to improve the status of Lake Peipus, no long-term joint monitoring program or harmonised methods and criteria for the assessment of the lake's status. Neither have the states seen the need for the development of a joint river basin management plan which would help better to coordinate setting the objectives related to water management, to take steps improving status of lake and to use of necessary finances.

## KOREA (THE REPUBLIC OF)

### Environmental Audit on Four Major Rivers Restoration Program

#### 1. Background

In South Korea, damage caused by floods and droughts are likely to occur more frequently in the future because of climate change. This reality calls for fundamental measures to tackle such disasters.

In this regard, the Korean government has completed the Four Major River Restoration Program focusing on the following five core goals: 1) securing water supplies, 2) establishing flood control, 3) improving water quality and restoring ecosystems, 4) providing space for cultural and leisure activities, and 5) promoting regional development around the four rivers.

This massive engineering program, with an approximate \$ 20 billion budget, includes dredging riverbeds, building 16 new large weirs and riparian development. One of the main purposes of the program was to improve water quality and the following are the key components of the new measures for water quality management:

- Enforcement of wastewater discharging criteria, including tighter water quality criteria on total phosphorus (TP) from sewage treatment plants in the 66 tributaries that flow into the four major rivers.
  - Water quality criteria on TP was tightened from 2mg/L to 0.2~0.5mg/L
- Enhancement of environmental infrastructure in the critical river branches.
  - Construction or modification of 1,430 environmental facilities, non-point pollution source management, river restoration, creation of riparian eco-friendly buffers.

#### 2. Outline of the Audit

The Four Major Rivers Restoration Program provoked controversy among the public during the three years of construction primarily because of the program's huge budget and concerns over environmental destruction.

When the government finished building the 16 weirs in 2012, water quality deterioration appeared due to algal blooms in the water retained by the weirs.

In response to this problem, the Board of Audit and Inspection (BAI or the SAI of Korea) examined the water quality of the rivers from April to July 2012. The objectives of the audit were to evaluate the effect of the program and to settle the social controversy over the algal bloom issue.

This audit was focused on the following points:

- Appropriateness of the water quality standards established for the water quality improvement projects.
- Reasonableness of the water quality improvement plan promotion and the installation of environmental facilities.
- Appropriateness of water quality management for eutrophication (algal blooming).

#### 3. Methodology

This audit was carried out as a performance audit. To achieve objectives and reliable results, three domestic environment-related academic societies and modeling experts provided advice. The audit team collected water quality data from the Water Information System through which the Ministry of Environment (MOE) officially provides water quality measurement data. The audit team analyzed the data from multiple angles.

## **4. Audit findings and recommendations**

### **4.1 Improper establishment of the water quality management standards**

Once the 16 weirs were installed in flowing water, the hydraulic retention time (HRT) of the river water increased (e.g. for the Nakdong-river, it increases from 8.6 to 100 days) and the aquatic environment changed. The probability of algae blooming increased when compared with the conditions before the program even if the overall amount of nutrients such as nitrogen and phosphorus, and the climate conditions are assumed to remain the same.

Yet, the MOE only evaluated the effect of the program and established the management plan in terms of biochemical oxygen demand (BOD), the standards which should be applied to ordinary river conditions, not to the rivers retained by weirs, according to the related law. In the four rivers, now blocked by weirs, there is a higher chance of algal blooms which is not well represented by the BOD standards.

Consequently, although it was predictable that water quality would deteriorate as a result of the hydrological and environmental change, the evaluation of the effect of the program on water quality led to a false conclusion because of the improper standards used for analysis (BOD). A better management plan may have been drafted if proper standards and evaluations had been applied.

### **4.2 Improper algal bloom warning system**

The MOE has built a warning system for possible algal blooming but it did not work effectively during last year's blooming season because the level of algal concentration that would have triggered a warning was set too low, especially when compared with the standards of the World Health organization (WHO). The WHO recommends a maximum allowable algal concentration, 50 mg/m<sup>3</sup> in chlorophyll-a concentration, deemed safe for a recreational water environment. However, the MOE applied a moderated level of 70 mg/m<sup>3</sup> out of concerns that warnings would be too frequent when the stricter level was applied. As a result, MOE's level of warning was set too low to secure recreational water safety and effectively control water quality.

## **5. BAI's Recommendations**

The MOE should set up additional measures to improve water quality, specifically including Chemical Oxygen Demand (COD), and Chl-a in addition to BOD, and should also raise the water quality warning standards to the level of the WHO guidelines to secure recreational water safety.

## **6. Epilogue**

The Four Major River Restoration Program has shown great benefits in securing water resources, preventing flooding and improving aquatic environments although there is still ongoing controversy. If the government had properly informed the public of the anticipated water quality-related problems in the early period of the program instead of avoiding them by applying improper BOD standards, and had planned the countermeasures aggressively to decrease pollutants, the controversies would have been minimized and the program would have gained more public trust.

One critical thing we learned from this audit is the importance of expertise. When planning a large engineering work on natural environment, even if it is hard to come to a single point of agreement, it is critical to acquire sufficient advice and opinion from experts in the related areas. In addition, the comments of many experts from various fields (such as water quality management, waste water disposal and natural environment) were also essential to the audit to draw results and identify adequate additional measures.

We are glad that the MOE acknowledges the problems of water quality which remain at the center of controversy and will take necessary actions.

Lastly, we would like to note that the water quality of the four major rivers has steadily improved thanks to the efforts of the government and the public.

Report by Seung Yeon WEON



## MOLDOVA

**Performance audit report on the environment – water supply and sanitation of localities in the Republic of Moldova**

Environment becomes a growing concern both of the society, as well as of the state, more so that one of the three goals of sustainable development is the environmental aspect.

One of the global problems mankind is facing is the lack of water and degradation of its quality.

Providing the population with drinking water of good quality is one of the primordial factors of national security of the country. Another primary factor of the vital activity is the stable operation of waste water discharge systems and reduction of their environmental impact.

The current state of the sector is characterized by: limited access of population to water supply and sewage networks; significant gap between urban and rural access to water and sewage systems; reduction of sewage plants in relation to water supply systems.

The audit team found that the main objectives of gradual supply of population with drinking water are not fully realized by deadlines.

The worst situation is observed in rural areas, ie about 60% of the population. Thus, in rural areas there are no improved water sources with centralized supply, which causes the risk of population in rural areas getting ill due to lack of appropriate physiological conditions. At the same time, the absence of waste water sewage causes environmental pollution, contaminating surface and ground waters. Overflow of untreated waste waters from the communal system causes pollution of surface waters, as they are discharged directly into rivers.

Those reported are conditioned by several factors:

**1.** In implementing the state policy on the management of water resources there was not secured an integrated management, and the relevant authorities have not fully exercised their duties. The national legislation does not provide for comprehensive duties of specialized central bodies and local authorities in the supply of drinking water, which are formulated in general, without division into levels. The lack of a uniform methodology for accumulation and analysis of data determines the lack of a database on the state of water supply and sewage industry in the settlements.

Inconsistency of policy documents also affects the coordination of the main funding sources of the sector, and there is no mechanism to monitor the achievements in the field.

**2.** Allocation of funds is made in a piecemeal manner, without an analysis and justification of priority of objectives and no correlation of availability of funding from various sources to ensure the attainment of the final goal. The Environment Ministry has no information on funded projects and their results, which invokes the inability to know the current situation in the country and creates the risk of using financial resources inefficiently and inconsistently with policies in the field.

**3.** The current surveillance system on water quality and environmental protection has predetermined responsibilities, but lacks implementation levers and methodologies. As a result, the monitoring and surveillance system in water supply and sanitation is inefficient and does not ensure timely prevention and liquidation of consequences of environmental and health damage.

From this it appears that the current structure of water resources management does not ensure implementation of sector policies and does not have sufficient and effective tools to achieve the objectives set.

In this context it is important to establish national needs and priorities, and the responsible authorities should resize their duties to ensure achievement of objectives in limited time frames.

## POLAND

**Audits of the Supreme Audit Office regarding flood control in the years 2002 - 2012**

The total resources of running waters in Poland amount to little more than 62 cubic kilometres. The annual amount of the resources per capita is low and equals 1580 cubic metres, while the European average amounts to 4560 cubic metres. The smallest water resources per capita in Poland are situated in the regions of Warsaw, Łódź, Wrocław, Cracow, as well as in Silesia and Greater Poland.

Almost all waters from the territory of Poland are drained to the Baltic Sea. The Vistula drainage basin makes up 55% of the outflow, the Oder drainage basin – approx. 30%, and seaside rivers drain about 10% of waters. Other water resources go to the Black Sea and to the North Sea.

The water resources are subject to considerable quantity variations which are mainly connected with topography and precipitation.

In their high courses, the Vistula and the Oder are fed by tributaries draining mountains and highlands. In rainy seasons, the intensive run-off from steep slopes causes an increase of discharge and periodical floods. High water levels related to the precipitation maximum in the mountains are usually recorded in June and July.

In winter, rivers in Poland freeze for the average period lasting from 70 days a year in the Bug River and the Narew River basins to approximately 10-20 days in the basin of the middle course of the Oder and in the basins of seaside rivers. The spring thaw which follows the periods of freeze is also the cause of high water levels in rivers and periodical floods.

Flood (freshets, ice jam floods) poses a danger to areas including mainly river valleys and constituting approx. 6% of the total area of the country (approx. 2 million hectares). Nearly 75% of this area is protected against flood, mainly with the use of dykes. Only few river valleys have retention reservoirs with a permanent flood capacity reserve.

Over the last 10 years there have been 4 major flood instances in Poland, namely:

- In July 2001, there was a freshet in the basin of the Vistula. It was caused by heavy rainfall and storms which lasted throughout July. Within 1-2 days, there was twice as much rainfall as the average for the entire month. It resulted in a flood hazard along the Vistula, which was additionally increased by breakdowns of hydrotechnical structures. Dykes in the region of Chanem reservoir on the Czarna Staszowska River were washed away and the cofferdam of Wióry reservoir under construction on the Świślina River was penetrated, which led to an extensive flood in Ostrowiec Świętokrzyski. 33 people were killed and financial losses were estimated for approx. PLN 3 billion;
- At the end of June 2009, there were heavy rains and storms together with hail and tornadoes in major parts of Europe, including Poland. In some places in Poland, the water level of rivers soared by 3 metres within one day. The south of Poland was struck by flood. The most affected town was Ropczyce. One person was killed.
- 2010 was a special year in terms of floods, because there were several considerable ones, in both the Vistula river basin and the Oder river basin, and there were also two major floods – in May and August. The total area of 6800 square kilometres in 811 communes (around 25% of all Polish communes) was flooded. 18 thousand buildings and 1300 companies were affected. 266 thousand people suffered losses. The floods damaged 400 kilometres of railroads, 80 thousand kilometres of provincial (voivodship), district and commune roads. The losses were estimated at EUR 3 billion.

