INTOSAI Working Group on Environmental Auditing

GREENLINES

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Message from the Chair of WGEA

Dear Colleagues,

I am pleased to report that INTOSAI WGEA has made significant progress on the 2014-2016 Work Plan. The working group held the 16th Assembly Meeting in the Philippines in October 2014 and the 13th Steering Committee (SC) Meeting in Indonesia in April 2014, and all projects are underway. We hope that WGEA will play an active role in promoting a better environment and eco-friendly activities within the SAIs' mandates. The WGEA family has shown a spirit of cooperation and sharing that will be instrumental for achieving these goals.

The projects outlined in the 2014-2016 Work Plan are on track and on schedule. The Work Plan includes seven research projects, an update of the WGEA guidance on waste management, and a review of four ISSAIs on environmental auditing (ISSAIs 5110, 5120, 5130, and 5140). I believe that these projects will be valuable to WGEA members and the INTOSAI community, and I would like to thank the project leaders for their unrelenting endeavours. I hope that drafts of these projects can be completed and approved and that projects and activites for 2017-2019 can be discussed at the upcoming 14th SC Meeting, which will be held 29 September to 1 October 2015 in Egypt. I convey my highest appreciation to the Accountability State Authority of Egypt for hosting this important occassion.

I would also like to thank the SAIs that participated in the 2014 Annual Audit Collection. So far, we have received 200 audit reports from 36 SAIs on topics ranging from waste management to uranium mining. The list remains open, and we hope to receive more reports from SAIs to populate the 2015 WGEA audit collection.

WGEA also conducted its 8th Survey on Environmental Auditing, which focused on environmental audits from 1 January 2013 to 31 December 2014. The survey will result in a comprehensive report reflecting the status and development of environmental auditing practices of interest to SAIs and external partners. I would like to thank the Regional Working Group coordinators for translating the survey into French and Spanish.

Finally, I would like to extend my special gratitude to the US GAO for their continuous support in developing *Greenlines*.

Harry Azhar Azis, Ph.D
Chairman of the Audit Board of the Republic of Indonesia

Feature Story

Auditors are keenly aware of the importance of having data to support findings, conclusions, and recommendations, and auditors know that making strong, actionable recommendations is key to eliciting effective change. This two-part feature story provides tips to consider when using surveys as a data collection method and for making impactful recommendations.

Using Survey Data Analysis in Environmental Audits

Data in its different forms is at the centre of most audits. Much time is spent developing questionnaires or other tools to collect data. Analyzing data demands specific knowledge and care, and sometimes no conclusions can be drawn because the data are too poor.

The members of the European Organisation of SAIs (EUROSAI) WGEA discussed the challenges and opportunities related to using survey data in audits during the 12th Annual Meeting of EUROSAI WGEA in Vilnius, Lithuania, in 2014. The experiences they shared resulted in valuable recommendations. (See p. 2.)

Making Effective Recommendations

Performance auditors know that effective recommendations can have significant impacts in correcting observed problems and promoting change in public institutions. But not all recommendations are created equal; some provide greater opportunities for impact than others. (See p. 3.)

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Feature Story

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Using Survey Data Analysis in Environmental Audits: Results from the 12th EUROSAI WGEA Annual Meeting

Data in its different forms is at the centre of most audits. Much time is spent developing questionnaires or other tools to collect data. Analyzing data demands specific knowledge and care, and sometimes no conclusions can be drawn because the data are too poor.

The members of the European Organisation of SAIs (EUROSAI) WGEA discussed the challenges and opportunities related to using survey data in audits during the 12th Annual Meeting of EUROSAI WGEA in Vilnius, Lithuania, in 2014 (see photo from the meeting on page 3). The experiences they shared resulted in the following valuable recommendations:

- When planning to use surveys in audits, first and foremost, the **suitability of the survey method** should be considered thoroughly. Alternative methods, such as group interviews, could often offer a more useful result. It is also important for SAIs to consider whether they have the necessary in-house expertise for the method they select or should seek outside expertise.

- The preliminary phase of surveys is of great importance. Potentially risky aspects are **determining the target population** and **choosing an appropriate sampling method** to receive representative, unbiased, and meaningful results. As a matter of fact, survey results are most meaningful if they are representative and unbiased.

- To ensure the quality of the resulting data, survey **response rates** should be considered in advance. Although a high response rate is always preferable, it is also important to study whether even a low response rate may be adequate if it is sufficiently representative of the population. A low response rate often derives from "**survey fatigue**"**—**one of the over-arching problems put forward during the WGEA workshop. The response rate could be increased by explaining the questions to the respondents, simplifying the survey, and incentivising the respondents when possible. Incentives need not be monetary; it is important to make the survey meaningful for the respondents by, for example, sharing the survey results with the respondents directly.

- One of the main difficulties of conducting surveys is that they are **time- and resource-intensive**. One reason is the frequently occurring need to follow up with respondents to ensure the quality of the data. In addition, it takes time and resources to carefully plan and develop a survey to ensure that the results will be unbiased as well as to analyse responses.

- **Formulating the right research questions** is undoubtedly one of the main challenges of surveys. The research question needs to be formulated in a way that the focus is concentrated on the specific topic. Sometimes it is revealed after a survey is complete that the **questions have been difficult to answer or evaluate**. Therefore, the auditors must ensure that the possible answers to the questions and methods for evaluating those answers are thoroughly considered in advance. WGEA meeting participants were of the opinion that surveys should be as short as possible. Auditors organising surveys should ask themselves, "**Is this nice to know, or do we need to know**?" for every question.

