

**Minutes of
The 7th Seminar on Environmental Auditing and 6th Working Meeting of ASOSAI
WGEA
29th – 31st January 2018, Khao Yai National Park, Thailand.**

The 7th Seminar on Environmental Auditing and the 6th Working Meeting of ASOSAI WGEA was held in Khao Yai, Nakhon Ratchasima, Thailand from 29th to 31st January 2018 with participation of 57 delegates from 24 SAIs and International Organizations.



1. Welcome Address – by Prof. Dr. Orapin Phonsuwan Sabyeroop, State Audit Commissioner, SAI Thailand

Dr. Orapin welcomes Mr. Moermahadi Soerja Djanegara, Chairman of SAI Indonesia, Chair of INTOSAI WGEA, and Mrs. Qin Boyong, Deputy Auditor General of SAI China, Chair of ASOSAI WGEA, and all the distinguished guests to the opening ceremony. This is a good opportunity of mutual learning for the community of ASOSAI to have a face-to-face meeting and further promote the exchange of information, experiences, and cooperation.

With the environmental problems becoming on climbing list of priority and concern for the global, SAI has played a significant role in exercising their power to audit and leave a positive legacy for future generations, by improving the quality of the environment, the management of natural resources, the health and prosperity of people. In order to achieve mutual goals, collaborations among member SAIs are a vital factor to enhance the efficient use, management and preservation of environment for future generations.

SAO Thailand focuses on auditing the environmental issues by incorporating with performance audit, demonstrating its significant role in the improvements or adjustments to the government projects so as to meet citizen's benefit and save the environment.

Dr. Orapin wishes a successful seminar, and hopes that all participants enjoy the meeting as well as excursion, have a pleasant stay in Thailand and a safe journey back home.

2. INTOSAI WGEA Remarks – by Dr. Moermahadi Soerja Djanegara, CA., CPA, Chairman of the Audit Board of the Republic of Indonesia, Chair of INTOSAI WGEA

Dr. Moermahadi Soerja Djanegara presents his compliments to all distinguished participants, appreciates the strong support of Asian members to the INTOSAI WGEA, congratulates SAI Thailand for the warm hospitality and excellent arrangements, and conveys the appreciation to SAI China for the invitation.

He recalled that the 15th SC meeting of INTOSAI WGEA in September 2017 agreed upon the project plans spanning a wide range of important topics and activities including research papers, audit guidance, training tools, and trainings.

Last year's UN-Symposium held in Vienna recognized how digitization, open data, and data mining brought significant impact to SAIs' work, especially with regard to the follow-up and review of the Sustainable Development Goals. It is necessary for SAIs to build its human/infrastructural resources and develop new audit methods, in order to ensure sufficient capability to audit IT systems. INTOSAI WGEA itself has acknowledged the need to benefit more from the huge amount of data through its 2013 research paper *Environmental Data: Resources and Options for Supreme Audit Institutions*, and will continue its strong commitment to provide sound knowledge on environmental data through the *Training Tool on Environmental Data* expected to be finalized in 2019, to harness and customize data analytics for use in environmental audits towards protecting the environment at all levels.

Dr. Djanegara hopes that the meeting will accomplish the objectives as expected, and the course of sustainable development will benefit from the fruitful discussion at the seminar.

3. Opening Address – by Mrs. Qin Boyong, Deputy Auditor General of SAI China, Chair of ASOSAI WGEA

Mrs. Qin Boyong gives her regards to all the distinguished delegates coming from Asian SAIs, INTOSAI WGEA, and regional WGEAs of AFROSAI, ARABOSAI, and EUROSAI, and conveys the gratitude to SAI Thailand for hosting the seminar.

She mentions that Mother Nature is the very foundation of survival and development of mankind, we must respect nature, follow its ways, and protect it. In Asia, regional economic growth and population boom have exerted much pressure on the environment, and many countries face challenges in different respects. SAI stands out to play a unique and irreplaceable role in environmental protection, with its independent status and a comprehensive perspective. In recent years, Asian SAIs have carried out many environmental audits on prevailing problems with desirable achievements.

As a professional working group, ASOSAI WGEA will continue to help members to carry out environmental auditing with professionalism, independence, objectivity and transparency, and strengthen closer cooperation. In addition, ASOSAI WGEA was founded in 2000 here in Thailand. Over years of efforts, great achievements have been made in environmental audit in Asia. This Seminar is sure to serve as a good platform for information exchange and experience sharing, and play an important role for the future development of Asian environmental audit. She wishes the seminar and working meeting a complete success.

4. Keynote Speech on Review and Outlook on Environmental Audit in Asia– by Mrs. Qin Boyong, Deputy Auditor General of SAI China, Chair of ASOSAI WGEA

Mrs. Qin Boyong firstly recalls the time-honored friendship between China and other Asian countries since ancient times, and appreciates good exchange, communication and cooperation that SAI China has been maintaining with all members SAIs of ASOSAI.

Being the greatest development vitality and potential in the world, peace, stability and development of Asia are closely tied with the future of mankind and entire world. However,

in recent decades, Asia has been plagued by a series of environmental problems. SAIs are taking up similar environmental protection duties. In recent years, most of Asian SAIs have made remarkable achievements through environmental auditing. Mrs. Qin shared with the participants the results of the 8th Questionnaires on environmental auditing undertaken by the Secretariat of ASOSAI WGEA in 2017, in terms of institution and auditor, strategic plans, focus of environmental audits, audit reports and recommendations, cooperative audits, etc.

The Chinese Government attaches great importance to environmental protection and ecological civilization. SAI China has launched a number of environmental audits, and achieved satisfying effects with valuable experiences. CNAO will comprehensively carry out the accountability audit of natural assets-resources over leading officials to make sustained contributions to environment protection and green development.