In August 2010, as a result of flood caused by a little mountain river called Miedzianka (a tributary of the Nysa river), the water in Bogatynia, a town with 18 thousand residents, was high enough to reach the 1<sup>st</sup> floor of buildings. Some bridges were destroyed and several buildings collapsed. The town was totally cut off by water.

Flood results include *measurable economic losses, such as destruction or damage of infrastructure, industrial facilities, buildings as well as losses connected with interrupted operation of various plants, diminished activity of the affected sectors such as communication, trade, science, industry, and social losses which cannot be measured in fiscal terms, such as a loss of or a danger to life and health, uncertainty of living, and environmental damage.*

As part of flood control aimed at decreasing the probability of floods and limiting their area and/or influence on particular regions, maintenance and renovating activities are performed with regard to river beds, water structures and facilities, and flood plains. There are also investments made in, *inter alia*, construction of retention reservoirs, empty reservoirs, polders, and dykes.

For nearly 20 years, the Polish Supreme Audit Office (NIK, the Office) has systematically audited tasks connected with flood control and liquidation of flood aftermath in Poland, considering it as one of the most important issues of the state security system. The audits conducted covered, among other things, the issue of technical condition, maintenance and use of hydrotechnical structures and drainage systems, the issues of water storage and water resources management, and the procedures of rescue actions in case of flood, as well as liquidation of flood aftermath. In consequence of the audits, NIK sent recommendations to heads of the units audited, aiming to eliminate irregularities found during the audits and improve the situation in the controlled regions. The Office also formulated general and systemic recommendations which were published as part of reports on audit results. The implementation of the recommendations was verified during the subsequent audits.

General recommendations drawn after major audits, and their implementation, are presented below, in chronological order of audits.

The audit entitled *Implementation of Voivodship Contracts* conducted in 2001-2002 showed, among other things, that the contracts related to 5 long-term investments regarding water management (Smolice and Malczyce barrages, Świnna-Poręba and Wióry water reservoirs, and Lipki weir) implemented by local water management authorities, lacked a full financing from the state in 2002. Having conducted the audit, NIK recommended that the possibilities of receiving funds for the investments from other sources (than the National Fund for Environmental Protection and Water Management) should be considered in order to facilitate the completion of the tasks.

The audit conducted by NIK, related to the *Implementation of public administration tasks in the scope of small- and large-scale water retention*, whose results were published in 2004, revealed insufficient activities in the scope of water retention management for the protection of water resources and also flood and drought control. No prospective programmes of tasks to be implemented in this scope were developed, and the scope of works covering construction, modernisation, repair and renovation of hydrotechnical facilities and installations decreased from year to year. Cooperation and coordination of tasks, both at the national, as well as provincial level, were insufficient or inadequate.

In result of this audit, NIK formulated numerous recommendations, also of a general nature, and submitted them to the Council of Ministers, competent ministers, the General Inspector of Building Control, voivods and voivodship marshals, and directors of regional water management authorities, in which NIK urged, *inter alia*, for the adoption of activities by the President of the Council of Ministers so as to facilitate works on secondary legislation to the Water Law act prepared by the Minister of Environment; for putting organisational and competence matters in order by the Minister of Environment in subordinate organisation units and units supervised by the Minister; and for urgent completion of works on the "General Water Management Strategy for Poland".

In order to remedy irregularities disclosed during the audit of the *Fulfilment of obligation in the scope of basic drainage systems maintenance in 2002-2004 in Warmińsko-Mazurskie Voivodship*, i.e. a failure to perform the planned works connected with ongoing maintenance of basic water drainage systems in the full scope, which resulted in deterioration of the condition of these systems to the extent making it necessary to rebuild and modernise them - NIK considered it a need that the Voivodship Marshal undertake activities aimed at the full implementation of the maintenance tasks related to the above mentioned systems and installations in order to keep them in a proper technical condition.

Also the audit of the *Implementation of the long-term "Programme for Oder 2006" particularly in the field of flood control* revealed an urgent need of remedial action. The irregularities revealed as regards the implementation of the Programme for Oder 2006 were related, among other things, with the lack of efficient cooperation with other bodies responsible for the implementation of the Programme, with

studies ordered without adequate identification of needs, and also with a failure to exercise entitlements to delegate the control of progress of the Programme implementation, and indicated an urgent need of corrective activities to be adopted. Thus, the Office recommended the President of the Council of Ministers for ensuring conditions for better coordination of the Programme implementation, strengthening the supervision and control over implementation thereof, and ensuring efficient cooperation of public administration bodies in its implementation so as to eliminate irregularities in public funds management. The recommendation provided also for the assessment of the hitherto works and abandonments on the part of the Steering Committee for the Programme for Oder 2006, in order to stimulate its operations. Furthermore, NIK recommended the Government Plenipotentiary for Matters of the Programme for Oder 2006, for the adoption of effective measures aimed at preparation of required plans and schedules for the implementation of the Programme for Oder 2006, adequate settlement with beneficiaries of state funds and financing obtained from other sources, strengthening the cooperation with other bodies responsible for the implementation of the Programme, and exercising entitlements in the scope of delegation of control.

Furthermore, after the audit of the *Flood control measures in Małopolskie and Świętokrzyskie Voivodships*, NIK drawn attention to the fact that due to a lack of funds, public administration bodies do not implement tasks in the scope of flood control, even in the face of the situation that multimillion amounts are assigned every year from the state budget to remove flood aftermath. Considering that the activities in the audited area should be coordinated at the government level, NIK recommended the President of the Council of Ministers for nomination - at the Government Centre for Security - of a person responsible for the coordination of activities in the scope of flood control between individual ministries, and the supervision over the process of implementation and observance of regulations necessary for Directive 2007/60/EC of the European Commission and the Council on the assessment and management of flood risks to be implemented. There was also a recommendation to the President of National Water Management Authority for the immediate commencement of preparation of a draft flood risk assessment with the use of material and human resources of regional water management authorities.

As a result of the audit of the *Implementation of the long-term "Świnna Poręba Reservoir construction programme for 2006-2010"*, the conclusions of which were published in September 2006, NIK informed that the adoption of the Act of March 4, 2005, on the establishment of the long-term "Świnna Poręba Reservoir construction programme for 2006-2010", setting forth the schedule of financing this investment from the state budget did not ensure accomplishment of the construction of the reservoir in the set timeframe, i.e. until the end of 2010. In order to finish the said investment in the shortest time possible, irrespectively of the planned amendment to the act on the establishment of the programme for the construction of the reservoir, it was necessary to ensure adequate funds for its implementation in the subsequent budgetary acts, and also to strengthen the supervision over the preparation and implementation of other tasks as part of the investment.

NIK decided that apart from the implementation of recommendations presented in post-audit statements, it is necessary to continue tasks undertaken by the Minister of Environment in order to refer the draft amendment to the act on the establishment of the long-term "Świnna Poręba Reservoir construction programme for 2006-2010" for consideration by the Parliament, and also to strengthen the supervision of the Programme implementation by relevant inspections by the Minister of Environment. Also, the Office put forward a recommendation to the Minister of Environment for instituting the progress analysis of the Task IV of the "Świnna Poręba" Water Reservoir construction in order to identify the work remaining to be done and the financial needs connected therewith.

In NIK's opinion, it was also necessary that the Minister of Finance undertake activities consisting in planning the financial means for the construction of the Water Reservoir in consideration in subsequent budgetary bills, in amounts accordant with the act establishing the reservoir construction programme.

Last year, NIK published a report on the audit of the *Selected statutory obligations to be fulfilled by the President of National Water Management Authority and the regional heads of water management boards*, aimed at assessing the fulfilment of tasks in the scope of water management planning, maintenance of the proper condition of surface water channels, flood plains and water installations, and the construction of water installations, by the above mentioned bodies.

Despite irregularities ascertained as a result of the audit, NIK positively assessed the implementation of the said tasks by the audited bodies. Among significant irregularities, NIK disclosed a failure to prepare all planning and water management documents required under the statutory regulations, a

failure to control the technical condition and usability of all hydrotechnical structures, and insufficient financing of tasks connected with water roads and installations maintenance.

In post-audit recommendations, addressed to the Minister of Environment, the President of National Water Management Authority, and the directors of regional water management authorities, NIK recommended, among other things, to perform the analysis as regards the possibility of increasing the financing of tasks in the scope of inland surface waters and water installations maintenance, preparation of lacking planning documents - draft flood control plan and drought aftermath counteracting throughout the country, draft flood control plans in water areas and flood control studies for water areas, covering all the managed weir structures with security and technical condition inspections, and strengthening the supervision of the NWMA President over the directors of RWMA.

After each audit, NIK was informed by the post-audit recommendations addressees about the manner of implementation of the recommendations. All recommendations were accepted for implementation, most of them have been already implemented, and the implementation of remaining ones is under way. *Inter alia*, the Minister of Environment, in cooperation with the Minister of Agriculture and the Minister of Infrastructure, undertook works on the amendment to the Water Law act, which shall introduce new organisation of services responsible for water management so as to properly arrange and increase the efficiency of the implementation of tasks, and make it possible to finance water management tasks more effectively; an act was passed on *detailed principles of preparation of investments in the scope of flood control structures for implementation*, and an act on *disaster emergency*, the latter regulating in a comprehensive manner among other things the procedure of introduction and cancellation of the state of disaster emergency, and the principles of operation of public authorities during disaster emergencies to which floods are included; a *regulation* was issued *on the preparation of flood hazard maps and flood risk maps*; a draft *National Water Policy until 2030* was prepared (*including the 2016 milestone*), in which the directions in water management, addressed to the water sector, as well as to the industry, power engineering, navigation, agriculture, forestry, and municipal services management, were determined; the *National Water and Environment Programme, with the division into river basin areas* and the *Initial Flood Risk Assessment* were prepared; a *Government Plenipotentiary for the Matters related with the Flood Control Programme for Upper Vistula Basin* was appointed, a part of flood protection studies in water regions was prepared; and the works on the *IT System for the National Emergency Control*, which is supposed to serve the purpose of improving the national security, including flood safety, by way of efficient and quick warning of institutions and people against threats; also, works are currently under way on the construction of 2 retention reservoirs.

Report by Alicja Gruszecka, D.Sc. Eng.