A common point of view among meeting participants was that surveys should be the last alternative of empirical evidence. The auditor should always investigate whether the information to be obtained through the survey is available in other kinds of empirical evidence. Meeting participants concluded that, while surveys may be a good way to collect information in some situations, it is important to consider all factors when determining whether to use a survey.

Participants at the 12th Annual Meeting of EUROSAI WGEA in Vilnius, Lithuania, in 2014.

Making Effective Recommendations: Root Causes and Domino Effects

Performance auditors know that effective recommendations can have significant impacts in correcting observed problems and promoting change in public institutions. But not all recommendations are created equal; some provide greater opportunities for impact than others.

The Recommendations "Continuum"

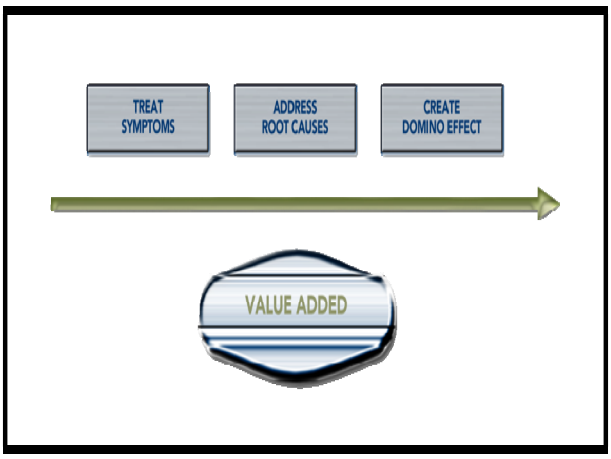
In 2013, the CCAF published the discussion paper *How to Increase the Impact of Environmental Performance Audits*. This paper, based on a Canadian presentation made at the 16th INTOSAI WGEA Meeting in Tallinn, Estonia, commented extensively on audit recommendations.

For example, this paper argues that recommendations that simply tell an entity to fix the problem, finish what was started, or fulfill the mandate, are not likely to lead to lasting and sustainable change. Instead, the paper urges that audit recommendations be strategic in nature rather than operational, focus on expected results rather than the means, and address the underlying causes of observed problems rather than the symptoms. To this latter point, the paper advocates using root cause analyses to strengthen the impact of audit reports and underpin effective recommendations. In 2014, the CCAF published new guidance in a Discussion Paper titled *Better Integrating Root Cause Analysis into Legislative Performance Auditing*.

The 2013 discussion paper also suggests that auditors aim to develop recommendations with a "domino effect." The domino effect refers to the situation where an event or series of events occurs as a direct and inevitable consequence of a previous or initial event. As shown in fig. 1, recommendations with a domino effect go beyond the immediate finding or deficiency, to create an effect, change, or improvement on

- other parts of the practice or system used to manage the issue at hand,
- related practices or systems in the same organization,
- practices or systems in other organizations,
- other related government policies, and
- the economy or in society at large.

Figure 1: Recommendations with a "Domino Effect"



What could domino effect recommendations in environmental audits look like?

- For an audit finding of deteriorating urban water quality, a traditional recommendation might be to raise municipal taxes or impose fees to refurbish a drinking water treatment plant. A domino effect recommendation would instead concentrate on the source of the problem and would focus on implementing a watershed management approach to reduce the pollution entering water streams, allowing the existing water production plant to continue to function adequately.
- To conserve biodiversity and reduce poaching of wildlife, a traditional recommendation might be to increase game warden enforcement capacity. A domino effect recommendation might focus on the source of the poaching issue and would aim to provide employment to local people by developing ecotourism in conservation areas.

Through 2014, experts from the CCAF and the OAGs of British Columbia, Canada, and Quebec worked together to elaborate tools and techniques to assist auditors in crafting recommendations with a domino effect. The results of this collaborative effort were presented to the 17th Meeting of the INTOSAI WGEA in Manila, Philippines, in September 2014. The key tools and techniques we developed are summarized in the balance of this paper.

Adopt a Domino Mindset and Engage with Senior Managers

Too often, recommendations are prepared at the end of the audit, seemingly as an afterthought. Achieving recommendations with a domino effect involves adopting a mindset of looking for opportunities throughout all phases of the audit process.

A key element of this mindset is to have early and frequent discussions with senior managers in audited entities. These discussions could cover

- constraints on progress, and how to remove them,
- other reviews or events that may offer opportunities to combine impacts,
- the interests and agendas of influential internal and external players, and
- policy shifts under consideration that could affect the audit.

Undertake a Broad Contextual Analysis in the Planning Phase

A key element in developing recommendations with a domino effect is to undertake a broader and deeper contextual analysis than might otherwise occur in the planning stage of a particular audit. We suggest using the following analytic tools to develop and document additional perspectives:

- **Policy landscaping,** which involves identifying the public policies and policy instruments that directly and indirectly affect an issue or program area. Policies could include international treaties, domestic legislation and regulations, taxes and user fees, and government directives. In developing this "policy landscape," auditors should identify the relationships between various policies as well as whether the policies' objectives are coherent and congruent or overlap or contradict each other. Auditors should pay particular attention to potential conflicts between polices with social, economic, and environmental orientation. For example, economic development policies may conflict with environmental protection policies and create additional complexities for the auditor to consider.

- **Stakeholder mapping** builds on policy landscaping. It involves identifying the primary and secondary organizations or groups likely to be affected by a proposed recommendation. Stakeholders could include government ministries, departments or agencies, nongovernmental organizations, academic experts, etc. Stakeholder mapping can be community-based (by geography, for example) or interest-based (supportive vs. resistant). By classifying stakeholders based on their relative degree of impact and power of influence, auditors

can determine the level of support or resistance to proposed recommendations and the degree of influence they may have on their implementation.