In 2015, the United Nations adopted the Sustainable Development Goals aiming to raise comprehensive solutions to development problems at the social, economic and environmental dimensions before 2030. SAIs and auditors of all countries shall make efforts to further improve environmental audit and make contributions to sustainable development. In this regard, Mrs. Qin put forward three proposals as follows:

- To expand and advance environmental audit, with more attention to natural resources and environment that have significant impacts on sustainable development;
- to explore new technical methods including the IT application and big data mode;
- to strengthen cooperation in the field of cooperative environmental audit.

5. Keynote Presentation on Environmental Impact Valuation – by Assoc. Prof. Dr. Adis Israngkura, National Institute of Development Administration

Auditing is a way to communicate information among people. Converting an array of information into a common unit is useful for communicating information and decision making, in which monetary unit is generally convenient.

Environmental values also need to be determined by the people and market in society, basing purely on taste. This taste is reflected by the willingness-to-pay and willingness-to-accept. There are several types of environmental value, use value consists of direct and indirect use value, while Non-Use Value consists of Existence Value and Bequest Value, and Option Value. As for the methods for valuation, *Market-based valuation techniques* study some elements such as Cost of Illness, Change in Productivity, Mitigation Cost, Defensive Expenditure, Replacement Cost, etc. Revealed Preference Techniques (Travel Cost Method, Hedonic Price Method), Stated Preference Technique (Contingent Valuation Methods), and others (Benefit Transfer Method) apply for the *Non-market Valuation Techniques*.

Environmental Impact Value can be used to complete the Cost-Benefit analysis, calculate pollution tax rates, compensate the victims of environmental impacts, compute the Green National Income Account or Green GDP, allocate appropriate budget for government projects, facilitate environmental auditing, etc.

6. Report of ASOSAI WGEA – by Mr. LIU Feng from SAI China

With a total of 32 members and 1 observer by January 2018, ASOSAI WGEA continues to fulfill its responsibilities and undertake major activities since 2016 as follows:

The 6th Seminar on Environmental Audit and 5th working meeting were held in October 2016 in Jaipur, India. In addition to a speech by UN ECOSOC on “the 2030 Agenda for Sustainable Development” as well as a special training on the Audit of Air Pollution, the participants had warm discussions on two themes: *Audit on the Implementation of Environmental Policy* and *SAI’s Role in Promoting Sustainable Development*. The 5th meeting adopted the Work Plan 2017-19 of ASOSAI WGEA, approved the Division of

Duties of ASOSAI WGEA Activities, and decided the host of next seminar.

The Secretariat carried out the 8th questionnaire, compiled the Case Collection on Environment Auditing and Country Papers of WGEA Seminars. The work report was presented at the meetings of INTOSAI WGEA and ASOSAI respectively. Many members took part in different projects of INTOSAI WGEA.

ASOSAI WGEA has actively explored the regional cooperation by sending the representatives to attend the 7th meeting of AFROSAI WGEA and 15th meeting of EUROSAI WGEA, and shared the experiences of Asian SAIs on environmental auditing.

For the way forward, the ASOSAI WGEA will continue to implement the 2017-2019 Work Plan, try to launch cooperative audit and research projects, and co-organize the Symposium on 'Environmental Auditing for Sustainable Development' during the 14th Assembly of ASOSAI in 2018.

7. Report of INTOSAI WGEA – by Mrs. Juska Meidy Enyke Sjam from SAI Indonesia

The 2017 – 2019 Work Plan of INTOSAI WGEA targets 4 Goals as follows:

- Goal 1 - Up-date existing and develop new guidance materials available to SAIs, conduct research studies on emerging topics in environmental auditing.
- Goal 2 - Facilitate concurrent, joint, and coordinated audits.
- Goal 3 – Enhance information dissemination through Greenlines Newsletter, carry out 9th Environmental Survey and call for audit report collection, develop new training tools on Waste Management, Greening SAIs and Environmental Data.
- Goal 4 - Increase cooperation with the CBD, UNEP, UNDESA, etc.

Mrs. Juska introduced the current progress on research projects and guidance, annual audit report collection, and the 9th environmental survey. She also stated the upcoming events including International workshop on auditing water issues, the 5th Forestry training, the Assembly and SC meeting of INTOSAI WGEA.

8. Report of AFROSAI WGEA – by Mr. Onya Valentine Bongado from SAI Cameroon

Mr. Bongado introduced the Work Plan of AFROSAI WGEA aligning with the 2015-2020 Strategic Plan of AFROSAI and 2017-2019 Work Plan of INTOSAI WGEA. There are 3 main objectives are identified: capacity building of SAIs, sharing of knowledge and experience through cooperative environmental audits and other initiatives, information dissemination and intensify cooperation with relevant organisations.

He shared the progress of the activities executed, including the launch of cooperative audit on the Congo Basin forests, review of cooperative audit projects on River Nile and River Niger Basins, development and adoption of a “Green Charter of African SAIs”, newsletter on 2016 Assembly and the 7th annual meeting, and ongoing translation of ISSAIs 5110, 5120 and 5140 into French language.

Future Plans of AFROSAI WGEA include: consultative and planning meetings for cooperative audit on the River Nile and Niger Basin, proceeding the cooperative audit on the Congo Basin forest, follow-up on the implementation of recommendations of joint audit on Lake Chad, participation in various projects and activities of INTOSAI WGEA, information sharing on environmental issues, strengthening of cooperation to facilitate training, consolidation of established partnerships, and the 8th annual meeting.