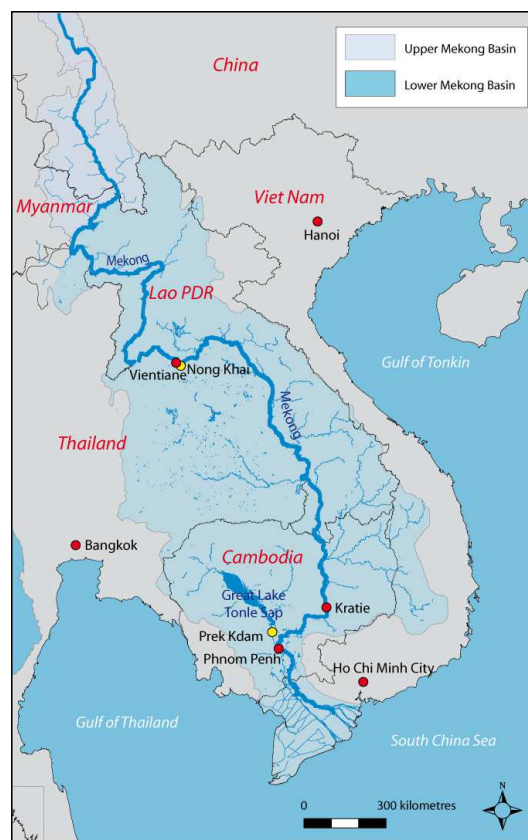
## THAILAND

## Integrated Water Resources Management: Lower Mekong Basin Area in Thailand (Draft Report)

### Introduction

The Mekong River Basin is shared by six countries, China and Myanmar in the Lancang - Upper Mekong Basin and Cambodia, Lao PDR, Thailand and Viet Nam in the Lower Mekong Basin (LMB). The four LMB countries have developed the Mekong water cooperation for five decades, while maintaining a dialogue with China and Myanmar. Basin development planning to optimize the sustainable use of the basin's water resources has always been prominent in the Mekong cooperation.

Exhibit 1: Lower Mekong Basin Area



Source: Water Resources Department

In 1957, the four LMB countries signed a cooperative agreement. “The Committee for Coordination of the Lower Mekong Basin” or “The Mekong Committee” or “The Lower Mekong Development Committee” was inaugurated to be the focal point of coordination, aiming at development of water resources in the Lower Mekong Basin for the mutual benefits of the riparian countries and people living in the Basin.

On 5<sup>th</sup> April 1995, the four riparian countries signed the 1995 Mekong Agreement or Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin. The Agreement provides a legal framework and specific mandate, financial and management organizational structure of the Mekong River Commission in relation to coordination among all member countries. The scope of cooperation covers all fields of sustainable development, utilization, management and conservation of the water and other related natural resources. It aims at environmentally sound, economically prosperous, and socially harmonious in Mekong River Basin, which will ultimately raise the people's quality of life.

## Focus of the Audit

The 1995 Mekong Agreement provides a formal framework for basin development planning as the mechanism through which the four Member Countries in Lower Mekong Basin (LMB) can “promote, support, cooperate and coordinate in the development of the full potential of sustainable benefits to all riparian states”. The Mekong River Commission Basin Development Plan supports and facilitates this joint planning process with the overall objective that the Mekong water and other related natural resources are managed in an effective, sustainable and equitable manner to reduce poverty in the Basin.

*“The 1995 Mekong Agreement Article 2. Projects, Programs and Planning - To promote, support, cooperate and coordinate in the development of the full potential of sustainable benefits to all riparian States and the prevention of wasteful use of Mekong River Basin waters, with emphasis and preference on joint and/or basin-wide development projects and basin programs through the formulation of a basin development plan, that would be used to identify, categorize and prioritize the projects and programs to seek assistance for and to implement at the basin level.”*

Adopting the principle of Integrated Water Resource Management (IWRM), the BDP process promotes the coordinated development and management of water and related resources in order to maximize economic and social welfare in a balance way without compromising the sustainability of vital ecosystems. This requires the preparation of information that informs discussion and decisions on achieving an acceptable balance between development of the basin and maintenance of its ability to sustain livelihoods and environmental values.

## Objective

The objective of our audit was to determine whether the Thai Government has established water resource management system in Mekong River Basin areas in compliance with the framework of MRC’s Basin Development Plan.

## Scope and approach

Water Resources Department, working under the Ministry of Natural Resources and Environment, is the entity under the audit for this topic due to its responsibilities as the secretariat to the National Water Resources Committee regarding the Office of the Prime Minister’s Regulation on the National Water Resources Management, B.E. 2550.

While other government ministries and departments also have responsibilities for water resources management, they were not included in the scope of this audit.

We reviewed official documents related to Thailand’s water resources management system as well as the MRC’s such as:

- Laws, regulations and agreements
- Water resources management policy documents
- Water resources management budgetary documents
- Meeting reports of committees responsible for water resources management
- Research and study papers regarding water resources management

We also interviewed key officials of Water Resources Department namely:

- The director general of Water Resources Department
- The head of Bureau of Water Resources Policy and Planning
- The head of Bureau of Mass promotion and Coordination
- The head of Bureau of Mekong Basin Coordination and Management
- The head of the office of National Water Resources Committee’s Secretary
- The Heads of Water Resources Regional Offices (In Mekong Basin areas namely, Mekong, Kok, Chi, Mun and Ton Lesap)

## Observations

The MRC's Basin Development Plan (BDP) uses an Integrated Water Resources Management (IWRM) approach, which brings national policies, plans and projects into the integrated basin - wide assessment framework. This approach will be successful if it is mainstreamed in national planning and decision making processes, each member country – specific policies, processes and actions. In addition, the connection between MRC programs and national planning and line agencies are seen as pivotal to establishment of an integrated planning process that links all levels of planning in the basin.

The BDP's **objective** is to support Member Countries integrating and implementing the strategic priorities, guidance and processes in the IWRM-based Basin Development Strategy in the national planning and regulatory systems through an institutionalized basin planning process, resulting in increased knowledge and capacity to produce a broader and strengthened approach to basin planning and management.

The BDP 2011-2015 Objective will be achieved through the following **four outcomes**:

1. Improved integrated basin planning to reduce uncertainties and risks of development, as a result of the implementation and update of the IWRM-based Basin Development Strategy by Member Countries and stakeholders;
2. Socio-economic assessment to support basin development planning and the implementation of MRC Procedures strengthened, based on agreed well-defined and realistic basin environmental and social objectives and indicators;
3. Appropriate institutional arrangements developed by Member Countries to implement the IWRM based Basin Development Strategy, sustain the BDP process, and agree on a Roadmap for the decentralization of selected core basin planning functions; and
4. The necessary capacity to implement the IWRM-based Basin Development Strategy, and to carry out the selected core basin planning functions within the agreed Roadmap for decentralization, available with relevant national agencies, River Basin Organizations, and stakeholders.

Accordingly, this audit considered three elements which are critical success factors for the Thai Government to act in compliance with BDP namely:

1. Policy Measures regarding to water resources management especially in Mekong Basin areas
2. Water resources management organizations
3. Water resources management plans

## What We Found

### 1. Policy Measures regarding to water resources management especially in Mekong Basin areas

It is government's responsibility to establish policy measures in accordance to any international agreement the government has committed to. As a result of the 1995 Mekong Agreement, BDP, using an Integrated Water Resources Management Approach, has been focusing on transboundary water opportunities and issues to remove longstanding barriers to realizing opportunities for sustainable development of the Mekong Basin.

This requires the highest political commitment of the Thai Government to reconfirm needs and importance of the MRC-facilitated basin development planning in the current context of accelerated water resources development in the basin. The challenge was to translate this commitment into policies that facilitate the adaption of the principles, guidance and processes in the BDP into national planning, decision-making and governance processes.

We found that the Thai Government has established policies measures focusing on the concept of Integrated Water Resources Management as follows. (Water Resources Management in Mekong Basin areas is implemented under this policy framework.)

### 11<sup>th</sup> National Economic and Social Development Plan – NESDP (2012 – 2016) in regards with Water Resources



- Stimulate integrated water management to support sustainable food and energy security and alleviate floods and droughts. Water management legislation should be amended so that watershed communities and local administrative organizations (LAOs) are empowered to manage river basins. **The government should formulate management plans for each river basin using an integrated approach.** It should manage critical areas at risk for drought and flood, implement the water grid system, develop a database for water security and forecast equitable water allocation. It should seek to prevent disasters from flood and drought through city plan enforcement, infrastructure improvements, and adaptation of the lifestyle of local people. Local administrations, communities, and academia should participate to monitor water quality to meet standards for disease-free drinking water, industrial usage, and ecosystem preservation.

### National Water Vision

Within 2025 Thailand will achieve sufficiency of quality water, with management, organization, and legal system in place for sustainable and equitable use of water, **taking into consideration people's quality of life and participation of all levels.**

### National Water Policies

- **To establish national, river basin, and local organizations for water resources management with supporting legislation.** The national-level organization will formulate policy, and oversee and coordinate the implementation of policy. **River basin and local organizations will prepare basin-wide water management plans with emphasis on stakeholder's participation.**
- To emphasize appropriate and equitable water allocation for various purposes so as to meet the basic requirement of agriculture and consumption. Water utilization will be prioritized for each area to ensure efficient and sustainable use of water under the expressly stated rules of water allocation. **Furthermore, water users will share responsibility in receiving services depending on the user's participatory capabilities and level of service.**
- **To support and promote public participation** including clearly defining participatory approaches, rights and duties of the people, non-governmental organizations and state agencies in water resources management, i.e. water quality monitoring to ensure efficiency in water resources management.

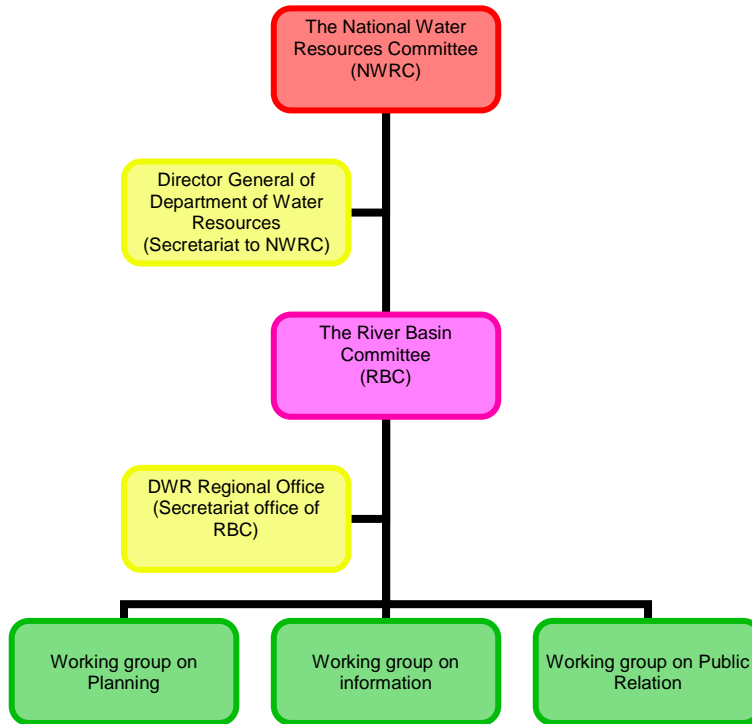
It can be concluded, in this section, that the Thai Government has established the country's water policy cascading from the National Economic and Social Development Plan to the National Water Policies. All of which adopt the Integrated Water Resources Management to be the core concept. Moreover, water management organization arrangement has also been formed to serve such policy hierarchy, and so as other mechanisms which will be discussed further in the following sections.