- **Framing cycles and systems** helps to situate the audit topic within a broader context by considering the natural and/or man-made cycles and systems at play. Ecology teaches us that the natural world is founded on ecosystems, that these systems are both interdependent and "nested" (from local to global), and that various elements, nutrients, and energy flow through these systems (e.g., the water cycle, the carbon cycle). For example, an audit that starts with a focus on urban water pollution might benefit from framing the urban area in the context of the broader watershed it sits within, leading the auditor to look beyond urban water pollution and consider the roles of integrated watershed management and land-use planning.

Equally important in the environmental domain are a number of management cycles and systems that can also frame an audit topic within a broader context. For example, operation of an individual mine site can be viewed in the context of the mining life cycle, which starts with exploration and ends with site reclamation. Similarly, disposal of hazardous waste can be viewed within the context of the waste management cycle, which includes source reduction, recycling, segregation, and disposal. Finally, enforcement of regulations sits within a broader process of policy-making and compliance promotion.

Analyse the Effects of the Planned Recommendations

Another technique is recommendation effect analysis. This could be approached using forecasting methods, whereupon the auditor starts in the present and uses modelling, scenarios, and visioning to contemplate or predict the potential effects of a recommendation.

Alternatively, the auditor could employ "backcasting" methods, whereupon the auditor articulates a future end-state to be achieved and then delineates the specific activities, measures, and milestones that would be needed to deliver it.

Plan and Follow Up on Recommendations over Time

The performance audit process typically results in follow-ups or re-audits of the same topic or related topics. Careful design of successive follow-ups or re-audits presents the opportunity to plan for a longer term impact. Even experienced mountain climbers don't tackle Mount Everest all at once; rather, the climb progresses through successive camps.

So, for performance audits, we suggest considering the Mount Everest analogy to creating a domino effect by staging recommendations over time. In this sense, the initial audit is the base camp, the first follow-up is the advanced base camp, and subsequent follow-up or re-audits are the ascent camps.

Conclusion

Making effective recommendations is part art and part science. As our continuum of recommendations suggests, those that address root causes and seek to have a domino effect add more value.

Contributors

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WGEA News

14th Steering Committee Meeting of INTOSAI WGEA in Egypt

The 14th Steering Committee Meeting of INTOSAI WGEA will be held 29 September to 1 October 2015 in Egypt. The agenda for the meeting will include approving the final drafts of current WGEA projects and designing the next WGEA work plan for 2017–2019.

Global Training Facility's 3rd Programme

Following the success of the 1st and 2nd training sessions, the SAI of India and INTOSAI WGEA will conduct the 3rd programme of the Global Training Facility's "Introduction to Environmental Audit" for auditors from INTOSAI member countries. The training will be held at the International Centre for Environment Audit & Sustainable Development (iCED) in Jaipur, India, on 17 to 30 November 2015. For more information, please contact Ms. Nameeta Prasad at nameeta.prasad@gmail.com and iced@cag.gov.in.

Training Programme for Forest Management Auditng in Indonesia

The Audit Board of the Republic of Indonesia (BPK), in cooperation with INTOSAI WGEA, will conduct a training programme on auditing forest management on 14 to 18 September 2015 at the BPK Training Centre in Jakarta. The training will help SAIs put into practice the INTOSAI WGEA forestry audit guidance developed in 2010. The training will apply a performance audit approach to forestry auditing and will focus on providing hands-on experience in the use of geo-spatial technology for collecting and analyzing audit evidence. For more information, please contact the international cooperation division of BPK at international@bpk.go.id.

News Briefs from Around the SAI World

AZERBAIJAN: Chamber of Accounts audits environmental programs' budget practices

The Chamber of Accounts of the Republic of Azerbaijan conducted several environmental audits in 2014 that addressed environmental programs' budget practices. The audits focused on the use of budgeted and extra-budgetary funds allocated to the development of the national forests, national geological exploration service, environmental protection and monitoring in the Caspian Sea region, state ecological expertise, and national hydrometeorology. The Chamber of Accounts made recommendations to improve the development of budget expense forecasting, ensure efficient and economic use of allocated funds, ensure proper distribution and use of extra-budgetary funds, better regulate receivables and payables, and ensure that the registration and write-off of assets are adjusted according to existing rules.

For more information, please contact Azim Abasov at a.abasov@ach.gov.az.

BULGARIA: National Audit Office audits forest fires and biofuels

In 2014, the Bulgarian National Audit Office (BNAO) conducted an audit on forest fire preparedness and prevention measures, as well as an audit on the production and consumption of biofuels.

Forest fires. BNAO's forest fire audit was a part of coordinated audit led by the Russian Chamber of Control. It highlighted administrative and legislative weaknesses in the implementation of statutory provisions, strategies, and policies, which reduced the effectiveness of forest fire prevention efforts. Specifically, BNAO found the following:

- Forest fire prevention efforts were weakened due to insufficient funding, disunity of national forest areas, and limited capabilities of local authorities and private forest owners.
- Forest fire data are contained in two information systems, but neither system had measures in place to ensure that the data were correct, and protocols for transferring data between the systems were not implemented.
- Early detection of forest fires is difficult. There are delays in the analysis and evaluation of fire risk and in cartography. Bulgaria's automated fire detection and alert systems cover only 7 percent of the country's forest territories. In addition, the Aerospace Observation Centre collects images that suffer from low resolution, receives and processes data infrequently, and is sensitive to weather conditions.
- Public awareness of fire safety rules and the actions to be taken in the event of a fire is low. While educational institutions have training programs on forest fire safety, information campaigns and announcements of increased fire risk for affected regions did not appear to reach the entire population. Additionally, the public believes that government activities to extinguish fires were more effective than measures to prevent them.