9. Report of ARABOSAI WGEA – by Mr. Rashid A.Y.A.M. Abdulsalam from SAI Kuwait

ARABOSAI WGEA has completed some research projects in recent years, elaborating SAI's role in the following areas:

- Auditing the Environmental Impacts of Liquid Industrial Waste,

- Comparing the Environmental laws (laws, regulations, decisions) related to the environment in the Arab Countries,
- Auditing Public Parks & Landscapes,
- Preparing a Procedural Guideline on Environmental Auditing,
- Auditing the Impact of Communications Towers on the Environment & Humans,
- Auditing the Coastline,
- Auditing the Natural Reserves,

Mr. Abdulsalam introduced the most important results of these research papers, and mentioned about the proposed training programs on Energy Audit, Environmental Auditing Standards, Evaluating the Efficiency of Medical Waste Disposal, and Joint Collaborative Review Procedures (Standard 5140).

10. Report of EUROSAT WGEA – by Ms. Tuuli Rasso from SAI Estonia

Ms. Tuuli Rasso deliberated on three aspects of the Strategic Focus as follows:

- The 14th Annual meeting of EUROSAT WGEA in 2016 discussed about Sustainable development, MBIs for environmental protection, ISSAIs on environmental auditing.
- Training Seminar on Data and Analysis in Environmental Audit at the 15th Annual meeting in 2017, focusing on land use and development of environmental governance.
- Training Seminar on Auditing Climate Change for the 16th Annual meeting in 2018, with a view to increasing impact of environmental audits.

Ms. Rasso shared the progress of ongoing cooperative audits on Air Quality, Energy Efficiency in Public Buildings, and Mediterranean Marine Protected Areas. She also mentioned about the website and newsletter of EUROSAT WGEA, and future Massive Open Online Courses (MOOC) on auditing water issues and waste management.

The seminar was followed by the forum themed *IT application in Environmental Audit* with heated discussions. Mr. JIANG Haiying from the Secretariat of ASOSAT WGEA moderated the session. A total of 5 presentations were made on the afternoon of 29th January.

11. Applications of Big Data Technology in Resource and Environmental Audit

Mr. LI Yin, representative from SAI China, presented IT Application in Resource and Environmental Audit in 3 aspects:

(1) Development of data processing –Big Data is a key variable in transforming entirely the data processing model from sampling to target groups to resolve the restrictions of data access, data collection and data analysis. It also changes the use of secondary data to primary data processing entirely and reporting the results immediately. The objectives are to ensure that audit results are accurate, reliable and to find the correlation of all factors rather than assumptions expected.

(2) Benefits of Big Data for solving the problems of audit: Incomplete information about the location, quantity, quality of natural resources does not enable the auditor to identify the problems. Big Data has in-depth geographic information, identification of the maps, coordinates, automatic monitoring data as well as other relevant information, thus allowing the auditor to use information and analyze the problems for solutions. Besides, data of many agencies related can be processed for the accurate audit results.

(3) Use of Big Data for the environmental audit - SAI China has established a database for the environmental audit. The sources of environmental information gathering are created, including the land, mine, water, forest, grass and other sources of natural resources. The persons responsible for gathering geographic information from the survey

are also identified, including identification of geographic coordinates by air.

12. IT Application in Environmental Audit in India

Mr. Pushkar Kumar, representative from SAI India, uses the EXCEL program for data collection, processing from collected primary data in diagram and graph forms. For example, concerning the study of water quality, SAI India records information on water samples, standard values and analyzes the deviations by EXCEL program. For complex data, SAI India uses the Tableau to analyze and process the results in the form of Visualization. Furthermore, Remote sensing is used to assess the areas for the audit. Geo-tagging is also used, including the use of Crowd Sourcing Application to brainstorm.

13. Implementation of Mobile Geospatial Technology

Mr. Whidas Prihantoro, representative from SAI Indonesia, presents the case of the operational audit of Health Center (Puskesmas) on the east coast of Indonesia. Auditors use the Geographic Information System (GIS) as a tool for area inspection and Survey123 for GIS to collect data in the form of questionnaire showing the results of satisfaction in the health center.

He pointed out the benefit of Survey123 for GIS, being an easy-to-operate tool. The surveyed persons can enter information in the application installed on the phone and all data will be sent to SAI Indonesia for processing. Thus, data obtained is spatial and accurate. The most important thing is data security.

14. IT Application in Environmental Audit - Audit on Hazardous Waste Management

Mr. Kim Burmshik, representative from SAI South Korea, presented the case of Audit on Hazardous Waste Management of the Ministry of Environment of Republic of Korea (MOE). The objective was to inspect the hazardous waste management process, started from waste disposal, storage, transportation, waste treatment, which is the responsibility of MOE. The MOE used a management database system called 'Allbaro System' to analyze data together with the National Institute of Environmental Research (NIER), including various statistics and policies related.

In the audit process, auditors collected information from Allbaro System, NIER, relevant agencies, and experts in environmental quality assessment, including waste samples from the field to analyze the audit results. The problem was plenty of collected information from many units, thereby increased the audit period. Thus, auditors used BARRON System to handle this problem. The system's processing will compare all collected data with the assumptions set. Additionally, they used "BEST" operating system to gather all documents, evidences in electronic form, covering all steps up to result monitoring.

15. IT Application in Environmental Audit in Malaysia

Mrs. Nor Sabariah binti Abdul Wahab, representative from SAI Malaysia, introduced the uses of the Geographic Information System (GIS) for the environmental audit, including Remote sensing (RS), Geographic Information System (GIS), Global Positioning System (GPS) and Information Communication Technology (ICT). She gave an example of the audit on the project for coastal erosion prevention and river mouth dredging. The audit and the monitoring of results were performed by using aerial photographs comparing coastal conditions in each operational phase so as to get quick and reliable information.