## 2. Water resources management organizations

Water resources management organization arrangement is the main institutional modality to carry out the BDP activities. For Thailand, The National Water Resources Committee (NWRC) is a national level organization established under Office of the Prime Minister's Regulations on National Water Resources Management B.E.2550. The Department of Water Resources (DWR) is a secretariat office of NWRC. NWRC appoints 25 River Basin Committees (RBCs). To promote participation from all levels, each RBC comprises of members not more than 35 representatives from government agencies, local administration, water use groups, and experts who have experience in water resources management. DWR Regional Office is a secretariat office of RBC. **There are 5 out of those 25 RBCs located in LMB which are Kok, Mekhong, Chi, Mun and Tonle Sap.**

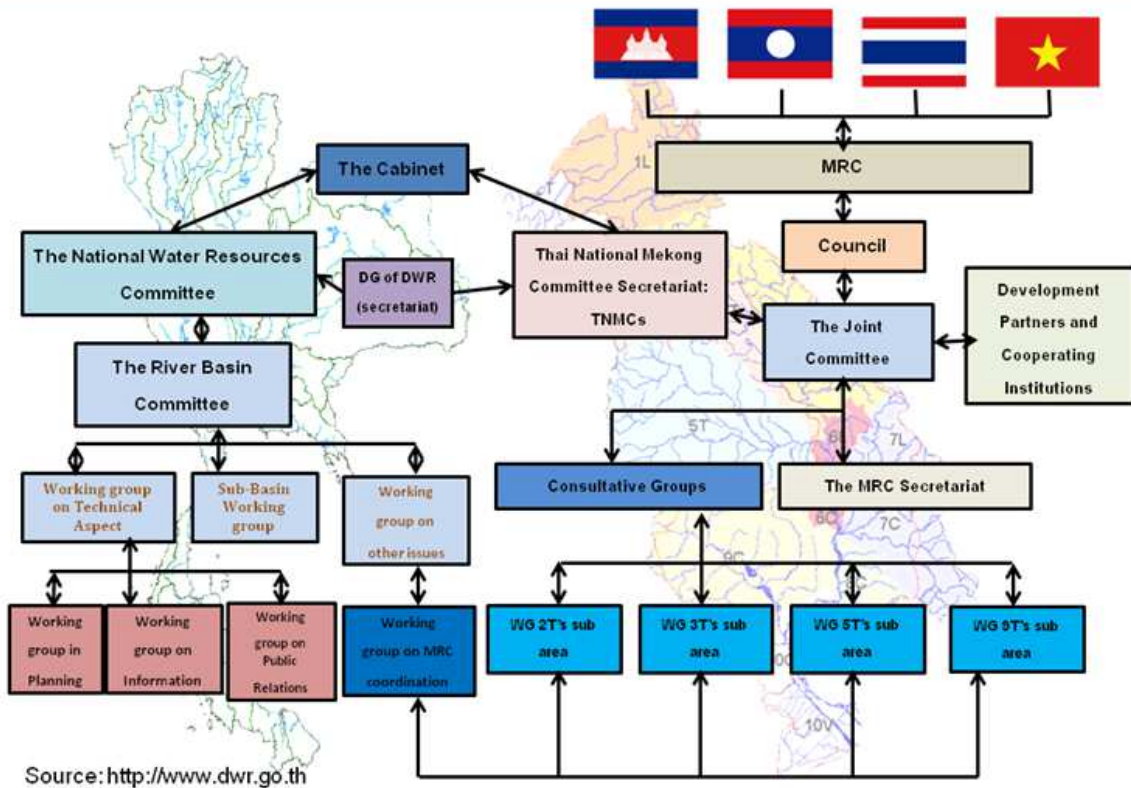
To ensure that the country's water management system regarding Mekong Basin is not only domestically integrated but also transboundary, linkages between RBCs located in LMB and Mekong Basin Administration bodies have been created. In national level, the Director of Water Resources Department is the linkage official between The National Water Resources Committee and Thai National Mekong Committee as he is appointed to be the secretariat serving both such committees. In basin level, each RBO located in LMB area (Kok, Mekhong, Chi, Mun and Tonle Sap) has a Working Group on MRC Coordination functioning as a linkage body.

Exhibit 2: River Basin Organization Arrangement



Source: Water Resources Department

Exhibit 3: River Basin Organization Arrangement specific to RBOs located in LMB



Source: <http://www.dwr.go.th>

Source: Water Resources Department

Accordingly, the water resources management organization arrangement mentioned above is clearly represented the adoption of Integrated Water Resources Management approach which structurally complies with the BDP's concept. However, some drawbacks have been found as followed.

## 2.1 Some River Basin Organizations in the structure have not actually been appointed.

From the key officials' opinions, budget insufficiency was mentioned to be the main reason for this problem, specifically in the case of Sub – Basin Working Groups which structurally comprise representatives from government agencies, water users groups from various sectors, i.e. agriculture, industry, commerce and tourism, educational institute, qualified persons, technical experts, and NGOs. These representatives are selected and appointed, in an appropriate number, by the River Basin Committee. Examples from RBCs located in LMB including Kok, Mekhong, Chi, Mun and Tonle Sap as followed.

**Exhibit 4:** The Appointment of Sub – Basin Working Groups (RBOs located in LMB)

Basin Code	Basin	Sub – Basin Working Groups		
		Appointed	Not Appointed	Structurally
2T	Kok	9	3	12
3T	Mekong	22	7	29
5T	Chi	20	-	20
	Mun	31	-	31
9T	Ton Lesap	3	-	3
<b>Total</b>		<b>85</b>	<b>10</b>	<b>95</b>

Source: Water Resources Department

Results suggest that RBOs working under Chi, Mun and Ton Lesap Basin Committee have been fully appointed in their structures. Kok Basin Committee has 9 out of 12 Sub – Basin Working Groups in the structure, and 7 Sub – Basin Working Groups under Mekong Basin Committee remain not yet appointed. In addition, in the case of Working Group on MRC Coordination, the basin committees of Mekong, Chi, Mun have individually appointed such Working Group to fulfill MRC related mission while the Working Groups under Kok and Ton Lesap Basin Committee is still not in place.

**Exhibit 5:** The Appointment of Working Groups on MRC Coordination

Basin Code	Basin	Working Group on MRC Coordination	
		Appointed	Not Appointed
2T	Kok		✓
3T	Mekong	✓	
5T	Chi	✓	
	Mun	✓	
9T	Ton Lesap		✓
□ □ □		<b>3</b>	<b>2</b>

Source: Water Resources Department

## 2.2 The River Basin Organizations did not function properly.

The frequency of the meeting conducted by some core River Basin Organizations since 2005 were checked. The results are following.

**Exhibit 6:** Numbers of meeting held from 2005 to 2012

Core River Basin Organizations	Frequency of Meeting								
	2005	2006	2007	2008	2009	2010	2011	2012	Total
1. The National Water Resources Committee			5	3	4	3	0	0	15
2. Basin Committees in Mekong Areas									
2.1 Kok					3	2	2	1	8
2.2 Mekong					2	2	1	1	6

Core River Basin Organizations	Frequency of Meeting								Total
	2005	2006	2007	2008	2009	2010	2011	2012	
2.3 Chi					2	2	2	0	6
2.4 Mun					2	3	2	1	8
2.5 Ton Lesap					2	3	3	1	9
3. Working Group on MRC Coordination									
3.1 Kok									
3.2 Mekong					0	0	0	0	0
3.3 Chi					1	0	1	0	2
3.4 Mun					0	0	0	0	0
3.5 Ton Lesap									
4. Thai National Mekong Committee	0	0	1	0	1	0	2	0	4

Source: Water Resources Department

In 2011 and 2012, the National Water Resources Committee did not have meeting due to, according to interviews of key officials, political instability in Thailand. During that period of time, the Government change and the cabinet reshuffle frequently happened. These situations caused the chairperson (usually a Deputy Prime Minister appointed by the Prime Minister) of the Committee to be often changed as well. Moreover, in the second half of 2011, the central part of Thailand was hit by the severe floods. In order to rapidly respond to the situation, the Prime Minister had decided to form a number of new committees responsible for water management which largely overlap with the National Water Resources Committee in terms of mission and duties. So, these are the reasons why the National Water Resources Committee has not had any meeting since 2011.

In the case of Working Group on MRC Coordination, the working groups under Mekong Basin Committee and Mun Basin Committee have never run the meeting since they were appointed in 2009. The main reason, mentioned by the key officials, is that they have not been sufficiently budgeted to call for the meeting.

Lastly, the Thai National Mekong Committee usually has a meeting only when the Minister of Natural Resources and environment is called for the MRC Council meeting, which is normally held once a year. In some years, not every but only the key members of the Committee was officially invited to attend the meeting due to the time constraint.

The conclusion can be drawn in this section that Integrated Water Resources Management is conceptually defined in RBOs' overall structure. Domestically, RBOs are organized by promoting participation from stakeholders at all levels. Moreover, linkage bodies between domestic RBOs located in LMB and organizations functioning MRC related issues are created to assure the international integration in Mekong Basin level. However, some drawbacks should be mentioned that some RBOs in the structure were still not yet appointed, and the active ones did not function properly. These disadvantages were likely to impede the successful adoption of Integrated Water Resources Management.

## 2. Water resources management plans

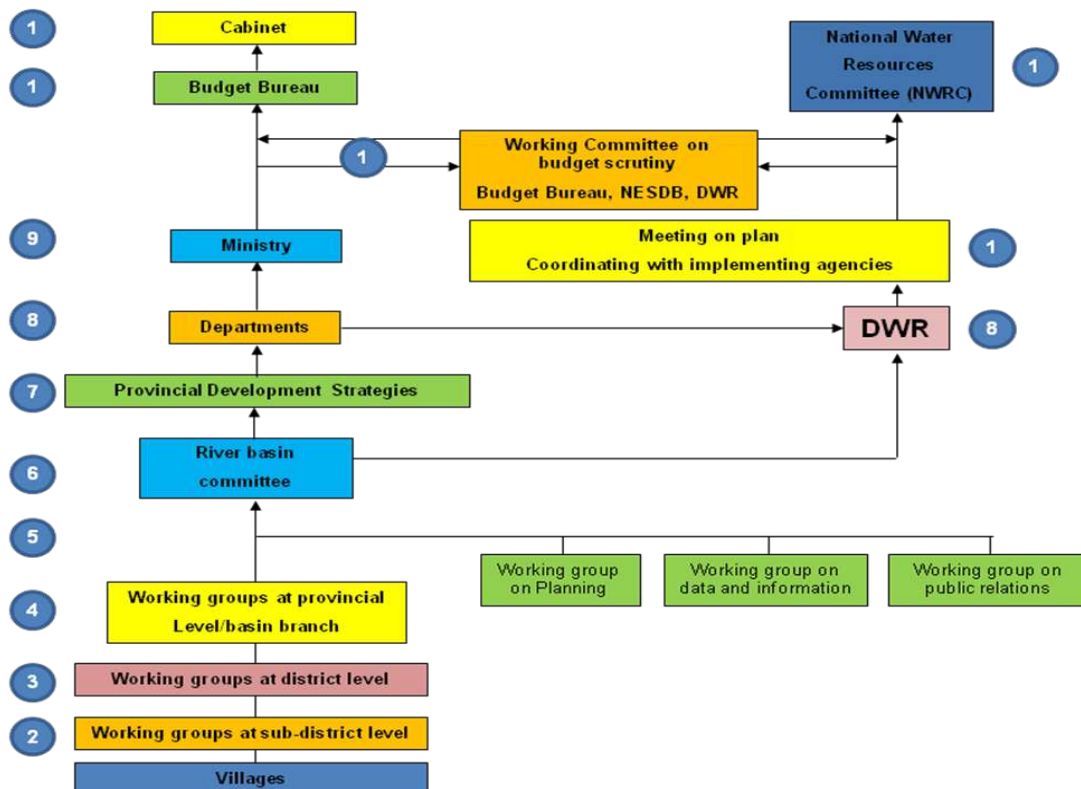
According to BDP, Member Countries apply basin-wide IWRM approaches in national water and related sector frameworks and development programs for sustainable and equitable development. Their development planning is therefore also a significant part of the countries' national socio-economic development planning, which follow common approaches to promote coordination and integration across sector and area development planning. A key part of the Agreement is the need for the four LMB countries to cooperate in "the formulation of a basin development plan that would be used to identify, categorize and prioritize the projects and programmers to seek assistance for and to implement at the basin level"