Biofuels. BNAO's biofuels audit focused on progress made toward European Union and national objectives for the production and consumption of biofuels from 2008-2012. By 2020, 10 percent of Bulgaria's transportation fuel is supposed to come from renewable sources and biofuels. However, BNAO found that the production of crops for biofuel has not been encouraged since 2010. Furthermore, the share of biofuels in transportation fuel was only 0.3 percent at the end of 2012.

The difficulties in achieving the biofuels objectives are related to delays in establishing sustainability criteria for biofuels and the lack of economic incentives for their use. The government faces several challenges, including a lack of coordination between responsible institutions; insufficient funds for the replacement of conventional fuels with biofuels in public transport; absence of a national certification system for economic operators; and the lack of an integrated system to monitor all processes related to the production and consumption of biofuels.

For more information about the forest fire audit, please contact Detelina Hadjieva at d.hadjieva@bulnao.government.bg.

For more information about the biofuels audit, please contact Eva Galabinova at e.galabinova@bulnao.government.bg.

CANADA: Developing new guidance for auditing sustainable development

The Office of the Auditor General of Canada is currently undertaking two parallel projects—one with a global perspective and one with a Canadian focus—to help legislative auditors plan and conduct audits of sustainable development. Key support for these projects comes from Canada's new Commissioner of the Environment and Sustainable Development, Julie Gelfand.
Under the guidance of WGEA, the Office of the Auditor General of Canada is leading the update of the International Standards of Supreme Audit Institutions' (ISSAI) guidance document *Sustainable Development: The Role of Supreme Audit Institutions* (ISSAI 5130). The update will respond to feedback obtained at the WGEA workshop in Manila in October 2014 and through a WGEA survey. The guidance will also incorporate current thinking on sustainable development, recent SAI experiences, and methodological developments regarding sustainable development auditing.

The Canadian project will build on this work and will involve research and consultation with government officials and a range of knowledgeable stakeholders to develop methodology and guidance for examining sustainable development performance within the unique Canadian context. This guidance will be intended specifically for performance auditors at the Office of the Auditor General of Canada and is also intended to be relevant for other legislative auditors in Canada.

Work on both of these projects is well underway. Suggestions are always welcome.

For more information, or to provide suggestions, please contact Kim Leach at Kimberley.leach@oag-bvg.gc.ca.

COSTA RICA: Audit assesses compliance with regulations protecting riparian zones

In 2014, the Office of the Comptroller General of the Republic of Costa Rica conducted an audit to evaluate government actions to protect the riparian zones of rivers in the largest urban area of the country, known as the Great Metropolitan Area. National regulations for riparian zones require 100 percent forest cover in the area 10 meters from a river's edge. The assessment used orthophotographs analyzed in a Geographic Information System using a photointerpretation methodology the audit team designed. The team analyzed about 160 riparian hectares from five rivers: Torres, Siquiares, Uruca, Cañas, and Toyogres. Of these, about 129 riparian hectares had reasonable tree coverage; the remaining 31 hectares showed scarce tree coverage or were occupied by buildings, crops, or other land types.

The audit found that scarce forest coverage results from a lack of coordination between the institutions responsible of protecting and recovering the riparian zones. Furthermore, the institutions had difficulties implementing the recommendations issued in vulnerability reports by the National Commission for Risk Prevention and Emergency Response (CNE) regarding conditions along the rivers. The conditions of the riparian zones are a consequence of weaknesses in the notification and follow up procedure conducted by the CNE, and these conditions pose risks that will remain and intensify over time. The audit also found that the National Institute of Housing and Urban Development (INVU), the institution in charge of defining distances along riversides to protect riparian zones, lacks updated cartography and technological capabilities to fulfill this duty. This condition makes the measurements of riparian zones imprecise and increases the risk of buildings and other occupants in riparian zones.

The report made numerous recommendations to the Ministry of Environment and Energy, the National Council of Conservation Areas, the National System of Conservation Areas, CNE, INVU, and municipal governments to, among other things, develop a national policy for increasing forest cover in riparian zones.

For more information, please contact Mrs. Lilliam Marín Guillén, Manager, Environmental and Energy Area, at lilliam.marin@cgr.go.cr.

CZECH REPUBLIC: SAO audits energy production from renewable sources

In November 2014, the Supreme Audit Office of the Czech Republic (SAO) concluded an audit of the management of funds to support energy production from renewable sources. The audit focused on financing for the promotion of renewable energy production and assessed the results of activities relative to the goals set and the funds spent.

A directive of the European Parliament and Council set a target for the Czech Republic to obtain 8 percent of its electricity production from renewable sources by 2010. This target was achieved. A subsequent directive set a mandatory target for the Czech Republic to generate at least 13 percent of its energy from renewable sources by 2020. SAO concluded that, in 2012, the Czech Republic was generating 11.2 percent of its gross final energy consumption from renewable sources. Reaching the 13

percent target by 2020 will require an increase of 1.8 percentage points. Nonetheless, the Czech Republic is relatively close to achieving the 2020 target.

SAO also found that even the most expensive renewable sources received economic support. For example, in 2013, photovoltaic power stations, one of the most expensive sources, accounted for approximately 66 percent of the cost of operating aid provided to all renewable sources. However, photovoltaic power stations produced approximately 22 percent of the electricity generated from renewable sources that year. The full report contains graphics showing economic support for renewable resources relative to the production of electricity from those sources in 2013.