On 30th January, the seminar continues with the Forum for *Featured Practices in Environmental Audit* with fruitful discussions. Mr. XING Jianfeng from the Secretariat of

ASOSAI WGEA moderated the session. A total of 16 presentations were made to share the experiences among participants. The seminar began with a presentation by SAI Thailand.

16. Lessons Learned in Developing Environmental Audit – by Dr. Sirin Phankasem, Deputy Auditor General, SAI Thailand

Focusing on how to strengthen and maintain environmental audit in Thailand, Dr. Phankasem's presentation divide into 3 parts. She firstly shared the development story of environmental audit of SAI Thailand. It began from a 9-month fellowship program in Canada in August 2005 in which she learned to outline a strategy to integrate environmental issues more fully into the audit works of SAI Thailand. Starting from this point, SAI Thailand formed the environmental audit team to conduct a trial environmental audit in May 2006 with successful results. They began to develop the environmental audit by learning good practices from other SAIs. In 2010 SAI Estonia, then Chair of INTOSAI WGEA, was invited to be the instructor and share knowledge and experience. Later SAI Thailand participated in several international events to introduce their own environmental audit. In September 2017, a brand new office called the Environmental Audit Office is set up.

Dr. Phankasem further mentions that environment involves in every part of the budget allocation of the country. Now that we know environmental audit, we study more about environmental aspects, study more about best environmental practices both nationally and internationally. The environmental audit recommendations can suggest the agencies to reduce environmental risks, put in place better mitigation measures, and improve environmental project management. All of these aim for better environment and better quality of life of the people. That is the true values and benefit of environmental audit.

As for the future of environmental audit, she says that SAI Thailand will move forward to global issue and sustainable development, instead of focusing only on 3Es of environmental projects and programs. They will integrate UN 17 sustainable development goals or SDGs into the works of SAI Thailand, to monitor how well the government agency working in regard to environment and sustainable development, engage multi-discipline experts to deal with the complexity of the UN goals, and disseminate the environmental audit reports prevalently, in order to help the whole nation realize the important of environment and its impacts.

17. Performance & Environmental Audit in Afghanistan.

Mr. Ahmad Shekib Hamraz from SAI Afghanistan made a presentation on "Performance and Environment Audit on Municipality Office Activities during solar years 1391-1393". He began with the overview of SAI Afghanistan and its roles in environment audit and then introduced audit objectives, criteria, scope and findings of the audit conducted. Mr. Hamraz presented the major audit finding on performance and environmental audit covered the performance and transactions of Kabul Municipality viz the probability of rabies in entire Kabul city, Kabul River placed huge amount of waste, etc. He also talked about the response to audit finding and action taken by audited entity.

18. Timber Harvesting in Bhutan.

Mr. Prem Mani Pradhan representative from SAI Bhutan made a presentation on "Environmental Audit Timber Harvesting in Bhutan". He explained the importance of protecting and conserving environment as one of the pillars of Gross National Happiness, the development philosophy of Bhutan. It has been found that the using timber in Bhutan has increased because of the construction and economic development in the country. SAI Bhutan planned to examine whether the harvesting operations in the country are aligned to such Constitution mandate. He emphasized the importance of using Geographical Positioning

System and Geographical Information Software to collect and analyze map data and to identify the areas of timber harvesting and protected areas. Mr. Pradhan discussed the audit objectives, methodology, audit findings, recommendations, audit impacts and concluded about challenges faced in conducting the audit

19. Environmental Performance Audit on climate change resilient participatory Afforestation and reforestation project.

Mr. Abdul Alim Talukder representative from SAI Bangladesh started with the overview of SAI Bangladesh and explained about country perspective. He informed that SAI Bangladesh has a Performance Audit Manual and Guidelines but not yet prepared separate Environment and Climate Audit Manual/Guidelines.

Focusing on environmental performance audit on “Climate Resilient Participatory Afforestation and Reforestation Project (CRPARP)”, Mr. Talukder discussed the audit objectives, audit scope, and audit findings. He emphasized on lack of expertise of the performance audit on forest. He added that target for environmental and climate audit activities should be included in strategic and operational plan of SAI. Moreover, SAI should strengthen its capacity to carry out environmental performance audit.

20. Accountability Audit of Natural Resource–Asset over Out-going Leading Officials

Mr. LI Yin from SAI China introduced that China has proposed the all-round economic, political, culture, social and ecological advancement and has included green development into its vision along with innovative, coordinated, open and shared development for building a systematic and complete ecological civilization system. He explained the use of Big Data for environmental audit that based on Geographic Information Technologies. The case of audit that focused on branch of the Yangtze was presented at the meeting with audit objectives, audit procedures and methodology. He concluded by mentioning that pollution treatment accelerated with the good results.

21. Featured Environmental Audit Practices in SAI India

Mr. Pushkar Kumar, representative from SAI India, informed that SAI India has conducted 5 environmental audits during 2013-2017. He also discussed a case study of audit projects related to water issue: Performance Audit on Rejuvenation of River Ganga- Namami Gange, Ministry of Water Resources, River Development and Ganga Rejuvenation. Mr. Kumar elaborated audit methods adopted, audit objectives, audit results, and highlighted the failure to monitor quality of Ganga river.

22. Water Environment Auditing in Iran

In his presentation, Mr. Majid Shokri Pasha, representative from SAI Iran, introduced their experiences on water environment auditing in Tehran province during the years of 2012-2016. He explained the importance of the water resources that there are opportunities to develop human health and environment for future. Mr. Pasha discussed the background information, audit objectives, methodology, audit findings, and recommendations.