As such, water resources management organization arrangement in Thailand is clearly defined as to promote participatory and integrated river basin development and management, to cooperate and support the budgetary process for the implementation of the integrated plans and to reinforce knowledge of water and related resources. With decentralization at sub-district level (*Ao Bo Thor*), Working Groups (WG) at sub-district, district and provincial level collect and summarize local basin

development projects/plans to facilitate the formulation of Integrated River Basin Plan by the WG on Planning of the RBC.

The Integrated River Basin Plan is incorporated into the Provincial Development Plan of concerned provinces and submitted to national line departments. The latter integrate these into the sector plan and submit to the DWR and Budget Bureau. DWR as the Secretariat of the NWRC will facilitate the meeting between line departments to coordinate the plans, which will be reviewed by a Working Committee on budget scrutiny that comprise of the Budget Bureau, National Economic and Social Development Board (NESDB) and DWR. The final plans are approved by the NWRC before submitted to the Budget Bureau and subsequently to the Cabinet for approval and budget allocation

Exhibit 7: The water resources planning process



Source: Water Resources Department

However, the key officials' told us that such planning process has not been fully functioned as designed especially at River Basin Committee level. Budgets and plans from RBOs at the lower level have not been scrutinized. The River Basin Committees just collected information of the projects and plans, and got them bound and submitted them as budget documents to the upper level. These budget documents only provided some details such as project type, the project location, proposed budget, responsible organization.

So, RBOs at the upper level did not have adequate information to make judgment for budget allocation. As a result, only very small percentages of projects in The Integrated River Basin Plans were approved and received the budget.

**Exhibit 8:** Comparison between numbers of projects and budgets proposed by 25 RBOs and numbers of projects and budgets allocated from 2005 to 2008

Budgetary year	Number of Projects			Budget		
	Proposed	Allocated	%	Proposed	Allocated	%
2005	7,308	0	0.00	32,597.25	0.00	0.00
2006	21,838	266	1.22	79,963.01	4,730.66	5.92
2007	27,389	259	0.95	127,806.36	8,700.68	6.81
2008	18,586	491	2.64	98,553.70	7,204.85	7.31
Total	75,121	1,016	1.35	338,920.32	20,636.19	6.09

Source: Water Resources Department

From 2005 – 2008, it is clearly presented very small percentage, ranging from 0.00 % - 7.31 %, of the budget totally proposed by 25 RBOs had been allocated. In terms of number of projects, only 1.35 % of the proposals had been averagely approved from 2005 – 2006.

**Exhibit 9:** Proportions of budgets proposed by the departments and proposed by RBOs which corporate in the annual budgets for departments responsible for water resources management issues from 2005 – 2008

Department	Budget	Fiscal Year				
		2005	2006	2007	2008	Total
1. Department of Water Resources	Annual Budget	711.78	1,013.07	974.41	2,584.29	<b>5,283.55</b>
	Proposed by the Department	711.78	686.59	481.96	1,742.51	<b>3,622.84</b>
	(%)	(100.00)	(67.77)	(49.46)	(67.43)	<b>(68.57)</b>
	Proposed by RBOs	0	326.48	492.45	841.78	<b>1,660.71</b>
(%)	(0.00)	(32.23)	(50.54)	(32.57)	<b>(31.43)</b>	
2. Department of Groundwater Resources	Annual Budget	348.45	192.28	227.65	291.24	<b>1,059.62</b>
	Proposed by the Department	348.45	192.28	227.65	258.86	<b>1,027.24</b>
	(%)	(100.00)	(100.00)	(100.00)	(88.88)	<b>(96.94)</b>
	Proposed by RBOs	0	0	0	32.38	<b>32.38</b>
(%)	(0.00)	(0.00)	(0.00)	(11.12)	<b>(3.06)</b>	
3. Department of Marine and Coastal Resources	Annual Budget	-	31.21	47.74	10	<b>88.95</b>
	Proposed by the Department	-	31.21	47.74	10.00	<b>88.95</b>
	(%)	-	(100.00)	(100.00)	(100.00)	<b>(100.00)</b>
	Proposed by RBOs	-	0	0	0	<b>0.00</b>
(%)	-	(0.00)	(0.00)	(0.00)	(0.00)	
4. Royal Forest Department	Annual Budget	-	-	-	89.72	<b>89.72</b>
	Proposed by the Department	-	-	-	89.72	<b>89.72</b>

Department	Budget	Fiscal Year				
		2005	2006	2007	2008	Total
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	0
	(%)	-	-	-	(0.00)	(0.00)
5. Department of National Parks Wildlife and Plant Conservation	Annual Budget	-	100	264.02	292.71	<b>656.73</b>
	Proposed by the Department	-	57.17	264.02	54.86	<b>376.05</b>
	(%)	-	(57.17)	(100.00)	(18.74)	<b>(57.26)</b>
	Proposed by RBOs	-	42.83	0	237.85	<b>280.68</b>
	(%)	-	(42.83)	(0.00)	(81.26)	<b>(42.74)</b>
6. Pollution Control Department	Annual Budget	-	-	14.08	23	<b>37.08</b>
	Proposed by the Department	-	-	14.08	23.00	<b>37.08</b>
	(%)	-	-	(100.00)	(100.00)	(100.00)
	Proposed by RBOs	-	-	0	0	0
	(%)	-	-	(0.00)	(0.00)	(0.00)
7. Department of Environmental Quality Promotion	Annual Budget	-	-	-	5	<b>5</b>
	Proposed by the Department	-	-	-	(5.00)	<b>(5.00)</b>
	(%)	-	-	-	(100.00)	<b>(100.00)</b>
	Proposed by RBOs	-	-	-	0	<b>0.00</b>
	(%)	-	-	-	(0.00)	<b>(0.00)</b>
8. Royal Irrigation Department	Annual Budget	19,101.99	21,451.96	26,688.87	35,597.58	<b>102,840.40</b>
	Proposed by the Department	19101.99	17801.94	19234.86	31,565.67	<b>87,704.46</b>
	(%)	(100.00)	(82.99)	(72.07)	(88.67)	<b>(85.28)</b>
	Proposed by RBOs	0	3650.02	7454.01	4031.91	<b>15,135.94</b>
	(%)	(0.00)	(17.01)	(27.93)	(11.33)	<b>(14.72)</b>
9. Land Development Department	Annual Budget	1,236.08	1,216.85	950	931	<b>4,333.93</b>
	Proposed by the Department	1236.08	912.33	905.55	762.28	<b>3,816.24</b>
	(%)	(100.00)	(74.97)	(95.32)	(81.88)	<b>(88.05)</b>
	Proposed by RBOs	0	304.52	44.45	168.72	<b>517.69</b>
	(%)	(0.00)	(25.03)	(4.68)	(18.12)	<b>(11.95)</b>
10. Department of Public Works and Town and Country Planning	Annual Budget	177.88	225.59	1,215.30	1,580.15	<b>3,198.92</b>
	Proposed by the Department	177.88	172.79	553.5	440.05	<b>1,344.22</b>
	(%)	(100.00)	76.59	45.54	27.85	<b>42.02</b>
	Proposed by RBOs	0	52.8	661.8	1140.1	<b>1,854.70</b>
	(%)	(0.00)	23.41	54.46	72.15	<b>57.98</b>
11. Department	Annual Budget	-	9,764.40	8,239.37	11,291.57	<b>29,295.34</b>

Department	Budget	Fiscal Year				
		2005	2006	2007	2008	Total
of Local Administration	Proposed by the Department	-	9764.4	8239.37	11,237.07	<b>29,240.84</b>
	(%)	-	(100.00)	(100.00)	(99.52)	<b>(99.81)</b>
	Proposed by RBOs	-	0	0	54.5	<b>54.50</b>
	(%)	-	(0.00)	(0.00)	(75.54)	<b>(94.00)</b>
12. Department of Disaster Prevention and Mitigation	Annual Budget	-	-	-	34.64	<b>34.64</b>
	Proposed by the Department	-	-	-	34.64	<b>34.64</b>
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	<b>0</b>
	(%)	-	-	-	(0.00)	(0.00)
13. Provincial Waterworks Authority	Annual Budget	2,015.35	2,184.07	2,956.44	3,203.05	<b>10,358.91</b>
	Proposed by the Department	2015.35	1830.06	2908.47	2,505.44	<b>9,259.32</b>
	(%)	(100.00)	(83.79)	(98.38)	(78.22)	<b>(89.39)</b>
	Proposed by RBOs	0	354.01	47.97	697.61	<b>1,099.59</b>
	(%)	(0.00)	(16.21)	(1.62)	(21.78)	<b>(10.61)</b>
14. Department of Highways	Annual Budget	-	-	-	264.32	<b>264.32</b>
	Proposed by the Department	-	-	-	264.32	<b>264.32</b>
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	<b>0</b>
	(%)	-	-	-	(0.00)	(0.00)
15. Department of Rural Roads	Annual Budget	-	-	-	60.58	<b>60.58</b>
	Proposed by the Department	-	-	-	60.58	<b>60.58</b>
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	<b>0</b>
	(%)	-	-	-	(0.00)	(0.00)
16. Marine Department	Annual Budget	-	-	-	570.19	<b>570.19</b>
	Proposed by the Department	-	-	-	570.19	<b>570.19</b>
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	<b>0</b>
	(%)	-	-	-	(0.00)	(0.00)
17. National Research Council of Thailand	Annual Budget	-	-	-	30	<b>30</b>
	Proposed by the Department	-	-	-	30.00	<b>30.00</b>
	(%)	-	-	-	(100.00)	(100.00)
	Proposed by RBOs	-	-	-	0	<b>0</b>
	(%)	-	-	-	(0.00)	(0.00)