The full audit report is available in English at http://www.nku.cz/en/media/supporting-green-energy-will-cost-the-czech-republic-a-trillion-czech-koruna;-two-thirds-of-that-sum-will-go-to-photovoltaics-operators--id7472/.

For more information, please contact Eva Rekova at eva.rekova@nku.cz.

ESTONIA: NAO audited the management of valuable semi-natural grasslands

The loss of biodiversity and destruction of valuable habitats is a global environmental problem. One of the habitats richest in biodiversity and value for many endangered species in Estonia are semi-natural grasslands, including coastal, wooded, and floodplain meadows and limestone plains known as alvars. These valuable grasslands depend on consistent human intervention—mowing or herding—for their preservation.

The ecological condition of these grasslands has deteriorated in recent decades because of the weakening of traditional sustainable agriculture. Because maintaining these grasslands is not agriculturally profitable, Estonia and the European Union provide financial support for their restoration, maintenance, and infrastructure.

The NAO found that despite this funding, the government of Estonia has not met its goals for maintaining protected semi-natural grasslands. Specifically, the NAO found that the Ministry of the Environment has not adequately coordinated the maintenance and restoration of these grasslands, with only two-thirds of the 2013 planned area actually maintained. The NAO also found problems with the quality of maintenance work. In addition, the desired goals have not been achieved, because incentives for the maintenance work do not sufficiently motivate farmers, and the management of conservation work is fragmented between different government agencies depending on land ownership.

The full audit report with a summary in English is available on the NAO's website at www.riigikontroll.ee.

For more information, please contact Viire Viss at viire.viss@riigikontroll.ee.

GHANA: First environmental audit workshop conducted in Ghana

A workshop on conducting environmental audits, sponsored by the Canadian Comprehensive Auditing Foundation (CCAF), took place in Accra in March 2015. The workshop was jointly organised by CCAF; Ghana's Ministries of Foreign Affairs, Trade, and Development; and the African Organisation of English-Speaking Supreme Audit Institutions (AFROSAI-E).

This event marked the first time an environmental audit workshop was organised for members of AFROSAI-E. Twenty-six participants attended the workshop, with three each coming from the SAIs of Cameroon and Tanzania and the remaining participants coming from the Ghana Audit Service (GAS). Workshop facilitators came from CCAF, AFROSAI-E, and GAS.

The goal of the workshop was to provide participants with the knowledge and skills to conduct performance audits on environmental issues The workshop focused on four areas of environmental management—water, waste, forest, and mining management—which pose challenges for Ghana. To help participants better understand the environmental auditing process, the workshop provided information on scoping, criteria, evidence gathering, and root cause analysis.

The knowledge and skills that participants acquired from the workshop should enable them to address environmental issues through the performance auditing process and positively impact the quality of environmental audit reports. As a result of the workshop, GAS plans to identify and conduct at least two environmental audits annually.

Facilitators of the workshop were: John Reed, Vice-President of Performance Audit, CCAF; Yves Gauthier, Vice-President of International Programs, CCAF; Morris Sydor, Assistant Auditor-General for British Columbia, Canada; Jean Cinq-Mars, Sustainable Development Commissioner for Québec, Canada; and Laurie Rose, Consultant to CCAF. Lars Florin, Senior Manager from AFROSAI-E, was also present.

For more information please contact Zakaria Abukari at zabukari@yahoo.com.

INDIA: International Centre hosts 2nd training programme on environmental auditing

In November 2014, the Comptroller and Auditor General of India welcomed 21 participants from 13 countries to the 2nd training programme on environmental auditing in Jaipur's International Centre for Environment Audit and Sustainable Development (iCED). Countries participating in the programme were Bhutan, Cameroon, Cook Islands, Fiji, India, Iraq, Kuwait, Latvia, Malaysia, Nigeria, Tanzania, Tuvalu, and Uganda.

Before coming to iCED, participants prepared a short paper on environmental challenges faced by their country and their government's responses to these challenges. This paper helped the participants relate more closely to the training modules and enabled the trainers to customize the course materials. The training modules included sessions on performance auditing, environment auditing, sustainable development, biodiversity, climate change, waste issues, and water issues. At the end of the course, the participants prepared and discussed with the Course Directors a paper on a plan for an environmental audit they could conduct when they went back to their office. This paper was a detailed audit plan on a relevant environmental issue. The range of topics on which papers were prepared included waste management, marine pollution, climate change, and more.

To illustrate the training concepts, the programme also incorporated field trips. For example, to illustrate the concept of sustainability, participants toured the ramparts of Jaigarh Fort, built almost 350 years ago, to look at the water harvesting systems used to store and conserve water. As part of the biodiversity module, they visited the tiger reserve in Ranthambhore National Park and discussed conservation with the Field Director of the Ranthambhore Tiger Project.

The programme also included evening and weekend activities so that participants could grasp environmental concepts in an informal setting and have fun. These activities included a heritage walk along the bazaars of old Jaipur, a light and sound show at Amber Fort, and shopping trips to various shopping malls and markets. The diverse colours of rural life in Rajasthan were visible on a trip to Chokhi Dhani—a resort designed to showcase life in that part of the country. Participants also enjoyed a meal prepared by volunteers of a community kitchen.

Feedback from participants on the second programme indicated that they found the length of the training program just right, the sessions interesting, and the modules appropriate. In addition, participants noted that SAIs would be interested in future iCED courses.

Facilitators of the programme were: Ms. Tuuli Rasso, SAI Estonia, for sessions on sustainable development and environmental auditing; Ms. Elaine Souza, SAI Brazil, for sessions on biodiversity; Ms. Dewi Sukmawati, SAI Indonesia, for sessions on water issues; Ms. Nameeta Prasad, SAI India, for sessions on waste issues; and Ms. Rasso and Ms. Prasad for sessions on climate change.