23. The Role of FBSA in Auditing State's Policy for preserving biodiversity in Iraq

Dr. Yousif Mohammed Yousif, representative from SAI Iraq, introduced the audit program basing on standard guidelines and evaluating the performance of entities in term of compliance with relevant laws, regulations and instructions. He elaborated the reasons for choosing the topic of “State’s policy weakness in managing the strategic plans to preserve biodiversity”, audit objectives, audit methods, audit result, audit conclusions, and audit recommendations. SAI Iraq uses sub matrix to prioritize risks during the implementation. He

also briefed about the challenges faced, such as lack of specialized environmental legislations and expertise of personnel on environmental activities.

24. Featured Environmental Audit Practices in Japan

Ms. Eriko Tsuchiya, representative from SAI Japan, described the overview of how her SAI conducts audits with the objective of ‘3E’ including the features, implementation system and environmental policies and environmental conservation in Japan. She also presented a case study on disposal of disaster waste resulted from the Great East Japan Earthquake for 3 years from 2012-2014 in terms of subjects, methods, audit findings and results. SAI Japan conducted audits with the objective of regularity and effectiveness, focused on treatment outside the disaster -stricken area, construction of facilities for waste management. Auditors also focused on whether the budget related to the disaster waste management was properly executed.

25. Review Government’s Preparedness to Implement Sustainable Development Goals in Jordan

Mr. Ibrahim Farhan Almajali, representative from SAI Jordan, elaborated preparedness of Jordanian Government to implement its voluntary decision to adopt United Nations SDGs by 2030. He explained 7-steps model framework that developed by Netherlands Court of Audit (NCA) and the European Court of Auditors in 2016, to review the government preparedness to implement SDGs, steps (1-4) concern about policy framework, and steps (5-7) concern about data framework. He mentioned Jordan’s Roadmap towards ownership and achievement of SDGs in the 2030 Agenda. He also briefed about challenges faced in reviewing works.

26. Featured Environmental Audit Practices in Kazakhstan.

Mrs. Batima Mukina, the representative of SAI Kazakhstan, introduced some recent innovations and new achievements of SAI Kazakhstan. SAI’s role in Kazakhstan in promoting green development model was based upon current law. There exist the different forms of environmental auditing in Kazakhstan, undertaken by the Ministry of Energy more technically based on special procedures and SAI on environmental expenditures using “3E instrument”. There has been a transformation process of the whole system of public auditing in the last three years. Currently a special paper was proved by SAI which includes some of the tools and techniques used in environmental auditing which will be submitted.

SAI Kazakhstan conducted “The performance audit in the Forestry and Wildlife Committee of the Ministry of Agriculture of Republic of Kazakhstan on the state assets and budget funds allocated for the conservation and development of natural resources” in 2017. Mrs. Mukina presented further a specific and prominent case of an environmental auditing performed in 2017, covering audit objectives, methodology, audit findings, experiences and challenges, etc.

27. Management of Solid Waste in Pakistan.

Mr. Fahad Haroon Aziz, representative from SAI Pakistan, informed that management of solid waste in Pakistan has become an issue of major concern due to increased quantity and complexity of generated waste. Main causative factors behind this continually growing problem are rapid growth in population, urbanization, industrialization, unplanned annexation/development of cities, improper planning & management of solid waste, lack of social awareness and insufficient resources, etc. He explained the audit objective, scope of audit, methodology, audit criteria, audit findings and recommendations. Besides, He briefed about challenges faced in lack of proper documentation and cooperation by private health care institutions in providing information regarding their waste management

practices. He concluded that the sharing of audit activities on environmental subjects by SAIs at the forum of ASOSAI will help in the capacity building of SAIs. The ASOSAI members need to engage more and more in cooperative environmental audits.

28. Evaluate the Effectiveness & Efficiency of the Government Plans to Audit the Nature Reserves.

Mrs. Nourah S Alsubaiei and Ms. Farah A Al Farhan, the representatives of SAI Kuwait presented the role of SAI in the audit of nature reserves to ensure their preservation and good management, and areas of benefit. The main aspects of audit covered: i) efficiency and effectiveness of the Plans, ii) efficiency of preserving the environmental wealth at the nature reserves, iii) compliance with the approved International Agreements on nature reserves. The most significant recommendations related to high risks were:

- Consider coordination among the concerned authorities, to take benefit from the financial resources included to complete the projects.
- Study the reasons for non-disbursement and delay in the implementation of some projects and programs of the Environment Public Authority and to avoid funds allocation without benefiting from them.
- Study the time of projects implementation to reinstatement of impaired land and marine environment, including the restoration of vegetation and the completion of net fences for nature reserves areas, to avoid the extension of some contracts period and the implementation and completion of projects on schedule.

29. Audit on Water Resources Management in Malaysia

With an overview of the establishment of water audit division, Mr. Amirruddin bin Abdul kadir, representative from SAI Malaysia, informed the audit objective, audit methodology, audit finding, and audit recommendation. She also mentioned that since water jurisdiction was under 13 states government, auditors faced some challenges follows:

- Need involvement a number of audit teams from various states;
- Proper communication and coordination with state auditors in preparing audit findings, report and recommendation; and
- Need to engage with various water management stakeholders.

In way forward, the study on water resources management will be continued such as audit review of water supply for drinking purposes and non-revenue water management for the year to come.