Department	Budget	Fiscal Year				
		2005	2006	2007	2008	Total
18. Department of Alternative Energy Development and Efficiency	Annual Budget	423.19	398.36	-	-	<b>821.55</b>
	Proposed by the Department (%)	423.19 (100.00)	398.36 (100.00)	-	-	<b>821.55</b> (100.00)
	Proposed by RBOs (%)	0 (0.00)	0 (0.00)	-	-	0 (0.00)
19. Office of the Permanent Secretary for Agricultural and Cooperative	Annual Budget	-	-	723.02	828.59	<b>1,551.61</b>
	Proposed by the Department (%)	-	-	723.02 (100.00)	828.59 (100.00)	<b>1,551.61</b> (100.00)
	Proposed by RBOs (%)	-	-	0 (0.00)	0 (0.00)	0 (0.00)
20. Rice Department	Annual Budget	-	-	-	8.82	<b>8.82</b>
	Proposed by the Department (%)	-	-	-	8.82 (100.00)	<b>8.82</b> (100.00)
	Proposed by RBOs (%)	-	-	-	0 (0.00)	0 (0.00)
21. Department of Insurance	Annual Budget	-	-	-	2	<b>2</b>
	Proposed by the Department (%)	-	-	-	2.00 (100.00)	<b>2.00</b> (100.00)
	Proposed by RBOs (%)	-	-	-	0 (0.00)	0 (0.00)
<b>Total Annual Budget</b>		<b>24,014.72</b>	<b>36,577.79</b>	<b>42,300.90</b>	<b>57,698.45</b>	<b>160,591.86</b>
<b>Proposed by the Departments</b>		<b>24,014.72</b>	<b>31,847.13</b>	<b>33,600.22</b>	<b>50,493.60</b>	<b>139,955.67</b>
<b>%</b>		<b>100</b>	<b>87.07</b>	<b>79.43</b>	<b>87.51</b>	<b>87.15</b>
<b>Proposed by RBOs</b>		<b>0</b>	<b>4,730.66</b>	<b>8,700.68</b>	<b>7,204.85</b>	<b>20,636.19</b>
<b>%</b>		<b>0</b>	<b>12.93</b>	<b>20.57</b>	<b>12.49</b>	<b>12.85</b>

Source: Water Resources Department

In terms of budget allocated to government entities responsible for water resources management issues, very small number of the allotted budget had been proposed from RBOs (totally 12.85% from 2005 – 2008). Even the Water Resources Department, who are directly responsible for facilitating the RBOs' budgetary planning process, had had average 31.43% selected from RBO's proposals. (0.00% in 2005, 32.23% in 2006, 50.54% in 2007 and 32.57% in 2008)

**Exhibit 10:** Proportions of budgets proposed by the departments and proposed by RBOs which corporate in the annual budgets allocated for projects in LMB areas from 2005 – 2008

River Basin	Allocated Budget	Fiscal Year				
		2009	2010	2011	2012	Total
1. Kok	Annual Budget	62.78	227.13	145.05	171.29	<b>606.25</b>
	Proposed by the Department	22.37	216.63	143.55	143.29	<b>525.84</b>
	(%)	(35.63)	(95.38)	(98.97)	(83.65)	(86.74)
	Proposed by RBOs	40.41	10.5	1.5	28	<b>80.41</b>
(%)	(64.37)	(4.62)	(1.03)	(16.35)	(13.26)	
2. Mekong	Annual Budget	234.75	665.38	258.09	638.69	<b>1,796.91</b>
	Proposed by the Department	223.15	598.06	210.09	406.54	<b>1437.84</b>
	(%)	(95.06)	(89.88)	(81.40)	(63.65)	(80.02)
	Proposed by RBOs	11.6	67.32	48	232.15	<b>359.07</b>
(%)	(4.94)	(10.12)	(18.60)	(36.35)	(19.98)	
3. Chi	Annual Budget	110	23.36	725.46	569.73	<b>1,428.55</b>
	Proposed by the Department	68.93	5.96	647.11	521.05	<b>1243.05</b>
	(%)	(62.66)	(25.51)	(89.20)	(91.46)	(87.01)
	Proposed by RBOs	41.07	17.4	78.35	48.68	<b>185.5</b>
(%)	(37.34)	(74.49)	(10.80)	(8.54)	(12.99)	
4. Mun	Annual Budget	228.1	383.85	226.55	396.83	<b>1,235.33</b>
	Proposed by the Department	194.22	380.37	221.99	363.12	<b>1159.7</b>
	(%)	(85.15)	(99.09)	(97.99)	(91.51)	(93.88)
	Proposed by RBOs	33.88	3.48	4.56	33.71	<b>75.63</b>
(%)	(14.85)	(0.91)	(2.01)	(8.49)	(6.12)	
5. Ton Lesap	Annual Budget	8.98	22.45	24.78	11.5	<b>67.71</b>
	Proposed by the Department	8.98	19.45	17.7	2	<b>48.13</b>
	(%)	(100.00)	(86.64)	(71.43)	(17.39)	(71.08)
	Proposed by RBOs	0	3	7.08	9.5	<b>19.58</b>
(%)	(0.00)	(13.36)	(28.57)	(82.61)	(28.92)	
<b>Total Annual Budget</b>		<b>644.61</b>	<b>1,322.17</b>	<b>1,379.93</b>	<b>1,788.04</b>	<b>5,134.75</b>
<b>Proposed by the Departments</b>		<b>517.65</b>	<b>1,220.47</b>	<b>1,240.44</b>	<b>1,436.00</b>	<b>4,414.56</b>
<b>%</b>		<b>80.3</b>	<b>92.31</b>	<b>89.89</b>	<b>80.31</b>	<b>85.97</b>
<b>Proposed by RBOs</b>		<b>126.96</b>	<b>101.7</b>	<b>139.49</b>	<b>352.04</b>	<b>720.19</b>
<b>%</b>		<b>19.7</b>	<b>7.69</b>	<b>10.11</b>	<b>19.69</b>	<b>14.03</b>

Source: Water Resources Department

Moreover, when we considered the budget allocated for LMB areas (Kok, Mekong, Chi, Mun, and Ton Lesap) from 2009 – 2012, only average amount of 14.03% of the total budget allotted from RBOs' proposals (19.70% in 2009, 7.69% in 2010, 10.11% in 2011 and 19.69% in 2012).

In sum, the audit findings clearly present water management budgetary process which is structurally relied on Integrated Water Resources Management concept. However, the results of such process remained unclear. This was due to the very small percentage of the total budget had been accounted from the RBOs' proposals. The entities responsible for water resources management still heavily relied upon their own plans, and gave little attention to the budgetary plans from the RBOs process. The key officials gave information that the RBO's budgetary planning process was not actually integrated. This was because of their incomplete structures. RBOs in some levels have not been appointed. Moreover, the staff in the basin areas responsible for process facilitation did not function properly. Budget and plans from RBOs at the lower level have mostly not been surveyed, scrutinized, and prioritized. The thing they normally did was just to collect the projects and plans, get them bound, and submit them as budget documents to the upper level with only some details such as project type, the project location, proposed budget, responsible organization. So, the RBOs at the upper levels, for example the National Water Resources Committee, did not have sufficient information for decision making in terms of allocation of the budget.

### **Causes**

After interviewing the key staffs, it was nearly consensus that the root of the problems is the lack of water management law called "Water Resources Act" which has been being drafted for many years. The content of such law provide opportunities to promote IWRM rather than Office of the Prime Minister's Regulations on National Water Resources Management B.E.2550 which is just a minor law. It cannot really enforce the water related ministries or departments to work harmoniously.

### **Recommendations**

#### **For the Thai Government**

1. Establish a clear action plan to prepare and draft "the Water Resources Act" for submitting to the parliament and consider this matter as a top priority.
2. During "the Water Resources Act" is still drafting the government has to build on the existing legislation and institutional framework to strengthen the role and capacity of RBCs, especially in water resources planning process at both national level and transboundary level.

#### **For the Department of Water Resources**

1. As the secretary to the National Water Resources Committee, the Department has to formulate and propose any solutions which enable RBCs at all levels to function in compliance with Office of the Prime Minister's Regulations on National Water Resources Management B.E.2550 as well as the 1995 MRR Agreement (Any RBCs responsible for Mekong Basin areas).

## UKRAINE

### **Draft information on the International Co-ordinated Audit of Protection of the Black Sea Against Pollution**

Sustainable development is a concept that for the past two decades gained the support and understanding in government planning and policy formulation. Sustainable development regulates the three spheres of human activity - society, economy and environment - offering a vision of development that meets the needs of the present generation without doubting in the ability of future generations to meet their own needs.

As you know, water is the main factor that affects the Earth's ecosystem, and through it to the vitality and well-being of all mankind, that is one of the main and almost the most important part of sustainable development.

In 1996, INTOSAI WGEA adopted the subject of "clean water" as the main theme. In some countries, this theme also covers the marine environment.

The **aim** was to audit the use of public funds and the effectiveness of the Government activity in the field of use of water resources, as well as the incitement of national governments to improve governance in this field and executions of programs.

Although in 2001, the "waste" was adopted as the new main subject of INTOSAI WGEA, "water" also continues being on the agenda.

Proceeding from the importance of the water resources issue as an element of sustainable development, the Accounting Chamber of Ukraine during the 12th meeting of the INTOSAI Working Group on Environmental Auditing, which was held on 25-29 January 2009, in Doha, State of Qatar, initiated the audit of protection of the Black Sea against pollution.

The audit was successfully conducted in 2009-2011 in conjunction with the SAI of the Turkish Republic, Bulgaria, Romania, Georgia and the Russian Federation.

The **purpose of the audit** was to determine the actual state of affairs, the implementation of international agreements and projects in the field of prevention of accidents and pollution of the marine environment of the Black Sea, as well as monitoring and evaluation of the use of public funds to protect the waters of the Black Sea against pollution.

The **main aspects** of the audit were:

- the fulfillment of international agreements in the field of pollution of the marine environment of the Black Sea;
- the effectiveness of the structure of the systems of control, prevention and pollution elimination of the marine environment;
- the effectiveness of the use of public funds in the field of protection the Black Sea basin against pollution;
- the implementation of international projects in the field of protection against pollution, monitoring and evaluation of water quality in the catchment area of the Black Sea.

The following **general conclusions** were made on the results of the audit:

1. Taking into consideration the importance of the Black Sea and its basin for the sustainable development of the countries of the Black Sea region, their governments have taken necessary measures regarding the implementation of the Bucharest Convention provisions on the Protection of the Black Sea against pollution into national legislation. In all countries of the Black Sea region the executive authority is defined which is responsible for the implementation of the Bucharest Convention within the national territory. Also the responsible bodies to control and protect environment from pollution are identified. As a result, the state policies in these countries were aimed at reducing and preventing pollution of the Black Sea from land-based sources, as well as strengthening control and

responsibility for the damage. But despite this, the "polluter pays" principle is not fully realized and problem of oil pollution from ships remains unsolved.