For further information, please contact iCED at iced@cag.gov.in and icedjaipur@gmail.com.

KUWAIT: SAB evaluates air and groundwater quality programs

Kuwait's State Audit Bureau (SAB) audited (1) the effectiveness of the Air Quality Integrated Management Program and (2) government efforts to measure and reduce emissions of hydrogen sulfide gas (H_2S) from groundwater.

Air quality. The audit of the Air Quality Integrated Management Program verified the effectiveness of the government's measurement of the harmful effects of air pollutants and compliance with safety standards in various areas of Kuwait. The report also examined actions taken in response to recommendations in a 2005 audit of air quality at a military airbase. The SAB found numerous deficiencies, including poor implementation of planned air quality projects, funds allocated to air quality projects that had not been spent, and a shortage of equipment needed for monitoring. In light of these findings, SAB recommended that the government

- implement an existing plan for air quality management
- study the contributions to air quality that industrial companies could make, and
- provide necessary equipment for monitoring.

H_2S emissions. The audit evaluated government efforts to measure and reduce emissions of hydrogen sulfide or H_2S—a toxic gas with a rotten egg smell—from groundwater. The audit found, among other things, that it was unclear which agency is responsible for H_2S emissions, and that groundwater treatment methods were not fully used. The SAB recommended that the government

- issue environmental permits with air quality standards to construction projects to reduce hydrogen sulfide emissions
- Identify which agency is responsible for monitoring sites for hydrogen sulfide emissions
- Enforce regulations calling for treatment of groundwater contaminated withH_2S .

LITHUANIA: Results of an international cooperative audit of national parks

A cooperative audit of national parks was performed in 2013-2014 by the SAIs of Bulgaria, Croatia, Denmark, Lithuania, Norway, Poland, and Ukraine. The SAIs' joint report builds on individual national audit reports of the seven countries. The main objectives of the cooperative audit were to:

- assess national park management,
- address the conservation and biodiversity challenges in national parks, and
- evaluate whether public spending achieves national park goals.

The audit showed that national parks in most of the participating countries are, in general, performing their functions and working towards achieving their goals. These countries have employed different models for governing national parks, but not all park authorities ensured that their national parks have a management plan with specific guidelines for conserving and using their parks. The audit also showed that involving local stakeholders in national parks management can give the parks more legitimacy.

The audit also reported a potential conflict of interest between using national parks and protecting them against threats. Specifically, although the majority of funds allocated to national parks come from the state budgets of the respective countries, some parks also depend on income from economic activities on their land. However, raising additional income from economic activities on park land may conflict with their protection.

The audit report made the following recommendations:

- All national parks should have operational and measurable management plans.
- National park authorities should monitor the performance of the parks more closely and evaluate whether park objectives are met.
- Public financing for national parks should be based on a needs' assessment of each park.

The audit report is available in English at: http://www.vkontrole.lt/en/docs/JOINT_REPORT_2015_02_24_FINAL.pdf.

For more information, please contact Ms. Lina Balėnaitė at Lina.Balenaite@vkontrole.lt.

MALAYSIA: Mitigation of climate change through sustainable forest management

In 2014, the SAI of Malaysia evaluated the effectiveness and efficiency of sustainable forestry management practices in mitigating climate change. The SAI found that Malaysia's forestry practices were satisfactory in terms of commitment and initiatives. The direction of the forestry practices were in line with good natural resource planning management and sustainable development approaches. However, the various agencies involved must coordinate and collaborate fully to ensure the objectives of sustainable forestry management relative to climate change mitigation can be achieved.

Malaysia is committed to practicing sustainable forest management to protect environmental stability and ecological balance. This commitment stems from several international agreements, including the 1989 Langkawi Declaration on Environment and, most recently, the Copenhagen 2009 Conference of Parties, at which Malaysia pledged to maintain natural forest coverage on at least 50 percent of its land area. The total area of forest cover in Malaysia in 2011 was 17.98 million hectares, or 54 percent of the country's total land area of 33 million hectares. Permanent forest reserve areas in Malaysia are 15.24 million hectares, or 84 percent of the total forest coverage.

Malaysia's national policies on climate change have been in place since the Third Malaysia Plan (1976-1980). The National Forestry Policy was adopted in 1978 as a framework for climate change. The ratification of the United Nations Framework Convention on Climate Change in 1992 and Kyoto Protocol in 1997 signified Malaysia's commitment to address the problems of climate change. In August 2010, Malaysia released its national policy on climate change mitigation and adaptation. This policy was built on the nation's goal to reduce greenhouse emissions in 2020 to 40 percent below 2005 levels. The policy recognized forests as crucial for the preservation of biodiversity as well as for their function as natural carbon sinks.

For more information, please contact Fadzilah Binti Hj. Mohammad at fazee@audit.gov.my.

MEXICO: SAI provides support to Honduras and reports on access to clean water

SAI provides support to Honduras

As a member of the Organization of Latin American and Caribbean Supreme Audit Institutions, in January 2013, the SAI of Mexico was invited to provide technical assistance to the Environmental Audit Pilot Project. The project focused on the protection of the historical and cultural heritage of the Republic of Honduras. The project was also supported by the German Federal Enterprise for International Cooperation. The objective for the Mexican SAI was to provide techniques for conducting performance audits of historical and cultural heritage protection, restoration, and management, as well as environmental protection to the Court of Accounts of Honduras. The project ended in June 2014, with Honduran auditors trained in relevant performance audit methods. The project resulted in seven audit reports to the entities responsible for cultural heritage. An eighth report consolidated all of the results and was sent to the President of Honduras as a review of that country's national heritage policies.