30. Auditing Solid Waste Management in Kathmandu Metropolitan City.

Mr. Mohadatta Timilsina, representative of SAI Nepal, stated background information of the audit, audit objective, audit methodology, and results of audit. He shared some experiences and challenges as follows:

- As per Local Self-Governance law of the country, KMC is not an entity mandated to be audited by the SAI Nepal. This fact posed some challenges.
- Since this was first environmental audit conducted by SAI Nepal, auditors had no previous knowledge, experience and skill.
- WGEA seminar of this kind will be helpful for our SAI to share knowledge, experience and skills in ASOSAI community.

31. Environmental Auditing- Progress in Pakistan

Mr. Muhammad Saeedullah Yousafzai, representative from SAI Pakistan, started with the overview of serious environmental problems in Pakistan viz soil erosion, urban pollution, air pollution, water-logging & salinity, etc. He explained the most important role of SAI

Pakistan in environmental auditing to encourage greater transparency and informed decision. Mr. Yousafzai also presented the case study on “Social Forestry project at Malakand” in terms of background information, audit objectives, methodology, audit findings and recommendations.

32. Featured Environmental Audit Practices in Russia

Mr. Sergey Neroev, representative from SAI Russia, presented the State Priorities in the field of Environment Protection which consist of Environmental Security Strategy until 2025, Basic Principles of the State Environmental Development Policy, and Climate Doctrine. He mentioned about actions and activities of State External Environmental Audit and also informed about the Audit on Forest Fire Protection and its results.

Mr. Sergey described the cooperation results of SAI Russia with other SAIs in the field of Environmental Audit as follows:

- Intensified work in terms of the Agreement between two countries in the field of environment protection.
- Development of documents on improvement of methodological support of the state monitoring of trans-border water bodies.
- Accelerated ratification of Intergovernmental Agreement on forest fire prevention.

33. Audit of Wastewater Management and Treatment Activities in Khanh Phu Industrial Zone.

Mr. Hoai Doan Le, representative from SAI Vietnam, introduced the audit objectives, criteria, audit methodology, and audit findings in his presentation. He also shared some experiences and challenges as follows:

- In Vietnam, Environmental Audit was a new field. Majority of auditors does not have a lot of knowledge, skills and experiences in this field. So that, it was very difficult in planning and conducting audits related to the environmental field.
- Currently, without any environmental audit standards that have been established in line with the actual context in Vietnam. Most of the standards used for environmental audits in general and audit of the industrial wastewater treatment in particular were mainly based on INTOSAI and ASOSAI standards.
- Additionally, awareness of audited units on environmental audit are not high, so that it has become harder in communicating and coordinating effectively with them.

The 6th Working Meeting of ASOSAI WGEA was held on the afternoon of 30th Jan., just after the seminar. Mr. JIANG Haiying, from SAI China, moderated the meeting.

I. Revision of Procedural Rules of ASOSAI WGEA.

Mr. XING Jianfeng, representative from the Secretariat, made a presentation on the revision of Procedural Rules of ASOSAI WGEA. The first version of Procedural Rules was adopted at the 2012 meeting in Penang, Malaysia, it need to be updated after the fast development of many activities. Mr. XING presented the key revisions including more align with roles and responsibility of INTOSAI WGEA, expansion of the duties of chair and secretariat, and launch of the cooperative audit and research project. He also presented to the meeting main content of the revised Procedural Rules.

A total of 5 SAIs (Bangladesh, Japan, Jordan, Kazakhstan, and Kuwait) sent the comments and suggestions before the meeting. Representative from SAI India, Jordan, Japan,

and Iraq raised some recommendations and inquires regarding the wording of text and cooperative audit at the meeting. The Secretariat gave the explanations to the questions.

After the discussion, **the revised Procedural Rules of ASOSAI WGEA has been endorsed** by member SAIs at the meeting.

The secretariat also raised additional proposal to establish the award for the meeting to encourage the environmental audit in ASOSAI region. The idea came up when they received more than twenty papers which some of them are very good, maybe at the next meeting the award will be established for best paper.

II. Proposal on Conduct of Cooperative Environment Audit

According to the script of intention there were **10** SAIs expressed their intention to participate in this project, including Bangladesh, China, Indonesia, Iraq, Jordan, Kazakhstan, Kuwait, Malaysia, Nepal,,Sri Lanka and Thailand. SAI Thailand also expressed their intention to lead this project. In addition, while SAI India will not be in a position to participate in the cooperative audit, they offer to share their experience of recent Performance Audit of Rejuvenation of River Ganga (Namami Gange) and their earlier Audit on Water Pollution in India.

The meeting adopts the proposal, and decides that ASOSAI WGEA will launch the cooperative audit on water environmental protection. A total of **10** SAIs are going to participate in this project and it will be led by SAI Thailand. The team of this project will design the next stage on how to proceed the cooperative audit. SAI China also volunteers to host the face-to-face meeting at appropriate stage of the project if necessary.

The secretariat also added that, even if the list has been approved and after the leading SAI take the lead to draft the cooperative audit schedule or plan, other members of ASOSAI WGEA still has the opportunity to join, so this is not the final list. They encourage more SAIs to join as the plan is intended to finish at the end of this year.

III. Proposal on Launch of Research Project

The secretariat informed to the meeting that the proposal of research projects was based on surveys conducted before this meeting. The proposal listed 4 topics: *Audit of Poverty Alleviation and Living Environment Improvement in Rural Areas*, *Audit of Mining Development Control and Heavy Metal Pollution Prevention*, *Audit of Wetland Ecosystem*, and *Application of Big Data Analytics in Environmental Auditing*.

For the first Topic, 6 SAIs expressed their interest, namely Bangladesh, Iran, Kazakhstan, Nepal, Pakistan and Vietnam, however, none had expressed interest in leading the topic. For the second Topic, 2 SAIs expressed interest, namely Iran and Malaysia. For the third topic, only one SAI of Iraq expressed interest. And for the last Topic, **6** SAIs expressed interest, namely Bangladesh, China, India, Indonesia, Kazakhstan and Kuwait, and SAI China expressed their interest in leading this topic.