2. Despite the effort at the national and regional level, the phenomenon of eutrophication of the sea with nitrogen and phosphorus (nutrients), mainly as a result of pollution from agricultural, domestic and industrial sources, is still a principal problem for the marine environment of the Black Sea.

3. Although there is a tendency for increasing investment in sewerage and water treatment plant, both in the river basins and coastal cities, it is still necessary to perform more, as present situation does not meet the requirements. Emissions of untreated sewage and industrial waste water are not properly controlled, resulting in a need for significant funds to carry out the river basin management.

4. Countries of the Black Sea have succeeded in creating a fairly extensive system of monitoring water quality of the Black Sea, which provides information about qualitative changes in the marine ecosystem. However, the problems of funding related to the development and functioning of the existing monitoring systems at the national level, including laboratory studies raise some risks in obtaining timely information on the quality of water environment.

5. Countries of the Black Sea contribute to the control over the marine environment of the Black Sea pollution by providing the reliable information and data in the form of reports to the Black Sea Commission. However, there is a problem of the lack of complete information during reporting due to the absence of interrelation of the national standards. This leads to gaps in the Black Sea Information System (BSIS) and as a result common database as well as activities on collection and provision of information in the process of achieving the expected goals become less effective.

6. Ineffective monitoring of financial support is one of the common problems of the Parties in the execution of the national monitoring programs. This negatively affects both the quantity and quality of information, and the reliability and performance of monitoring programs of coastal states.

7. Lack of coordination and standardization between monitoring programs complicates the development of common strategies in the common fight against pollution.

8. In the Black Sea region there were created conditions for the access of the population and all stakeholders to environmental information on the state and problems of the Black Sea ecosystem. This indicates a prerequisite to understanding and support by nations of the Black Sea countries to the necessary measures on improving the quality and quantity of public authorities in the sphere of protection of the Black Sea against pollution.

The audit allowed to develop a number of **recommendations**, including the need to adopt strategies for the fight against pollution caused by rivers. For this purpose, the above-mentioned countries, particularly those that have not yet undertaken activities, should prepare and effectively execute programs of river basin management.

In 2011, the Accounting Chamber of Ukraine has monitored the **implementation of the audit recommendations** in Ukraine.

Monitoring indicated remaining risks of lack of coordination in the field of environmental safety of the Black Sea basin. Thus, statements for improving of public financial management are still valid. Therefore the Accounting Chamber of Ukraine, together with colleagues from the Russian Federation initiated the continuation of this work, particularly the issue of the protection against pollution of Black Sea basin.

On this basis, an **international co-ordinated audit** of protection against pollution of the Black Sea basin was included into the work plan of the EUROSAI Task Force on the Audit of Funds Allocated to Disasters and Catastrophes for 2012-2014 adopted at the meeting of the Task Force in 2012, in Wroclaw, Poland.

Audit involves examining issues of execution of the Convention on cooperation for the protection and sustainable management of the Danube River, as well as protection from pollution of rivers Dnieper and Don.

This audit was announced by the Accounting Chamber of Ukraine on the X Meeting of the EUROSAI Working Group on Environmental Auditing, later the official invitations to join the audit were sent to all potential participants.

At the moment, six SAIs responded, namely SAIs of Belarus, Bulgaria, Hungary, Moldova, Russia and Ukraine, it allowed to organize and conduct the kick-off meeting concerning this audit in March this year in Sofia, Republic of Bulgaria and we continue inviting all concerned SAIs.

During the kick-off meeting, the participants discussed:

1. audit coordination;
2. timing of the joint position, objectives, scope and criteria of the audit;
3. next meeting aiming to sign a common position.

In particular, according to the results of the preliminary discussions the SAI of Hungary have graciously agreed to coordinate the international audit of implementation of the Convention on cooperation for the protection and sustainable management of the Danube River.

It was previously agreed that the audit will be a coordinated one and will cover the period of 2012 - 2013.

The following are possible questions for the study:

- Implementation of the Convention at the national level;
- The use of budget funds in the fields covered by the Convention;
- Assessment of the control and monitoring of water quality of the river.

The INTOSAI methodology will be used during the audit, taking into account local legislation peculiarities.

Language of documents circulation is English.

All these questions will be revealed in details in a common position, which is expected to be signed this year.

In addition, at this point we discuss the possibility of coordinating the audits of protection against pollution of water basin of the river Don (SAI of Russian Federation) and the Dnieper River (SAI of Belarus).

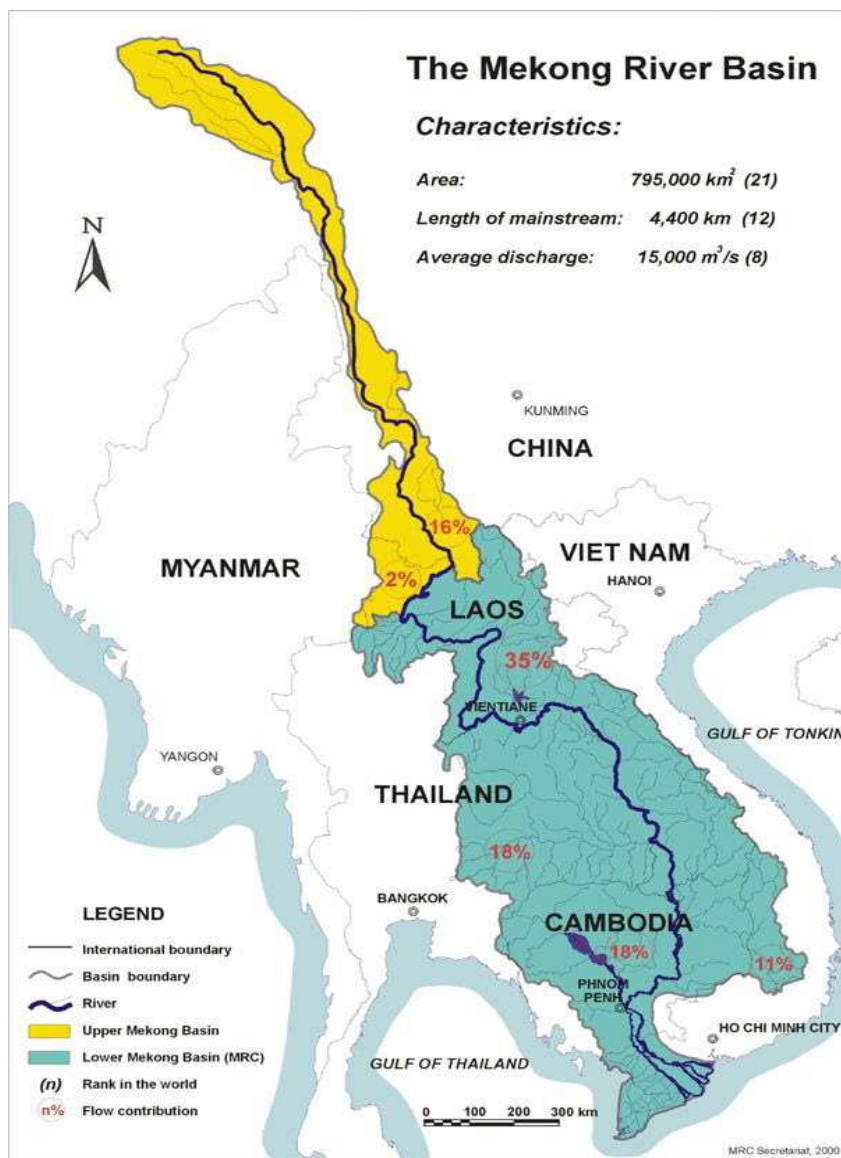
The Accounting Chamber of Ukraine is interested in overall coordination of the international audit of water pollution of the Black sea basin.

Finally, it should be noted that the issues of water quality, in particular the discharge of polluted water were stressed by leading ecologists as one of the most important issues facing the environment. Therefore, the level of public policies in the field of environmental safety in basins of the largest Eurasian rivers such as the Don, Dnieper and Danube, directly depends on the health condition and the sustainable development of the whole population of the region.

You are invited to take part in the Audit of Protection of the Black Sea against Pollution.

## VIETNAM

## Experience on the parallel audit on water issues Mekong River Basin



## 1. Introduction

### 1.1. The basis and need for an audit

The Asian Organization of Supreme Audit Institutions (ASOSAI) and the German International Cooperation (GIZ) has facilitated the workshop “Strengthening the Capacities of Southeast Asian Supreme Audit Institutions” held in Bangkok in 2011. Discussions about strengthening capacity building process came up with the three principal themes, namely Quality Assurance, Strategic Relations and Environmental Audit. In this regard, Office of the Auditor General of Thailand was willingly presented as the leader of the environmental audit theme which was agreed that GIZ will provide funding and expertise from INTOSAI and ASOSAI to support all activities related to the themes.

The SAs participated in the workshop also concluded that the environmental audit theme will focus on water issues specifically the use of the Mekong River water resources. **Mekong River** has been considered as the heart and soul of mainland Southeast Asia. Over 60 million people in at least 6

countries depend on the Mekong and its tributaries for food, water, transportation and many other aspects of their daily lives. The river supports one of the world's most diverse fisheries, second only to Brazil's Amazon River. However, Mekong River is being threatened by serious problems arising from both the unsustainable use of water and the effects of climate change. Therefore, it is challenging the government of countries within Mekong River Basin to form overall management practices for cooperation and transboundary water management. This aims to ensure that water and other water related natural resources within Mekong River Basin are managed and used sustainably and equitably.

## 1.2. Participating SAIs

There are eight participating SAIs have been taking part in the audit with the following specific roles:

SAIs	Role	No. of Auditors joining the audit
1. SAI Thailand	Project Leader	4
2. SAI Lao PDR	Participant	4
3. SAI Vietnam	Participant	4
4. SAI Myanmar	Participant	4
5. SAI Cambodia	Participant	4
6. SAI Indonesia	Knowledge Sharing	2
7. SAI Malaysia	Knowledge Sharing	2

## 2. Audit objectives

The project is to conduct cooperative/parallel environment audit on water issue focusing on Mekong River Basin Management among SAIs of the countries located along Mekong River which are SAI China, Cambodia, Lao PDR, Myanmar, Thailand and Vietnam. SAI Indonesia and Malaysia will also be involved in sharing best practices on environmental audits. The main objectives of the audit are as follows:

- (i) to enhance the capability of South-East Asia SAIs in conducting environmental audit;
- (ii) to enhance the capability in conducting the cooperative environmental audit;
- (iii) to share knowledge between South-East Asia SAIs;
- (iv) to strengthen the network and the cooperation among South-East Asia SAIs;

### For Vietnamese SAI (SAV):

***i) To evaluate the adequacy and reasonableness of the country policies and legislations governing water resource of the Mekong River Basin;***

***ii) to evaluate the compliance with these policies and legislations and with the 1995 Mekong Agreement; to evaluate efficiency and effectiveness of the policies and legislations and the use of resources to manage water resource of the river;***

***iii) to identify limitations and irrationality of the policies and legislations governing water resource of the Mekong River;***

***iv) to identify negative impacts to the economy's safety, environment, climate and people living in the basin area in Vietnam;***

***v) to make recommendations to the Government and respective authorities to develop and improve the policies and legislations governing water resource in general and the Mekong River basin in particular.***

## 3. Audit Approach

The cooperative audit will be carried out in the form of **Parallel Audit**. A decision will be taken to carry out similar audits. Methodology and audit approach will be shared. The audit will be conducted more or less simultaneously by two or more autonomous auditing bodies, but with a separate audit team from each body, usually reporting only to its own governing body and only on matters within its own mandate.