For more information, please contact bfuentes@asf.gob.mx or earamirez@asf.gob.mx.

Report on Water Access

The SAI of Mexico also completed an audit of the country's Basin Councils, which consult on water access issues and include representatives from government, water users, and civic organizations. In 2010, the United Nations established clean water as a human right, and Mexico recognized access to water as a human right in 2012. In this context, the audit concluded that the Basin Councils do not operate as intended because they do not have the ability to participate in decision making about access to clean water. The report noted that the Mexican Congress had not yet issued a law to govern the participation of the three branches of government, water users, and civic organizations within the Basin Council framework.

For more information, please visit www.asf.gob.mx.

NEW ZEALAND: SAI work on co-governance, climate change, and integrated reporting

SAI Audit of co-governance arrangements

As part of a 2014-2015 work program under the broad theme of governance and accountability, the SAI of New Zealand will examine the governance and accountability of a selection of co-governance arrangements in the environmental sector. In the environmental sector, there is an increasing variety of governance models that have a range of purposes and include arrangements between the central government, local governments, Maori, and local groups. The arrangements have a variety of legal forms and include statutory bodies, trusts, and contractual relationships. The arrangements also vary from small boards managing a discrete local area, such as a park or reserve, to statutory entities managing a significant natural resource, such as New Zealand's Waikato River. This is an evolving area where most of the arrangements are reasonably new and have evolving methods of governance and accountability.

The SAI will examine a sample of six governance arrangements. Because it is too early to assess effectiveness in most cases, the focus will be on identifying useful principles that should be taken into account when establishing and operating co-governance arrangements in the environmental sector. These principles will be useful to local authorities trying to establish and implement good governance arrangements and to officials involved in establishing or supporting them. The questions will focus on the arrangements' clarity of purpose, roles and responsibilities, capability, accountability and integrity, information and reporting, and financial sustainability. The SAI intends to report its findings later in 2015.

Cooperative audit on climate change in the Pacific

Since Pacific nations are among the most vulnerable to climate change effects, the Pacific Association of SAIs (PASAI) Auditors-General undertook a cooperative audit with support from the Asian Development Bank, the INTOSAI Development Initiative, the Australian and New Zealand Governments, and the PASAI Regional Working Group on Environmental Auditing (RWGEA). The SAI of New Zealand supported this audit through its leadership of the PASAI RWGEA.

The resulting 2015 PASAI report titled *Report of the Coordinated Pacific Region Performance Audit: Climate Change Adaptation and Disaster Risk Reduction Strategies and Management* contains findings from eight reports on governance arrangements, project implementation, and monitoring and reporting. The report found that Pacific Island governments are not sufficiently prepared for climate change. Progress on vulnerability and risk assessments has been slow, and strategies to

respond to these assessments are yet to be developed. The many agencies responsible for policies, actions, and funding need better coordination and improved project management skills.

SAI considering integrated reporting

The SAI of New Zealand is considering adopting an integrated reporting framework for its planning and reporting. A small number of New Zealand public sector entities are producing integrated reports or mixed integrated and sustainability reports, encouraged by global initiatives such as the International Integrated Reporting Council and the Global Reporting Initiative. The SAI of New Zealand is keen to hear from other SAIs with experience in this area, including SAIs that have provided assurance over integrated reports or that are producing integrated reports themselves.

To share experiences with integrated reporting or for more information on any of these matters, please contact Jonathan Keate at Jonathan.keate@oag.govt.nz.

NORWAY: Audit on the challenges and opportunities for the Arctic Council

In the spring of 2015, the Supreme Audit Institutions of Denmark, Norway, Russia, Sweden, and the United States finalized a Joint Memorandum titled *The Arctic Council - Perspectives on a Changing Arctic, The Council's Work and Key Challenges*. The memorandum highlights the results of the cooperative effort among the SAIs of these five Arctic nations to better understand the Arctic Council—an intergovernmental forum to promote cooperation on Arctic issues—during a time of increased interest and changes in the Arctic. The multilateral audit was carried out in accordance with a strategic plan signed by the participating SAIs, and each SAI submitted its respective national reports.

The memorandum represents the collective findings of the five SAI's audits where they were similar in scope but does not necessarily represent the views or conclusions of each SAI. Key findings include:

- Changes in the Arctic have elevated the importance of international cooperation in that part of the world;
- The Arctic Council has contributed to enhanced cooperation, governance, and scientific knowledge;
- The Council faces key challenges related to its organizational structure, establishing of priorities, funding, and ability to ensure the effective implementation of voluntary recommendations adopted by member states; and
- Indigenous groups make important contributions to the Council, but face challenges to participate.

For more information, please contact Martin Ørvim at Bjorn-Martin.Orvim@Riksrevisjonen.no.

ROMANIA: Performance audit on waste management and reclaiming industrial areas

In 2014, the Romanian Court of Accounts conducted a performance audit of the Ministry of the Environment and Climatic Changes titled *Effectiveness and Efficiency of Funds Used in Waste Management and Reclaiming Areas Impacted by Industrial Activity, 2011-2013*. The audit analysed:

- the extent to which European directives on waste management and rehabilitation of contaminated sites were transposed into Romanian legislation,
- measures ordered by the Romanian government in these areas, and
- the results of these measures.

The audit found that, although the government undertook a series of legislative and practical implementation measures, many weaknesses remain, both in the transposition of European directives into national legislation and in adapting internal legislative provisions for implementation, particularly with regard to enforcement and monitoring. The Court of Accounts provided its findings and recommendations to the relevant government authorities.