The meeting decided to launch the research project of *Application of Big Data Analytics in Environmental Auditing* in the following 2 years led by SAI China, with Bangladesh, India, Indonesia, Kazakhstan and Kuwait as participants. However, the door is still open for other SAIs to join before the end of March. SAI China offered to host face-to-face meeting in China for this research project in connection with the cooperative audit meeting.

For the first topic, the Secretariat would consult with the participating SAIs and decide who will lead the project, and there still time for decision to launch this project until the end of March.

IV. Next Seminar and Meeting

The secretariat informed the meeting of early consultation about the host of next seminar. The representative of SAI Bhutan informed that the Auditor General of Bhutan had approved the hosting of next seminar and working meeting of ASOSAI WGEA, the tentative time would be between February and May in 2020. Moreover, the Kazakhstan representative announced that SAI Kazakhstan kindly agreed to host the meeting in 2022.

The meeting decided that SAI Bhutan and Kazakhstan would host the next seminars in 2020 and 2022 respectively.

PROGRAM

SATURDAY, 27 January 2018

Arrival of Delegates in Bangkok

SUNDAY, 28 January 2018

Excursion

09:00	Depart from Bangkok
12:00 - 14:00	Lunch at Farm Chokchai
14:00 – 16:00	Farm Tour
17:00	Arrive at Hotel, Khao Yai

Welcome Cocktail

18:30	Welcome cocktail hosted by OAG Thailand
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MONDAY, 29 January 2018

Morning

08:30 - 09:00	Registration
09:00 - 09:45	Opening Ceremony
	Welcome Address by:
	General Chanathap Indamra, Chairman of SAI Thailand
	INTOSAI WGEA Remarks by:
	Mr. Moermahadi Soerja Djanegara, Chairman of SAI Indonesia
	The Chair of INTOSAI WGEA
	Opening Address by:
	Ms. Qin Boyong, Deputy Auditor General of SAI China
	The Chair of ASOSAI WGEA
09:45 - 10:00	Group Photo

- 10:00 - 10:20 **Tea Break**
- 10:20 - 11:00 **Keynote Speech by:**
Ms. Qin Boyong, Deputy Auditor General of SAI China
The Chair of ASOSAI WGEA
- 11:00 - 12:00 **Presentation by:**
Dr. Adis Israngkura, Prof. Of School of Development Economics,
National Institute of Development Administration
- Lunch**
- 12:00 - 13:30 **Lunch** at Musi Grill
- Afternoon**
- 14:00-15:30 **Work Reports:**
Report of ASOSAI WGEA by:
SAI China
The Representative of Chair of ASOSAI WGEA
Report of INTOSAI WGEA by:
SAI Indonesia
The Representative of Chair of INTOSAI WGEA
Report of other Regional WGEAs
(AFROSAI, ARABOSAI, EUROSAI)
- 15:30 - 16:00 **Tea Break**
- 16:00 - 17:40 **Seminar on IT Application in Environmental Audit**
Presentation 1: Applications of Big Data Technology in Resource and Environmental Audit in China
SAI China
Presentation 2: IT Application in Environmental Audit
SAI India
Presentation 3: Implementation of Mobile Geospatial Technology
SAI Indonesia
Presentation 4: IT Application in Environmental Audit - Audit on

Hazardous Waste Management

SAI Korea

Presentation 5: IT Application in Environmental Audit

SAI Malaysia

Evening

18:30 - 20:00 **Official Dinner hosted by:**

Chair of ASOSAI WGEA

TUESDAY, 30 January 2018

Morning

09:00 - 09:10 **Lessons Learned in Developing EA** by the Host

SAI Thailand

09:10 - 10:40 **Environmental Audit Forum on Featured Practices**

Presentation 1: Performance & Environment Audit in Afghanistan

SAI Afghanistan

Presentation 2: Environmental Performance Audit on Climate Resilient Participatory Afforestation and Reforestation Project

SAI Bangladesh

Presentation 3: Timber Harvesting in Bhutan

SAI Bhutan

Presentation 4: Accountability Audit of Natural Resource-Asset over Out-going Leading Officials in China

SAI China

Presentation 5: Featured Environmental Audit Practices in India

SAI India

Presentation 6: The role of FBSA in supervising state policy for preserving biological diversity throughout Iraq

SAI Iraq

10:40 - 11:00 **Tea break**

- 11:00 - 12:00 **Audit Forum (Continued):**
- Presentation 7:** Featured Environmental Audit Practices in Japan
SAI Japan
- Presentation 8:** Review the Preparedness of Jordanian
Government to Implement Sustainable Development Goals
SAI Jordan
- Presentation 9:** Featured Environmental Audit Practices in
Kazakhstan
SAI Kazakhstan
- Presentation 10:** Environmental Auditing- Progress in Pakistan
SAI Pakistan

Lunch

- 12:00 - 13:30 **Lunch** at Musi Grill

Afternoon

- 13:30 - 15:00 **Audit Forum (Continued):**
- Presentation 11:** Evaluate the effectiveness & Efficiency of the
Government Plans to Audit the Nature Reserves
SAI Kuwait
- Presentation 12:** Audit on Water Resources Management by State
Government Water Management Authority
SAI Malaysia
- Presentation 13:** Auditing Solid Waste Management in
Kathmandu Metropolitan City
SAI Nepal
- Presentation 14:** Management of solid waste in Pakistan
SAI Pakistan
- Presentation 15:** Featured Environmental Audit Practices in
Russia
SAI Russia
- Presentation 16:** Audit Management and Treatment Activities of