#### **4. Experts and Consultants**

The audit requires experts and consultants from ASOSAI/ASEANSAI with high profile experience in environmental audit especially water issues (SAI Indonesia and SAI Malaysia play role in sharing knowledge and experience).

#### **5. Process of the audit (See Appendix 1)**

##### **5.1. Preliminary survey**

Requiring the participating SAIs to conduct a research on Mekong River Basin Management to find out necessary and important information to the audit such as legal framework, administrative, financial, and technical measures implemented in their own countries. This was carried out before the Environmental Audit Training Course started.

##### **5.2. Environmental Audit Training**

To get more knowledge and understanding in environmental audit, focusing on water issues and planning for the audit (Duration: five-day workshop in February 2012)

##### **5.3. Conducting the audit**

Each supreme audit institution planned and implemented a parallel audit on its territory on selected topics (Duration: 5 to 6 months from March to Aug/Sept 2012)

##### **5.4. Meeting/Workshop to discuss and conclude the audit**

To discuss the methodology, the audit results (main findings and recommendations), the problems/difficulties faced and lessons learned from audits in order to agree on the framework of the joint audit report (Duration: two and three-day workshops, one in Sept 2012 and another in Feb 2013)

##### **5.5. Writing the join audit report (See Appendix 2)**

##### **5.6. Submitting of the report to the list of receivers**

After the completion of the final audit report according to the action plan expected in mid-July 2013, SAI Thailand will send the final audit reports to related parties such as GIZ, ASEANSAI, ASOSAI, ASEANSAI's WGEA, the participating SAI, etc.

#### **6. Difficulties met**

- The SAV's first separate environmental audit;
- Shortage of standards, procedures and guideline on environmental audit, especially water issues.
- Environment management in general and river basin management in particular are very new and complicated;
- Awareness about environmental audit of government agencies at both central and local levels is still limited;
- Shortage in funding and time resource refrained the audit team from checking on site.

#### **7. Lessons learn**

To conduct a successful environmental audit should have the following prerequisite conditions such as:

- Support from top management of SAI;
- Auditors are determined and motivated to try hard;
- Sharing knowledge and experience from other SAIs;
- Support from international donor communities;
- Supports and understanding of government and other central agencies (auditees and other stakeholders);
- Co-operation with other SAIs in implementing environment audit;
- Audit issues should be suitable and specific;

- Expert's advices;
- Appropriate time for survey and audit planning;
- Positive discussion with entities' management in conducting EAs;

## **8. Appendices**

Appendix1: The whole progress of the parallel audit on Mekong River Basin;  
Appendix2: Action Plan following the final workshop.

### Appendix 1: The whole progress of the parallel audit on Mekong River Basin

Activities/Timing	2012												2013											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. Preliminary Survey																								
2. Environmental Audit Training and Planning the Audit (in Thailand)			WS1																					
3. Conducting the Audit by each SAI																								
4. Conclude the Audit by workshops									WS2					WS3										
5. Writing joint audit report																								
6. Present audit report to Receivers																								

Five-day workshop in Thailand

SAIs plan and implement audits on selected topics in their countries

02 workshops to discuss the audit results and lessons learned from audits

Writing the joint audit report (see Appendix 2)

## Appendix 2: Action Plan

Activities	Due Date	Responsible by (Name and SAI)
Develop a template for each SAI to prepare inputs for the report	1 <sup>st</sup> week of March	OAG Thailand
The participating SAIs submit the main findings and the full audit report to OAG Thailand	1. The main finding The end of March 2. The full report The end of April	Participating SAIs
Preparing the Draft Parallel Audit report	The end of May	OAG Thailand
Getting feedback of the Draft Parallel Audit report from the Participating SAIs, the SME and experts (Malaysia and Indonesia SAIs)	1 <sup>st</sup> week of June	OAG Thailand, the SME and experts (Malaysia and Indonesia SAIs)
Finalize the Audit Report	3 <sup>rd</sup> week of June	OAG Thailand
The Final Report is approved by the team leader of the Participating SAIs	The end of June	Participating SAIs
Submitting the Parallel Report to Receivers	The mid of July	OAG Thailand

## Parallel Audit Report

### Structure

#### Cover letter

- I. Executive Summary
  - a. Background
  - b. Intention of the report
  - c. Expectations
  - d. Lessons learned
- II. Main Audit Findings and Recommendations
  - a. Main findings
  - b. Main recommendations
- III. Appendices
  - a. Full audit report of each SAI
  - b. Joint agreement
  - c. Audit team members

## ZAMBIA

### Environmental Audit of the Management of Wildlife in Zambia

#### 1. Background of the audit

Tourism in Zambia is one of the country's economic cornerstones. The Zambia tourism has been prioritised as a major potential earner of the country's foreign exchange and ranks second to agriculture as the driving belt for economic and sustainable development. Therefore proper management of the sector is crucial.

#### 2. Motivation

The audit was motivated by a number of factors and these are:

##### a) Financial Audit Reports

The Auditor General's financial audit Report on Parastatal organisations for 2006, highlighted issues of misuse of resources by some community resource boards established by government to deter poaching of wildlife.

##### b) Public outcry

Cases of human-wildlife conflicts, encroachments and illegal mining activities in national parks has led to public outcry in those areas because they fear that government will privatize the Parks and abolish community resource boards.

##### c) Environment

Well managed natural resources such as national parks and waterfalls can contribute to Bio-degradation and deter ecosystem loss and therefore, reduce the impact of climate change.

##### d) Government funding to the Institution

Over the last few years Government and cooperating partners have invested substantial amount of resources in the management of wildlife.

#### 3. Objective of the audit

The objective of the audit was to assess the efficiency and effectiveness with which ZAWA under the Ministry of Tourism carries out activities to maintain and sustain bio-diversity, reverse the decline in wildlife, improve livelihood of the communities in game management areas and increase revenue generation.

#### 4. Scope

The audit involved examination of record at ZAWA and selected game parks and game management areas. The audit covered mainly, information related to the period 2008 to 2011 and was conducted between June 2011 and April 2012.

#### 5. Methodology

The audit methodology used in the audit were:

- Document review,
- Interviews, and
- Physical inspections of game parks and game management areas.

## 6. Sources of criteria

The audit criteria for this assignment was derived from various sources and these were:

- Wildlife Act
- Convention of Biological Diversity
- The Strategic Plan (2008 – 2012) ZAWA
- Community Based Natural Resource Management Guidelines (CBNRG)
- Tourism Concession Agreements (TCAs)
- Environmental Protection and Pollution Control Act (EPPCA of 1990)

## 7. Findings

The audit examination revealed that there were:

- Threats and pressure on wildlife and biodiversity in the National Parks and Game Managements Areas.
- Insufficient provision of animal survey services.
- Inadequate provision of documented hunting quota system.
- Underutilization of quotas resulting in under-collection of revenues.
- An increase in cases of human and wildlife conflicts in some national parks.
- Low numbers of scouts per sq.km compared to IUCN guidelines.
- Illegal mining activities and encroachments in national parks which were affecting the environment.
- Unplanned settlements in game management areas properties on title in national parks.
- In certain instances, schools, clinics, bridges have been constructed in parks erratic boundary.maintenance in the national parks and game management areas.
- Lack of clear guidelines, by ZAWA to the hunters, on the types and quality of animal off-takes.
- Inadequate training and sensitization of local communities on value of conservation of animals.
- Failure by the Authority to collect revenue due resulting in its operations not being sustainable.
- Some revenues loss due to Fixed Variable Charges over period of the lease.
- Non-comply with concession agreements by some tour operators.
- Delays by ZAWA in renewing concession agreements and collect fees from defaulting operators.

## 8. Recommendations

Based on the findings above, the following were the recommendations:

- a) ZAWA needs to develop or strengthen the monitoring mechanism to mitigate various threats to sustainable wildlife management.
- b) ZAWA needs to strengthen the policy, legal and institutional framework in order to increase its capacity to supervise the existence and quality of wildlife inventories. An updated wildlife inventory is essential for providing the most reliable data for setting hunting quota.
- c) ZAWA and the community should work together to minimize human and wildlife conflicts by planting chilli along the boundaries to prevent animals from crossing over to residential areas.
- d) ZAWA should develop park management plans in order to strengthen the sustainable management of wildlife. A park management plan is required to provide continuity in managerial operations over time, to formalize administrative arrangements and to provide a basis for monitoring wildlife activities. It has the purpose not only of setting out approved management objectives and specified action but, equally importantly, of communicating these to people who are concerned with the implementation of a plan.
- e) ZAWA should ensure that park boundaries are cleared so that they can clearly distinguish between reserved and non reserved areas. This will lessen the conflict and encroachments. Permanent definition and maintenance of park boundaries is an operational capability to protect protected areas from illegal activities and cooperation with communities, which all contribute towards achieving effective wildlife protection.

- f) The Ministry through ZAWA should take necessary measures to secure title deeds for national parks and game management areas so as to prevent illegal allocation of land in the National Parks.
- g) ZAWA should involve ecologists to give specifications on the quality of animals to be hunted in the authorized quotas to prevent extinction of species.
- h) ZAWA should ensure that local communities are sensitized and trained to allow them realise the importance of wildlife conservation and its benefits to the community.
- i) ZAWA should put in place strategies and plans to ensure that fees due to them are collected on time. The Authority should scale up measures of ensuring all outstanding debts owed to it are collected on time and defaulting operators monitored to enhance compliance
- j) ZAWA should make the terms of conditions in the concession agreements flexible to allow it make adjustments to fees as the economy experience changes.
- k) ZAWA should ensure that TCA's are renewed before they expire as per condition contained in them.
- l) ZAWA should update information on wildlife resources, socio-economy, and land-use for planning and sustainable management of the wildlife resources.

## 9. Challenges and barriers

As part of the audit, the auditors faced the following challenges:

- Poorly documented data.
- Unavailability of community representatives.
- Inaccessible areas within National Parks due to bad roads.
- Lack of knowledge on how other countries manage their wild life.

## 10. Lessons learned

The following lessons were learned by the auditors:

- Mining activities in the national parks are impacting negatively on biodiversity.
- Mining activities are supreme over sustainability of wildlife.
- As long as there is an increase in population, settlement in the areas adjacent/encroachments in the National Parks and GMAs will be difficult to control.