SAUDI ARABIA: General Auditing Bureau's environmental auditing efforts

The General Auditing Bureau (GAB) of Saudi Arabia recognizes the important role of environmental auditing and has directed great attention to this issue. GAB's key environmental auditing efforts include:

- **Participating in regional and international committees and working groups on environmental auditing**, including participating in WGEA, the Arab Organization of SAIs' subcommittee on environmental auditing, and the Asian Organization of SAI's environmental auditing committees; contributing several working papers detailing the GAB's environmental auditing experience; and reviewing, commenting on, and translating these bodies' draft documents.

- **Building GAB's environmental auditing capacity**, including holding an annual training course on environmental auditing; using publications from work groups in environmental auditing courses for staff; giving staff the opportunity to participate in internal and external symposiums and seminars on environmental management and auditing; establishing a unit within GAB to coordinate environmental auditing; and organizing an environmental auditing symposium attended by about 300 officers from audited ministries and government departments that highlighted the environmental damage caused by the inequitable use of natural resources since the Industrial Revolution, the importance of environmental auditing within government departments, and the need to join forces to protect the environment for coming generations.

- **Conducting more environmental audits,** including performance audits of government agencies in the field of environmental protection, in accordance with Article 110 of INTOSAI's Auditing Standards.

UKRAINE: Accounting Chamber applies ISSAI 5540 to environmental audits

In 2013, the Accounting Chamber of Ukraine began to apply ISSAI 5540 to its environmental audits to obtain additional evidence and increase the visibility of audit results. ISSAI 5540, *The Use of Geospatial Information in Auditing Disaster Management and Disaster-related Aid*, as approved at the XXI INCOSAI in Beijing, provides detailed guidance on the use of geospatial information at all stages of an audit and summarizes opportunities and examples for using geospatial information in audit activity. (See www.issai.org/media/79454/issai-5540-e.pdf for the standard.)

Since 2013, the Accounting Chamber has applied geospatial information to an audit of funds allocated for wildfire prevention and wildfire impact mitigation, an audit of the use of funds allocated to establish and develop national parks, and an audit of the State Environmental Protection Fund of Ukraine. SAIs' experience using geospatial information in their audits will enable their evaluation of ISSAI 5540's effectiveness and may inform proposed improvements. The goal of improving the use and effectiveness of geospatial information was one of the main topics at the first Meeting of the EUROSAI Working Group on the Audit of Funds Allocated to Disasters and Catastrophes chaired by the Accounting Chamber of Ukraine on February 5, 2015, in Luxembourg.

UNITED KINGDOM: NAO addresses sustainability reporting and decommissioning at nuclear power plant site

In February 2015, the National Audit Office (NAO) reported its latest assessment of the central government's sustainability reporting, with a focus on 2013-2014. The report included an update for Parliament on developments in good practice and reporting and highlighted examples of good practice and potential areas for improvement in reporting by UK government departments. The report is available at http://www.nao.org.uk/report/sustainability-reporting-central-government-update/.

In addition, in March 2015, the NAO provided Parliament a summary of publicly available information on the National Health Service (NHS) and sustainability in England. NAO identified potential good practices, opportunities, and challenges, drawing on its good practice criteria for sustainability within an organisation. NAO found that the NHS has a Sustainable Development Strategy for the health and social care system in England and has assessed its carbon footprint across its operations. The report is available at http://www.nao.org.uk/report/nhs-and-sustainability/.

Also in March 2015, the NAO reported on progress in decommissioning activities at Sellafield, the UK's largest and most hazardous nuclear site. This report followed up on reports published in 2012 and 2013 on how the Nuclear Decommissioning Authority manages risk at Sellafield and gains assurance about the level of reported efficiency savings on the site. The 2015 report addressed progress at the Sellafield site in its major programmes and projects, the site operator's capability and capacity, and the Authority's plans for a transition to a new model for managing the site. The report is available at http://www.nao.org.uk/report/progress-on-the-sellafield-site-an-update/.

For more inforrmation, please contact Katy Losse at Katy.Losse@nao.gsi.gov.uk.

UNITED STATES: GAO finds U.S. government could do more to address ocean acidification

In September 2014, the U.S. Government Accountability Office (GAO) completed an audit of the U.S. government's efforts to respond to ocean acidification. A 2009 U.S. law directed relevant agencies to better understand and respond to ocean acidification.

GAO's review of six reports written by federal agencies and others found that ocean acidification could have a variety of potentially significant effects on marine species, ecosystems, and coastal communities. GAO also found, however, that the scientific understanding of ocean acidification's effects was still developing, and that uncertainty remained about the scope and severity of those effects. The potential effects of ocean acidification include:

- Reducing the ability of some marine species to form shells or altering their physiology or behavior.
- Disrupting predator and prey relationships in food webs and altering habitats.
- Harming coastal fishing and tourism industries.

GAO also found that the 11 federal agencies involved in the government response to ocean acidification had taken a number of the steps specified in the 2009 law—most notably forming an interagency working group to coordinate their actions and developing a research and monitoring plan to direct the agencies' future efforts. However, the agencies had not taken other required actions, including clearly defining each agency's roles and responsibilities and estimating the funding needed to implement the research and monitoring plan. As a result, GAO concluded that it was unclear to what extent the actions outlined in the plan would be taken. GAO recommended, among other things, that the agencies estimate the funding needed to implement the research and monitoring plan and designate an entity responsible for coordinating the next steps in the federal response to ocean acidification.

The full report is available at http://www.gao.gov/products/GAO-14-736.

For more information, please contact Jonathan Dent at dentj@gao.gov or Josh Wiener at wienerj@gao.gov.