Wastewater of KHANH PHU Industrial Zone

SAI Vietnam

15:00 - 15:30

Tea Break

15:30 - 17:30

The 6th Working Meeting of ASOSAI WGEA

- Revision of Procedural Rules of ASOSAI WGEA
- Proposal on conduct of Cooperative Environmental Audit
- Proposal on launch of Research Project
- Next seminar and meeting

Evening

18:30 - 20:00

Farewell Dinner hosted by:

OAG Thailand

WEDNESDAY, 31 January 2018

Study Tour

07:30 - 08:30

Breakfast

09:00

Depart from Hotel

10:00 - 12:00

Visit Khao Yai National Park

12:00 - 14:00

Lunch at Khao Yai National Park

14:00

Leave for Bangkok

18:00

Arrive in Bangkok

THURSDAY, 1 February 2018

Departure of delegates

LIST OF PARTICIPANTS			
No.	Country	Name	Position
1	Afghanistan	Mr. Ahmad Shekib Hamraz	Head of Performance and Environment Audit
		Mr. Asadullah Hameedi	Auditor of Performance and Environment Audit
		Mr. Shawkatullah Azizi	Auditor of Performance and Environment Audit
2	Bangladesh	Mr. Masud Ahmed	Comptroller and Auditor General
		Mr. MD Abdul Alim Talukder	Deputy Director
3	Bhutan	Mr. Prem Mani Pradhan	Deputy Auditor General
		Mr. Sonam Tenzin	Senior Auditor III
4	Cambodia	Mr. Chea Sophat	Director
5	Cameroon (AFROSAI)	Mr. Onya Valentine Bongado	Senior Advisor AFROSAI WGEA Secretariat
6	China	Mrs. QIN Boyong	Deputy Auditor General
		Mr. JIANG Haiying	Director General
		Mr. LIU Feng	Deputy Director General
		Mr. XING Jianfeng	Director
		Mr. LI Ying	Deputy Director
		Mr. ZHANG Jun	Program Officer
7	Estonia (EUROSAI)	Mr. Alar Karis	Auditor General
		Ms. Tuuli Rasso	Head of International Relations and Secretariat of EUROSAI WGEA
		Mr. Matis Mägi	Senior Auditor

No.	Country	Name	Position
8	India	Mr. Pushkar Kumar	Director
9	Indonesia	Mr. Moermahadi Soerja Djanegara	Chairman
		Mr. Yudi Ramdan Budiman	Head of Public Relations and International Cooperation Bureau
		Mrs. Juska Meidy Enyke Sjam	Head of Evaluation and Reporting Directorate
		Mr. Whidas Prihantoro	Senior Auditor
10	Iran	Mr. Ataollah Norouznezhad	Director General (Supreme Audit Court of Ilam Province)
		Mr. Majid Shokri Pasha	Deputy Director General (Supreme Audit Court of Tehran Province)
11	Iraq	Mr. Saad Ali Jalal	Acting General Director
		Mr. Hazim Ali Hasan	Audit Team Leader Assistant
		Mr. Yousif Mohammed Yousif	Engineer
		Mrs. Siham Khudhair Abbas	Translator
12	Japan	Mr. Kazuyoshi Suzuki	Senior Director, Environment Audit Division
		Ms. Eriko Tsuchiya	Section Chief, Office of International Affairs
13	Jordan	Mr. Ibrahim Farhan Almajali	Secretary General, Excellency
		Mr. Wasfi Abder-Rahman Alodwan	Head of Performance Audit Division
14	Kazakhstan	Mr. Kanat Kenzhin	Advisor to the Chairman
		Mrs. Batima Mukina	Senior Consultant-Public Auditor of the Department for Public Audit

No.	Country	Name	Position
15	Korea	Mr. Jung Inso	Senior Director
		Mr. Kim Burmshik	Deputy Auditor
		Ms. Hong Soyoun	Deputy Director
16	Kuwait	Mr. Rashid A.Y.A.M. Abdulsalam	Principal Engineer
		Mrs. Nourah S Alsubaiei	Participant Auditor
		Ms. Farah A Al Farhan	Assistant Auditor
17	Lao PDR	Mrs. Viengvilay Sengxayalath	Deputy of Division
18	Malaysia	Mr. Amirruddin bin Abdul Kadir	Assistant Audit Director
		Mrs. Nor Sabariah binti Abdul Wahab	Senior Assistant Director
19	Nepal	Mr. Mohadatta Timilsina	Deputy Auditor General
		Mr. Tara Prasad Ghimire	Director
20	Pakistan	Mr. Fahad Haroon Aziz	Director General/Member Finance, CDA
		Mr. Muhammad Saeedullah Yousafzai	Director Establishment of Auditor of Pakistan Office Islamabad
21	Philippines	Ms. Merla C. Bagsit	State Auditor V
		Ms. Virginia A. Lero	State Auditor IV
22	Russia	Mr. Sergey Neroev	Director
		Ms. Marina Mazykina	Chief Specialist

No.	Country	Name	Position
23	Thailand	Ms. Nomjit Sungdanjak	Director of Environmental Audit Office
		Mrs. Chalida Somwongsiri	Auditor, Professional Level
		Mr. Nattawut Chuisamrarn	Auditor, Senior Professional Level
		Mr. Jettarat Sahananporn	Auditor, Practitioner Level
24	Vietnam	Mr. Hoai Doan Le	Head of Division, Division of Environmental Auditing, Department of International Cooperation
		Mr. Hanh Viet Nguyen	Officials